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PRICE AND PRICE POLICIES

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PRICE AND PRICE POLICIES

BY

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FIRST EDITION
FOURTH IMPRESSION

McGRAW-HILL BOOK COMPANY, INC.
NEW YORK AND LONDON
1938

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TO
THE MEMORY OF
MARY HARRIMAN RUMSEY

PREFACE

IN THE summer of 1934 the President set up a Cabinet Committee on Price Policy. A subcommittee was appointed to insure independence and to give general direction to the work. A small staff, never in excess of five, at times reduced to two, was engaged in the venture for a period of more than three years. As they were ready the reports were given a limited confidential release among officials of the government. Now a number of them, because of their general interest, have been gathered into this book for a wider circulation.

As the staff began its work, it quickly appeared that the literature of industry was inadequate to the demands of price policy. Accounts of how in general industry is organized and how in the abstract prices are made were available in abundance. Yet, with notable exceptions, little was at hand upon the structures of particular industries, their distinctive habits, their unique patterns of control, and the multiplex of arrangements—stretching away from technology to market practice—which give magnitude to their prices. At the time there was a need for specific information as a basis of administrative action. Yet it was at once evident that the situations with which recovery had come to grips were of long standing, that measures had to be shaped to the web of practices long in the making, and that the inquiry was concerned with matters which must remain of public concern for an incalculable time. If a bit of guidance was to be given to the details which add up to public policy, it was necessary to get down to concretions.

In this volume, for all its crowded pages, it has been possible to include only a limited number of the resulting inquiries. Each of the seven clinical reports gathered here presents a picture of the habits, arrangements, and practices which give to the industry in question its individuality. They are as sharply different, with identities as unmistakable, as the persons of a play. No pattern from without—however authoritative its repute—has been imposed upon the affairs of an industry; each has been made to reveal its distinctive quality. A usage or practice fully set forth in one study receives only nominal mention in another. But, even with such devices of economy, it has been impossible to comprehend the whole subject. The aim has been to select, from the materials at hand, cases at once typical and unlike in order that the sum of the reports may encompass as much of industry as their limited number will permit.

In all the reports an attempt has been made to be as concise as concretion will allow. Every detail, every illustration, has had to do duty

PREFACE

for many. Save for an occasional word which is the coinage of folk in the trade—what circumlocutious phrase could tell as much as bobtail, fly-by-night, kick back, or under-the-canopy?—a technical vocabulary has been avoided. There is little about industry worth the knowing which cannot be set down in terms which the intelligent layman can understand. Thought cannot be pent up within rigid verbal symbols; its communication is rather a matter of idiomatic speech. A meaning that carries from mind to mind lies in the association of ideas through the words of the flexible sentence.

In these pages no attempt has been made to represent things industrial as truer, simpler, and more abstract than they are. Industry is a tangle of human behavior caught in the tumultuous course of events. Its conduct is full of drama, of color, and of life. A writing that limits itself to the bare bones of items verifiable by document, that leaves out of account the results that are to be had only through the exciting drudgery of first-hand contacts, that smothers state of opinion, everyday behavior, and intangibles beneath abstract category and abstruse statement is untrue to that which it professes to depict.

The opinions expressed in this volume are personal. The studies bear neither the approval nor the disapproval of the Cabinet Committee on Price Policy. The earlier drafts were presented to the agencies concerned with their problems as confidential reports—not as documents in quest of official revision and an imprimatur. Yet if in approach, analysis, argument, and style these reports bear the marks of the distinctive crafts of those who made them, they are all touched by a group authorship. Persons who were at one time or another members of the staff—and for whose contributions space could not be found in this volume—participated in the endless discussion and mutual criticism which attended the progress of the inquiry. The comparison of industry with industry was indispensable in sharpening outline and in giving perspective. In a very real sense McClellan Butt, William Blaisdell, Robert Hallowell, Edward Hincks, Clem Linnenberg, Louise Eisenlohr, Evelyn Thompson, and Florence Till are to be numbered among the authors of this book.

And authorship reaches far beyond the "Price Study Staff." It is utterly impossible here to give credit to—or even to list the names of—all who have helped in capturing these industrial pictures. Public officials, persons connected with the industries, and students of the economic order have generously contributed with interview and detail, with opening sources of information, with analysis and side light, and with criticism of preliminary drafts of these reports. Even to catalogue their names and to set down a single line of reference for each would fill many pages. Here no more than a general acknowledgment of indebtedness can be made in an anonymity which absolves all from the shortcomings of this

PREFACE

volume. There is, however, no such escape for the subcommittee on price policy: Isador Lubin, Commissioner of Labor Statistics; John Dickinson, formerly Assistant Attorney General in charge of the Anti-trust Division of the Department of Justice; and Thomas C. Blaisdell, Jr., Assistant Director of Research for the Social Security Board. Through all the vicissitudes attending the inquiry—which only those who have had experience of a professional officialdom can fully appreciate—they stood firm; and as its domicile was shifted from the Bureau of Labor Statistics, to the National Recovery Administration, to the Consumers' Division, and back to the Bureau of Labor Statistics, their interest went along. At all times they helped with fruitful suggestion and detailed criticism. The character of the volume is due in no small measure to their cooperation.

It is hoped that for a considerable time this book will retain its freshness and relevance. It is hardly to be expected that in the detail of content the separate reports will prove enduring. As time brings its changes, as fresh sources of information are opened, as new paths are blazed for the mind, as other adventurers linger over the engaging reality of these industries, the accounts here set down must be supplemented, revised, or even discarded for their betters. Although industries differ in nothing more than in the tempo of "progress," novelty comes and the threat of the new is ever in the offing. But particular after particular may be changed and yet the general lines of the picture continue to hold. Little by little what is here set down will become not quite so true for the automobile, for cottonseed, and for whiskey. Yet it is hoped that for some time to come this volume will not cease to tell the curious reader the manner of thing an industry is.

WALTON HAMILTON.

WASHINGTON, D. C.
March, 1938.

CONTENTS

	Page
PREFACE	vii
SECTION I	
THE AFFAIRS CALLED INDUSTRY.	1
By WALTON HAMILTON	
What Is Industry?	1
The Weaving of the Pattern	6
The Growth of Industrial Policy.	14
The Way of Concretion	22
SECTION II	
THE AUTOMOBILE—A LUXURY BECOMES A NECESSITY	27
By MARK ADAMS	
Within a Generation.	27
Price Explores a Market	28
Design—and Economic Planning	43
The Pattern of the Industry	52
From Assembly Line to Market.	66
The Shape of Borrowed Things	74
SECTION III	
THE AUTOMOBILE TIRE—FORMS OF MARKETING IN COMBAT.	83
By ALBERT ABRAHAMSON	
What Is a Tire?	83
The Demand for Tires.	85
The Struggle for Security.	89
The Hazard of Raw Rubber Prices.	92
The Emerging Market Structure.	98
The Duel of Independent and Chain.	108
SECTION IV	
GASOLINE—THE COMPETITION OF BIG BUSINESS.	117
By IRENE TILL	
The Price War	117
A Commodity in Redefinition.	120
The Retail Outlet—an Industrial Outpost	124
The Refinery and a Restless Technology	140
The Office of the Pipe Line.	146
Back to the Oil Well.	152
A Chapter in Public Regulation.	162
The Courts v. Petroleum.	175

CONTENTS

	PAGE
The Proper Agency of Control	189
Prices and Public Policy	194
SECTION V	
COTTONSEED—JOINT PRODUCTS AND PYRAMIDAL CONTROL.	201
By GEORGE MARSHALL	
The Significance of the Commodity	201
Price Movements and the Cotton Crop.	206
The Irrelevant Function of Price	215
The Form of the Industry	223
The Fabric of Trade Associations	237
Prices and Their Relation to Costs.	251
Labor Costs and the Welfare of Workers	266
The Sprawling Price Structure	269
The Case of Cottonseed Oil.	275
The Cases of Meal, Hulls and Linters	291
Summary.	295
SECTION VI	
DRESSES—THE IMPACT OF FASHION ON A BUSINESS	299
By HELEN EVERETT MEIKLEJOHN	
What Is a Dress Worth?	299
The Institution of Fashion	303
A Compromised Technology	310
The Stage and the Actors.	320
The Risks of Enterprise	324
A Note on Style Piracy.	336
The Jobber-contractor Puzzle.	341
The Risks of Employment	352
The Wholesale Market.	361
The Retail Market.	374
The Hazards of Dress Buying.	384
The Dilemma of Reform	389
SECTION VII	
WHISKEY—THE INCIDENCE OF PUBLIC TOLERANCE IN PRICE POLICY	395
By ALBERT ABRAHAMSON	
A Study in Paradox	395
The Peculiarities of Demand	396
The Price Structure	408
Attitudes and Taxes.	420
Policy—and the Level of Prices	426
SECTION VIII	
MILK—THE POLITICS OF AN INDUSTRY.	431
By IRENE TILL	
A Beginning with Milk.	431
The Basis for Demand.	433
The Petty Economy of the Farm	440
The Wedge of Big Business.	440

CONTENTS

	Page
Fluid Milk—a Sheltered Market.	461
The Politics of Price.	474
Reenter the State	497
The Consumer's Interest.	511
SECTION IX	
THE POLITICS OF INDUSTRY.	525
By WALTON HAMILTON	
Questions before Answers.	525
Wares and Their Prices.	529
The Relation of Price and Cost	536
Flexible Price as a Control	543
Toward Industrial Government	549
INDEX	557

SECTION I
THE AFFAIRS CALLED INDUSTRY

BY WALTON HAMILTON

WHAT IS INDUSTRY?

A LONG time ago a Christian saint declared somewhat abstractly that "we are severally members one of another." A little while ago the records of business, with all the concretion of some millions of entries in red ink, set down in a multiple factual account the dependence of individual upon individual within an organized community. The two events are separated by some nineteen centuries; and, during the long interval, the restlessness which keeps mankind forever upon the march has many times made over the order of society. The church has surrendered its overlordship to the state, and the state has lost its dominance to the business system. But as society has passed from a Christian hierarchy to a political democracy, to an industrial commonwealth, the tangle of personal activities into a none too orderly aggregate, upon which the welfare of every man rests, has endured.

A single round of prosperity to depression to prosperity is enough to underline the statement. For all our talk about it, the depression was no calamity apart. For all our bother over recovery, it presented no problem of its own. The crisis merely served to throw into sharp relief questions of economic order which for decades had been insistent. The industrial system seemed out of gear. The instrument upon which we depend for material wealth had curtailed its production of goods and services, constructive leisure, and opportunities for attainment. It had reduced incomes, taken from great numbers of men their employment, and no longer proffered in their former abundance the materials out of which a people were to fashion their welfare. But the object of solicitude was not the depression itself; if the stream of the good things of life ran low, it was not because of a sudden breakdown in the system, a thunderbolt from the unknown blue, or the act of a forgotten god. It had emerged in the confused course of events out of a series of situations which had gone before; the rigidities which in bad times had come to business enterprise were implicit in the arrangements under which in good times industry had carried on. Accordingly the real function of the depression was an analysis of the economic structure, and the significant question of recovery became reconstruction of industry.

PRICE AND PRICE POLICIES

Abundance is relative. In fat years we had managed to extract more from our human and material resources than in lean ones. But have we ever managed to obtain all—or even a reasonable approximation—of what they have to give? Is the art of subduing the mass of activities into an aggregate from which a population draws its miscellany of livings up-to-date or backward? Is the business unit an efficient instrument of production which does its work neatly and with dispatch? Does it seize every device for improvement, keep abreast of developing technology, fight ardently against waste, and minister diligently to the expanding wants of its customers? Are firms drawn deftly together into industries which present tidy structures and go efficient ways? Are kindred activities closely interlocked and are industries tightly articulated into a system which can take the impact of time and change and carry on? Is the whole affair sturdy enough to take in its stride the buffets which unforeseen events must bring? Is it flexible enough to assimilate novelties and to make the necessary accommodation to changing circumstances? In all things human concessions must be granted to inefficiency and waste; an indulgence must be allowed to an imperfect foresight which cannot guard against the unknowns which lie ahead. And there are no absolute standards which can be invoked for certainty in judgment. But for all of that a crude and generous appraisal—that somehow weaves through the mass of incommensurables to an answer—can hardly escape the conclusion that the economic order yields far less of the wherewithal of living, leisure, and opportunity than even as a minimum we have the right to expect from it. It has served us none too well, is only partially under our control, and still presents a turbulence that awaits the domesticating touch of the future.

The depression has presented only the occasion for a summons to judgment. The instrument upon which we all depend for the stuff out of which to fashion livings and lives is today called "industry." The word is as fresh as its meaning is abiding. It came into the language—along with electricity, the skyscraper, the chamber of commerce, and high-pressure advertising—as America staged its own bigger and better industrial revolution. A century and a half ago it would have come easily enough, but with an antique accent to the Fathers of the Constitution. In their own far-off tongue art was the verbal key to the workaday world, manufacture was the shaping by hand of the products of nature, and business—still busyness to the mind—was the state of being busy, whatever the object of one's arduous concern. So industry was a quality of perseverance, an indispensable ingredient of success, a personal habit of consequence to the rising commercial economy, a cardinal virtue inculcated by sermon, almanac, and example. It was an enduring trait of ant or bee that man might well emulate. In a world about to be given over to

INDUSTRY

business it behooved men who would get ahead to consecrate themselves to industry.

Like the good adjective it was, industrious stayed at home; the noun industry went out to roam in a society that was being remade. In the nineteenth century all that seemed established was being transformed; novelties were in search of names, and old words had to assume new verbal duty. As a process changes, an old term may obligingly go along. As the machine became the focus of production, the industry of the artisan became less important to the product than that of the shop. For a time the various factories which fashioned a single ware were separate establishments; but as a consciousness of mutual interest grew among their owners, a word was needed for the ensemble and industry moved into the newly created verbal position. Since abstractions first came into the world, men have employed a general term for the miscellany of activities upon which the community depends for the materials of life. Although the words include a great deal more, this aggregate of arrangements was comprehended within the "πόλις" of the Greek, the "res publica" of the Latin, and the "commonwealth" of the English. In the eighteenth century an elegant word "commerce" had come to describe all that goes to make up the money economy. As the machine, the devices of the corporation, and the ways of business came to make over the production and use of wealth, a new name was demanded by the revised system. The word "commerce" was outmoded; business was too suggestive of the acquisitive; and the economic order smacked of pedantry. So, amid the confusion that attended change, industry passed on and up and came into a new eminence. We speak now of "industry," of "industrial activity," and of "the industrial system." We are conscious of industrial order and disorder; we have witnessed an industrial depression, sought a return to industrial stability, and employed a national agency for industrial recovery. In verbal society industry has progressed from a worthy trait of plodding artisan to the scheme of affairs upon which the prosperity of a people depend.

Yet, in a literal sense, there is no such thing as industry. We have never consciously created an instrument for serving the needs of men with the stuff of the world. The lines of no economic order stand out in sharp relief. No series of ordinances sets down how material and human resources are to be tapped, how the progress of science and the useful arts is to be encouraged, how the mass of human endeavor is to be directed to an orderly end, how the myriad hungers of a people are to be satisfied. There is no one who speaks of "industry pure and undefiled," who regards himself as an industrial agent, or confesses his doings to be industrial phenomena. Instead, in all the world about us there is only a host of individuals, the doings of each of which are of primary concern to

PRICE AND PRICE POLICIES

himself. These people are engaged in a varied assortment of personal activities—the digging of coal, the smelting of ore, the assembly of automobiles, the marketing of milk, the advancement of personal fortunes, the conservation of family budgets, the betterment of mankind. The urges which carry them through the day's work, the motives which prompt clerical or heroic endeavor find expression in personal accommodations to the never-ending impact of circumstance. In homes, on farms, in factories, on the highways are millions of persons doing the millions of tasks that fall to their separate lots. They are human beings who engage in human activities and whose conduct is human behavior. It is amid this babble of tongues, this confusion of purposes, this drama of divergent dramas that industry is to be found. It is to be read between tangled and meandering lines by a resort to abstraction.

Industry is not—like frog or tree or coke oven or stock ticker—a name of something whose identity is concrete. It evokes verbal rather than visual memories; and a dozen artists called upon to reduce it to line and color would present as many separate pictures. Instead it is—like truth or beauty or due process of law or the categorical imperative—a term of the mind brought to the world of affairs. Amid particulars there must be significance and such a general word is essential to the larger understanding. Moreover a multiple affair like industry is affected with an interest to the whole community. One cannot make a living as butcher, baker, or candlestick maker, as artist, realtor, or advertiser, without engaging others in a host of transactions. The incidence of one's everyday activities falls upon lives far and near; and today's activities are born of yesterday's and resound into an ever-enduring tomorrow's. The actions of individuals aggregate into a mass that has outline; they are caught up into a stream of events that has neither beginning nor end and moves forever on. Yet industry is rather more a concept of the mind than a verbal picture of a series of tangibles. It is a name for what is at best a loose aggregate of business units engaged in performing a single service or producing a single commodity. But the usual establishment turns out more than one ware, and competing goods may emerge from quite different technical processes. Moreover an industry, like an individual, is a part of all that it has met; it has a character, a structure, a system of habits of its own. Its pattern is out of accord with a normative design; its activities conform very imperfectly with a charted course of industrial events.

An industry is a response to a need of the people. The stream of activities which serve myriad individual purposes are the empirical arrangements which society has contrived to get done such gigantic tasks as feeding the people, keeping them in health, and blessing them with the necessities and frivolities of life. If we are to discover how much of an answer they are to the insistent needs of society, we must catch such

INDUSTRY

improvisations in sharp perspective, else we cannot understand, amend, or even rationally accept them. To that end we must take the way of abstraction for there is no other. But inquiry—however realistic its concern—must go the ways of hypothesis; the mind can see the general only through its own approach, the concepts it has set up, the procedures it has fashioned. Always it must be remembered that what is seen is as much a product of method as a reflection of the object of study.

Thus the simple affair thought of as industry is an aspect of a multiple reality which is many things else. It is the dual office of a single stream of human behavior which gives character to industry. Its service of two masters has been often remarked. In the early days of industrialism, when none could plot its novel course and laissez faire was the best of common sense, it was argued quite seriously that the community was best served by allowing every man to promote his own interest—that self-love was God's providence. At a later period, when with the shock of fresh discovery attention fell upon the evils of "capitalism," it was the fashion to create a great opposition and to damn "the acquisitive arts" as antisocial. The relation of individual benefit and social good presents alike correspondence and antithesis. Men living together cannot carry on without some regard to the interests of each other; there must be dealings, understandings, intercourse, relationship. Arrangements gradually grow up which curb the excesses of self-seeking, create channels for individual effort, and subdue multiple activities into a crude pattern. In time these win the sanction of the law, and there arises some agency of control—tribe, church, state—to impose something of a larger will upon its members. Thus there is somewhat of correspondence, for it is only through this aggregate of human doings that the necessities of a people are met. But antithesis likewise is always present. There can be no common denominator of the needs, the desires, and the aspirations of a people. The details of the arrangements which grow up transcend any pattern; its infinitude of concretions can never be brought under a single control. Purposes diverge and wills clash, and for them there cannot be even an approach to a perfect reconciliation. Usages must be accommodated to circumstance; customs must bend before departures. Commands from above are in general terms; they must be applied to situations out of life, and application goes by the way of interpretation and exception. Usage and command must alike meet the event which lies around the corner; they must fight for their lives against the novelties which time and change bring. An instrument for serving the community with the material means to welfare is forever in the making. It is more an actuality at one time and in one society than another and is never fully realized. Yet the stream of human behavior—which yesterday we knew as the trades, today we call industry, and tomorrow will dub with some other name—runs endlessly on.

PRICE AND PRICE POLICIES

Industry, therefore, has no origin in design; it is no mechanism artfully contrived for the performance of a social function. It is—to a very emphatic contrary—a work of communal authorship; a product of man, ingenuity, and the ages; an instrument in the service of society created by the petty accommodations of millions of men in endless procession to the changing circumstances of life. In its emergence it resembles the law. A long search for a way of justice created a combat by ordeal which little by little was transmitted into a trial at law. The common-sense notions of the community—themselves the product of centuries of development—are chiseled into general rules. As the years pass these general rules take on concretion as they are applied to the facts of a stream of cases straight from life. As the result of the continuous impact the rules are remade; the abstract sentences grow into a rich and colorful group of holdings; and the web of the law is forever being woven. Its emergence from the affairs of the people and the vast experience which has been caught up in its terms make it an instrument flexible enough in understanding hands ever to serve the cause of justice.

In like manner industry is a product of the people and of the generations. Its ways and its office run back into the unknown past. Its structure is the product of a long series of expediencies; its colorful reality cannot be caught up in a tropismatic formula of stimulus and response. It has, like any society however primitive or sophisticated, its distinctive ways of doing things; it has, like any other institution—marriage, property, education—a distinctive corpus of usages by which it carries on. An absence of model and the path of growth have left their mark upon it; the custom of yesterday rubs elbows with the trade practice not yet established; a series of fault lines, which cut athwart its outline, tells of a long record which still lives in its structure. A number of its separate industries appear to be products of different ages; yet, unlike as they are, they help to keep it a going concern. In industry, as in law, a rigid logic and a static analysis can present only a stereotyped outline of a growing thing. It takes another way of the mind to capture the color and drama, the variety and inconsistency, the refusal to abide, which are the essence of its being. It is impossible, however long and ardently the quest is pressed, to come upon anything like the whole of its reality. But, if we would discover, by example and in concretion, what manner of thing industry is, we must pursue a method of inquiry in harmony with the character of its growth.

THE WEAVING OF THE PATTERN

A dominant mark upon American industry is the rapidity with which things have come about. At the end of the last century the movie was a plaything; sixty years ago electricity was little more than a name; a round of a hundred years reveals the railway as an awkward nucleus of an

INDUSTRY

unforeseen system of national transportation. Things are in the saddle, and the course of adventitious events takes its tumultuous way down the decades. Against the irregular beat of its hurried march, a deliberate shaping of individual activities to an appointed pattern is impossible; at best only direction can be given to a flow of activities headed for the unknown.

In the United States in fewer decades than the fingers on the hands has occurred a social revolution. An economy of small farms and petty trade, with a bit of commerce on the fringe, has been converted into "the great industry." At the end of the Civil War there was a coastal plane with a few cities, a back country with a dotting of small towns, and a West which invited settlement. The small, all but isolated, farm was dominant. The family, committed to a subsistence agriculture, undertook to produce their own livings with their own hands and formed an all-but-priceless economy. The household group was well or poorly off as they were hard working, prudent, thrifty, and had the breaks of the seasons. The weather could bountifully give or stingily withhold; for, because of an undeveloped technique in agriculture, it was still nature and not the market which made years fat or lean. The face of the land was covered with these almost self-contained economic entities. Almost—for the town was near at hand, to which the farmer took his surplus of produce; discovered the strange phenomena of the market, money, and price; engaged in verbal combat in haggling over a bargain; established an indirect contact with places far removed; and brought away tobacco, tools, and the subscription to the county weekly.

But the small town—and the city beyond—were forerunners of another economy. The germ of a new industrial life was quickened by a revolution which began long ago, gathered momentum in the seventies and eighties, and still goes its thundering way down the new century. In a movement which has almost uprooted the old priceless economy, there are heroes—but never a villain, for the inventor and the businessman who set at large new forces did not consciously conspire to overthrow the old order. It all began innocently enough; the men who first converted coal into steam, set up a division of labor in a factory, or put a spark of electricity to work aimed at nothing more radical than tinkering with newfangled devices or reducing their costs of production. Yet, long before men were aware how dangerous these novelties were to all the ways of the fathers, the machine had gotten the run of the workshop and the usages of business had been accepted.

In the image of the machine process the factory grew up. The man who had been beast of burden was replaced by mechanical energy. The skilled artisan made way for the iron man. A transport by rail enlarged the market, enabled goods to be produced far from their places of use, and

PRICE AND PRICE POLICIES

gave to national trades local habitations. A lot of time-honored tasks—the baking of bread, the making of dresses, the supplying of milk—were lifted out of the home and became industries. A number of modern mysteries were added—the cracking of gasoline, the assembly of automobiles, the creation of motion pictures. Man escaped the home to office, store, or assembly line; and after a decorous interval woman began to follow. The farmer, bulwark of the old system, was dragged into the new; intractable as he was he became something of a businessman. There came into being an integration of interlocking activities as broad as the continent—a single entity of parts—far too much the product of hurry and confused objective to be well articulated. It all emerged as a great sprawling structure of goods, markets, prices, accounts, and credits. In the flux of change the individual was caught up; he had to take his labor, his products, or his property to market and there secure—so far as his purchasing power would make good the claim—a living that came literally from the ends of the earth. The order of business had emerged and threatened the supremacy of the political state.

Yet the emergence of industry has been no single clean-cut event. Its coming lies in a myriad of little changes, only a few of which have appeared significant in themselves. The march has been irregular and broken. The urge toward change has been opposed by the inertia that lets well enough alone. Industries have responded in their own distinctive ways to the prod of the advance; their several technical tasks have lent themselves easily or clumsily to the new ways of technology and of business. In the assembly of automobiles waste has been banished and standardization of parts and processes have given to slide rule and time clock a glorious victory. In bituminous coal the machine has made a staunch attack but as yet has not come to terms either with the conditions underground or with the independent ways of the miner. In women's dresses the human figure offers a stubborn obstacle to the rhythmic beat of the technique of precision. A large domain remains unconquered or has felt only lightly the sovereignty of business. The farmer speaks the language of industry with a slightly alien accent; he can channel his interests very imperfectly into the grooves of a commercial accountancy; his varied round of activities responds clumsily to the calculus of profits. The organization of the home, with its assortment of important tasks, lies half without the orbit of the money economy; here values persist and habits linger quite unlike the ways that prevail beyond the domestic frontier.

But if revolution has met resistance before which it must retreat, its force has been spent in new conquests. The great change is not in the past nor has it yet abated its force. In our society the occupations of men suffer a rapid obsolescence; there are few trades acquired in youth which stand men in stead as they enter their fifties. It is not unusual for an industry to

INDUSTRY

have to withstand the shocks of successive revolutions in methods of production. If innovations in organization and technical process—already at hand or in the offing—were suddenly to be released, the resulting disturbance would run through the whole social structure. As in time, so in space, industrialism continues its halting, ceaseless, undirected march. The machine and the corporation, the electric dynamo and the balance sheet, are today finding their way into China, India, and the idyllic isles of the South Seas. In lands far and near, men have become concerned about modern industry; and where interest lags business is there to goad. A curious blend of ancient usage and up-to-dateness marks the impact of the Occident upon the Orient. Where there is conflict something must go, but that something is not likely to be the use of the machine, production for the market, and sale at a price. In the future just ahead there is likely to be no return to the simple life and the good old days. Instead the lives of more and more of the peoples of the earth will be drawn under the remorseless compulsions of the price system; mankind must continue to make the best bargain it can with an industrial revolution which has no initial date and lacks a terminal one, which is at once a continuing process and an inescapable reality.

Industry bears the motley mark of all it has met. Into its emergence has gone some foresight, a bit of intermittent tinkering, and a lot of aimless development. As a creature of time, change, and the continuous concern of countless persons with their own affairs, it contains usage, arrangement, and procedure from many ages and cultures. The threads of the pattern are lost in the unknown past; yet it has been almost remade within the lifetime of a single generation and is being transformed before our very eyes. In its making deliberate intent occasionally obtrudes, as when a Tudor England attempted to regiment economic life or a mercantile United States invoked industrial recovery by resort to statute. More often, a group of usages is hammered into a social institution, as when a miscellany of equities in the commonwealth were whipped into a law of property, or the practices which have grown up about rivalry in trade were shaped into a system of free competition. But for the most part its elements—which still bear the imprint of personalities, circumstances, and expediencies which are gone—just grew. In its checkered pattern lie order and disorder, design and accident, purpose and futility.

It is not easy to catch a perspective of industry or to separate the picture into its lines. As a beginning a distinction, fundamental to all analysis, may be made between technical processes and forms of organization. The technical processes are elementary; the raising of wheat, the fabrication of paper, the distilling of spirits, the printing of newspapers, the preaching of the gospel, the provision of amusement are procedures which cater to human desires. Each rests upon a changing technology,

PRICE AND PRICE POLICIES

makes use of material resources and human capacities, and fashions a good or service for consumption. The form of organization is mediatory; in industry, where we are severally members one of another, there must be arrangements, understandings, things-taken-for-granted by which elements are drawn together into the production of wares, and articles find the way from the makers to the market. Among the most primitive of peoples a cluster of customs determine who is to share in the hunt, how the catch of fish is to be divided, what perquisites of potentate and rights of the people lie in the tribal harvest. As a society increases in complexity, such simple conventions develop into a rich, colorful, and intricate network. Ask where—in respect to production, methods of marketing, the ploughing back of returns, labor policy, and public relations—the real discretion within a simple corporate entity resides, and the answer is an intricate scheme of control. The purchase of a quart of milk, a fifth of Scotch, or five gallons of gasoline is an obvious occurrence; yet a disclosure of all the understandings and conventions which impinge upon the act would fill the pages of this volume. A technical process, expressed in an aggregate of industrial plants, is one thing; the arrangements by which this instrument is made to serve the community are quite another.

It is far too usual to make a complicated matter simple by the invention of high-sounding words. Capitalism is set over against socialism; a system of free enterprise is preferred to a bureaucracy of fascism or communism. Such glibness of speech belies the intricate variety of the phenomena it professes to sum up. As the prevailing economic order has come into being, one series of arrangements has fallen away before another. The new have come but the old have remained to dispute possession. In different cultures, a distinct technology of production is enveloped within quite distinct social usages. In England the machine process grew up with free enterprise; in Germany it became the tool of the dynastic state; in Japan it donned the livery of an all but feudal master; in Russia it was enlisted in the service of a bureaucratic communism. In a single contemporary culture the various technical processes of production are encased in many distinct systems. A little bit of almost everything can be found in almost every industrial system; it is in respect to degree and relation that variation occurs. America offers a profusion of phenomena which may be dubbed free enterprise, the competitive system, and capitalism. Such large words are plausible, but an indulgence in them is dangerous. Without any great stretch in the meaning of the word the organization of the family can be called communistic; and it is hard to think of a suitable reply to the person who persists in referring to our provisions for education, public health, and the army and navy as state socialism. In certain parts of the country a paternalism—benevolent or malevolent as you please but certainly feudal—marks labor relations.

INDUSTRY

The bother is that such words blur distinctions; blot out shade, color, and detail; forbid concrete analysis; and impose upon the gloriously rich fabric of industry the severe lines of a geometric diagram.

The actuality of industry lies in its detail. An understanding of the arrangements under which we have our exciting and precarious beings is by the way of particulars. One of the greatest of jurists has said that no one can see further into an abstraction than the concretions at his command will allow; and certainly general principles have their very finite verity only at the tolerance of the facts upon which they rest. A sorting of industries into groups in accordance with the character of their distinct schemes of control is at best an approximation and in response to a purpose. It has—with an eye to the concretions that lie ahead—come about that four rather distinct agencies of control are employed to make technical processes serve human needs. In a rough sort of classification—in which lines are askew, domains overlap, and detail is hidden—these are the household, the profession, the state, and the business system. But these terms fail to preserve their identity from industry to industry, and the topography of the economic order is broken up with a host of fault lines.

Of the four the household is the oldest and the closest to the individual. For all its neglect by students it is probably the largest domain within the economic order. It harks back to the priceless arrangements of the primitive family, and until recently, its realm of the homemade comprehended almost all industrial activity. Now its shrunken province is the rearing of children, the maintenance of the home, the conversion of a money income into a living, and the carrying on of the domestic techniques which survive. Its guide to action is "from each according to his ability, to each according to his need." The workers in the home, even if they have not risen to the status of wage slaves, are the largest group of laborers in the country. In Christian marriage and the sacred ties of blood lies many a bond of domestic servitude. If it could be set down in pecuniary terms the value added by household activity would dwarf a giant industry such as coal, textiles, or railroads. Its frontiers are guarded against no cultural invasion; and since its members go forth to work and to shop, its customs are being remade by the world without.

A small number of techniques—the ministry, teaching, the law, medicine—are under the control of a profession. As a survivor of the guild—which is an analogue of the family—the profession bears the impress of a sacred brotherhood for the practice of an ancient mystery. It is a fraternity, consecrated to a public office; its ethical code imposes the duty of conscientious performance without regard to personal interest. Although its priestcraft is fast passing and the practices of business have crossed the boundary, the customs under which the professional man plies his trade are still far removed from the busyness of the market place. The hawking

PRICE AND PRICE POLICIES

of wares and the puffing of skills are forbidden; and proficiencies are brought unobtrusively to the public mind. Many a quaint custom which once attended the rivalry of craftsmen for custom lives on among the learned professions.

In the direction of the technical arts the state enjoys a distinctive domain. From time out of mind such functions as the maintenance of order, the national defense, and the emission of coin of the realm have been under its control. In recent times such enterprises as carrying the mails, the provision of education, and the prosecution of scientific research have been added. Of late the internal combustion engine has made the maintenance of public highways a major industry. The state has directly or through subsidiaries operated banks, waterworks, power plants, street railways, merchant fleets, and other public utilities. In periods of depression it has set up emergency corporations to extend financial aid to private enterprise and has established agencies to help business over the hard places. At all times it has employed "the police power" to curb the excesses of business and to prevent the pursuit of gain from taking paths which are antisocial. In its various ventures the state makes use of money, tags services with prices, and employs many of the devices of business. A number of its services—legislation, defense, education—in which the nexus between benefit and payment is completely broken, are paid for by taxation, itself one of the most intricate of all economic institutions. The activities under state direction are organized in diverse ways; but a common mark of its oversight is the absence of the motive of profit. Its control is rooted in considerations of public policy and social need.

As it is the newest, so is business the most conspicuous among forms of organization. Its domain is much narrower than is generally supposed, yet it is far too often treated as if all industry were under its control. For ages it was a province on the fringe of industry; but it has come up in the world, and the tradesman who in the Middle Ages was a rascal without caste and was yesterday a "captain of industry" is today an industrial tycoon. Where business holds sway, there is no formal direction of activities by an accepted authority. Instead the inception, growth, decline, and disappearance of ventures is determined by the usages of the market. Each person must secure his income by selling his services, his wares, or the use of his property and purchasing goods in the market. The only constraint is that in whatever he does—sell labor, borrow money, fashion merchandise, or hawk trinkets—he must take his chances. The desire to pocket a gain is the bait and the rivalry of others is "the invisible hand" which holds money making in leash. The state enters to prevent "force and fraud," to maintain respect for the equities we call property, and to see to it that the obligations of contract are respected. Thus business rests

INDUSTRY

upon four fundamentals—property and contract which set the stage, money making which supplies the power, and the openness of industry to the newcomer which applies the brakes. But these elements—far from being unit characters—have their endless variations and out of them industries have contrived quite distinct organizations. All four elements can be clearly discerned in automobiles, gasoline, whiskey, women's dresses, and milk; yet these industries are very different in their business patterns. As the pages which follow will reveal, in its dramatic development business has evolved a number of separate governments after its own kind. The whole is kept a going concern through a myriad of judgments by thousands of human executives who differ from one another in ability, in knowledge, and in understanding. Alike with promptness and delay, efficiency and waste, as best it can business accommodates the various industries under its guidance to the general welfare. There is—the way of growth decrees there can be—no articulate national economy but only a hegemony of independent and overlapping economies.

In simple fact the use of such words—household, profession, state, business—is overneat and overgeneral. No one of them is an autonomous bundle of arrangements; they do not come all done up in tidy packages with labels on the outside. Even less general words—competition, cartel, state enterprise—are words devoid of precision and color; they cannot convey concrete pictures of the organizations they profess to describe. Moreover, it is impossible to find patterns of industries under a single control. The rule of the household is pent in by the law, the prevailing morality, the church, the standards of the neighborhood. The operation of competition is compromised by the trade association, the labor union, the customs of the industry, the obtrusion of the state. A going industry, with its many sorts of activity, is an intricate affair. The taming of technical processes to human needs calls for the doing of many specific things and each of these demands its distinctive mode of accomplishment.

An industry may inherit, adapt, or create; but it must employ devices, procedures, and understandings of many different sorts and useful for many different purposes. Each has a distinct and concrete task, is suited to a particular place among the usages of the trade, works only with a degree of perfection, and within the tolerance fixed by impinging use and wont may be amended or replaced. A process of borrowing is constantly going on; conventions are engaged in a competitive struggle of their own; the principle that cannot hold its own gives way to another born of expediency. In the generality of cases elements from the most divergent sources have been compounded into schemes of control. At best the arrangements under which an industry operates constitute an instrument for use rather than a guarantee of order. The best contrived pattern of control invites a government of men as well as of laws. It is a combination

PRICE AND PRICE POLICIES

of usages, each subject to variation, adaptation, obsolescence, and replacement through which resources are drawn into production, managements are chosen, judgments are formulated, policies are made, and industry yields to the community what it can be made to give. The quest leads away from words of learned length and ponderous sound to the particularity of organization by which industry serves its public.

THE GROWTH OF INDUSTRIAL POLICY

As long as industry goes unobtrusively along its way it escapes general attention. It is only when its affairs are notorious that it becomes an object of public policy. The domestic industries are carried on, away from the eyes of the world, in a million separate establishments; the daily grind of their routines is of no larger concern. The professions hold a place apart. It is not for laymen, even though they be legislators, to tell masters how to go about their business; a minimum of competence for a license to practice, and the state is satisfied. The activities of government are, at least by word of mouth, everybody's business; their conduct is in theory subject to critical scrutiny at every regular election; and on occasion a mighty question is raised as when citizens persuade themselves that government is irresponsible, taxpayers protest the inroads on their incomes, or businessmen get excited over a possible incursion of the state into the realm of private enterprise. But in fact the industrial ventures of government are in America held in leash and go their restricted ways. It is for the most part shortcomings in the business control of industry which attract attention, touch off general discussion, and invite the intervention of government. A storm is followed by a lull which is broken by another storm; a series of occasions results in as many enactments; the state is quickened into activity, not so much to impose a design as to call a halt to abuses and to hold conduct within bounds of tolerance. Thus a series of expediencies becomes a public policy which in partial coverage, irregularity of outline, and blurring of objective bears the marks of its tortuous origins.

The raw material of public policy is occasion, idea, and circumstance. Its course runs back through the decades of national history to medieval England and beyond. The usage of barter was long ago hammered into the institution of the market; petty trade, before ever there was a steam engine or a stock ticker, created rules for its conduct. At the formation of the Constitution, trade regulation was the order of the day within the money economy. The outlines of "commerce" were a matter for the state; the interests of the consumer were hedged about by statute; the fixing of prices by public authority was a matter of course; and among the most vigorous in denunciation of those who bought in gross to sell in small lots at a profit was the Father of His Country. But a good nine-

INDUSTRY

teaths of the people lived on semi-isolated farms, within an economy of self-sufficiency, far removed from the arteries of commerce. Their affairs neither needed nor lent themselves to supervision of public authority. In advance there could have been no experience with industrialism; here and there a person pointed a finger to the doleful chapter it had written in England in long hours, starvation wages, the exploitation of women and children. But in America "conditions were different," and besides the nation had to learn for itself. Men could not before the fact tell what manner of thing the new economy was, what arrangements for carrying on would emerge from its development, what tolls and problems it would impose upon a people, or what transformations it would effect in a culture. The state became a casual overlord; it maintained order, protected property, and assured respect for the obligations of contract; its good offices were at times invoked, as when railroads needed subsidies or "infant industries" stood in need of protection. But in general business was allowed to create its own domain, competition to find its own plane, and industry to take its unplanned course down the decades. In time an injunction let-business-alone became a part of common sense, was blessed with the support of learned tomes on economics, made its way into the august corpus of the law, and was elevated into a principle of statesmanship. The sanctions of the higher law are not barricaded against prevailing interest and opinion, and a qualified prohibition against the invasion of the domain of industry by the government made its way into the nebulous language of the Fourteenth Amendment. A Constitution drawn up when regulation was taken for granted became a fortress of laissez faire.

But the state did not abdicate. In a police power as comprehensive as "public safety, public health, public morals, and the public welfare" and blessed with the most venerable of precedents, it had an adequate instrument of control. The power might lie dormant, it might be crowded to one side by an expanding "due process of law"; but it was there ready to be quickened into life by popular need, discreet legislation, and resourceful judge. As it came to be common knowledge that leaving things to the market did not work out with mathematical precision or ensure results in full accord with ordinary notions of economic justice, resort was again had to public authority. The labor of women and children, the long hours in mine or bakeshop, the cash and human costs of industrial accident, the ingenious appeals to the guile of the innocent buyer were items in a catalogue of abuses which needed abatement. The monster-of-monopoly could be personalized, and a loud hue and cry arose against all its sinister forms of trust, combination, holding company, and integrated concern. At first the several states attempted to outlaw the most flagrant excesses and to impose a measure of order upon industrial affairs. In a long uphill fight legislatures had to be won; and then, when the persons natural or

PRICE AND PRICE POLICIES

artificial to whom measures of control were disagreeable had invoked "constitutional rights" and fallen back upon the judiciary as a last line of defense, the courts had to be won. The great bother was that in its hurried development industry had been rather negligent of state boundary lines. A business within a state could always plead competitive disadvantage as against its rival over the line; if one state acted, it was to the advantage of another state not to act, to allow the lower price to be made, and to take the business. In industry the state counted for little, in government for much; and the lack of correspondence between industrial and political pattern long delayed and has continued to confuse national action. It was not until 1887 in the notorious case of the railroads, which more clearly than any other industry seemed to be engaged in "commerce among the several states," that Congress intervened with statute. Here the initial intent was rather to put an end to discriminations and to ensure equality in rates to all competing shippers than to impose a legislative pattern upon the industry. It was in 1890, three years later, that the Sherman Act, the first of antitrust measures, was put upon the statute books—and an adventure in federal control, the end of which lies far in the uncharted future, was off to its start.

The Sherman Act stems from the distant past; it is a characteristic product of its own generation. In an America which was still largely individualistic, corporate bigness was viewed with suspicion. In human affairs cause has always been the great unknown; the ordinary person is gifted with neither the knowledge nor the capacity in analysis to probe through the intricacies of the economic order to discover the source of his divine discontent; a far easier way is by an abiding faith in a personal devil; and by the petty tradesman, the small industrialist, the wage earner, the farmer, and the consumer, bigness—as typified by Wall Street and the trust—was exalted into this causal eminence. The rationale of the act was an intolerance of a monopoly which could control supply and dictate price. The pressure which led to its passage came largely from small merchants and manufacturers who felt the cards stacked against them, and from agrarian constituencies which had felt the might of the Octopus. The language of the act and its instruments were of the law. The channels of commerce were to be free and open; the prohibitions were directed against "restraints of trade"; the government was empowered to prosecute offenders and to enjoin violations, and injured parties might sue at tort for triple the amount of damages they had sustained. Thus the rules of equity and the procedures of the criminal law—which came from another age and had been contrived for another purpose—were invoked to give effect to a public policy.

The substance of the act reflected the ideas of the age. There were dissenters here and there; but among the informed and influential the

INDUSTRY

belief in the efficacy of the competitive system was tainted by few doubts. Stalwarts were certain that under its beneficent operation all things worked together for good; reformers were persuaded that if things did not go as they should it was because a cabal for monopoly or a conspiracy in restraint of trade was interfering with the natural laws of supply and demand. A lack of satisfaction with the results did not create distrust in the mechanism. To the mass of men competition was an article of faith made vocal in a few glib phrases; yet it had, in an argument quite free of peradventures, been reduced to an articulate system which had won general acceptance. The market is the great industrial battleground; goods and services are tagged with prices; and price is master of human behavior. The way to wealth is through shrewd calculation; in disposing of labor or wares each must vie against others, in seeking what one would have each must bid against others who would take it away. An upward dart or a downward drop of price is a command; the article can be had only by those who can afford to pay more or sold only by those who are able to take less. Each good and service is given its normal price; each contributor to the process of production has his normal reward. Nor is the office of competitive price static; it takes the march of invention, the shifts of fashion, the changes in human wants, the hurried staccato of the decades in its stride; and by an infinitude of individual moves assimilates them into the going industrial system. Under the procedure which forever pits buyer against buyer and seller against seller, it effects—and keeps on effecting—a neat adjustment between the wants of a people and the productive capacity of industry. Thus to the age a division of functions between the state and industry was clear-cut. It was the office of the state, even if force had to be employed, to keep the markets for all commodities open; that done, industry could be depended upon, of itself and by itself, to do the rest. The need was the maintenance of the competitive system, and that the Sherman Act professed to effect.

As thus defined the way of public policy may be straight; but it has been beset by hazards, and many a trail leads off from the highway. If the state must be invoked to make the system go, a faith in a natural-economic-order and the automatic operation of the laws of supply and demand becomes tarnished. Enforcement did not come easily to public authority. The words of the statute invited logomachies from lawyers with eyes intent upon loop-holes. The evidence was largely in the hands of the accused; it was not easy to secure testimony that would meet the exacting standards set for suits in which the lives and liberties of men were at stake. The way of the law is decorous; an array of procedural moves must be exhausted before the real issue is faced; delay has become an art which piles up costs and may even wear cases out. The judges who have the last word are often far more at home with nice points of legalism than with the

PRICE AND PRICE POLICIES

realities of the lumber, sugar, or aluminum industry. In short a perspective is hard to attain when judgments upon public policy are grafted on a litigious process. Factors such as these have made the legislation difficult to police and its coercive effect rests rather in threat and example than in strict enforcement. Its justification must be the lack of a more effective instrument of control. And for want of its better the Sherman Act serves a national necessity as an assertion of the public interest in the conduct of business.

As the years passed it became evident that something had been left undone. In spite of a law of the land which had set a competitive pattern for industry, evils persisted and specific abuses were not abated. A discontent slowly gathering broke into a storm, and before the spirit of 1912 gave way to the excitement of the World War, the lines of regulation had been advanced by state and nation. It was fitting—so a modified public opinion began to run—to let the market do its work of keeping industry in order; but surely the state might intervene to establish conditions which would assure fairness to the parties who shared the nation's work. Competition should proceed in accordance with rules of the game; a plane should be fixed and standards of conduct set for business rivalry. At least a minimum of protection was to be accorded the consumer. In the inspection of milk, precautions about the public health, the insurance of pure foods and drugs, a limit of tolerance was fixed for wares coming to market. A minimum standard was attempted in matters relating to the well-being of the worker. A ban was placed upon child labor, compensation was provided for industrial accident, the length of the working day was limited, and a movement toward a minimum wage was begun. For business itself a crude code of ethics in the making received recognition by the public authorities. A number of customs—rebates, concealed discounts, espionage, preferential treatment of one sort or another—came to be looked upon as destructive, and gradually a line began to be established between "fair" and "unfair" trade practices. In 1914 the Clayton Act was invoked against the grosser forms of "unfair competition" and the Federal Trade Commission was created for its administration. Thus a new domain was opened to law and order.

Along with all this, competition has been stripped of an important province. A half century ago its promise of performance was regarded as almost universal; one of the most curious chapters in judicial history concerns a heroic attempt to apply the Sherman Act to the railroads. It was not impossible to make parallel lines compete, but competition produced quite unorthodox results. An exaggerated ratio of overhead costs to out-of-pocket expenses and the impossibility of establishing specific rates upon particular costs led to an uncontrolled struggle for traffic. Secret rebates, rate cutting, vacillating charges, and ingenious forms of dis-

INDUSTRY

crimination become ordinary phenomena. The original Interstate Commerce Act of 1887 has been many times amended; it has grown up from a brief statute to a ponderous code. In its revisions the railway industry has been increasingly recognized as a case apart; but within its provisions the notion of a unified system still does battle with the older norms of competition. Yet an oversight of rates was long ago entrusted to a public authority. An exception tends to beget others in its likeness. It was in time observed that there were other industries which fitted the competitive pattern with difficulty or not at all. A limited competition is maintained in telegraph facilities; in places an independent telephone company still survives as a vestigial nuisance; and today the former exclusiveness of the street railway is being threatened by motorbus and taxicab. But the supply of water, of gas, and of electricity has been recognized as monopolistic in character. One by one such industries have been detached from the domain of competition, garnered into the category of public utilities, and entrusted to the regulatory oversight of public bodies.

As these events transpired, competition had to undergo critical attack. It came to be questioned whether the ideas from which the anti-trust acts were fashioned were the most enduring stuff. A barrage of questions have done violence to its structure or—if your faith holds firm—flattened themselves against its foundations. Are the myriad of judgments upon which competition depends sufficiently grounded in knowledge, reason, and foresight to permit its effective operation? Are the funds of materials, investments, and labor which it must employ flexible enough to give the needed response to changing circumstance? In different business units, bondholders, owners of shares, directors, managers, under-officials, laborers, and bankers have their distinctive places in the scheme of control. Since each group has a distinctive interest of its own, how can we be sure that they will check and balance with the precision necessary to serve the general good? What certainty is there that trade usages of long standing do not obtrude to break the shock and limit the sweep of competitive forces? Or that a cake of custom does not here and there make management a matter of ceremonial and routine? In short, may not a competition which will not run true to type have been compromised by a confusion of ends, by impinging institutions, by custom, by diversity of interests, by alien things that cannot be kept out? And, a bit more skeptically, may not the mind of the inquirer have endowed a somewhat inchoate mass of industrial activity with more of order and purpose than is to be found there? And may not neatness in explanation belong rather to a passing fashion in setting down truths than to the world of reality?

Nor has the competitive system at work been proof against attack. A test of a public policy by reference to the facts is difficult; there are far more accounts of how competition is supposed to operate in general than

PRICE AND PRICE POLICIES

of its actual performance in specific industries. But even though available inquiries cover only a fragment of industry, they seem to reveal a serious discrepancy between ideal and fact. The consumer has his complaint; the quality of the ware is often inferior; the sum he pays often transcends the necessary costs of production to subsidize inefficiency and waste. The laborer has his counts; working conditions respond to a managerial self-interest; existing standards of life afford inadequate livings; and the workers must take the shock of an overdone competition. The businessman is far from satisfied; the system invites a cutting of prices below the floor of costs, a resort to unfair methods of securing trade, a surrender of practice and policy to a Ten Per Cent who refuse to abide by standards and force their disregard upon others. The social engineer—as technical adviser, not as a party at interest—can easily chart an outline of the competition-in-the-books but he cannot reduce the-competition-that-is to an orderly diagram. Wasteful establishments manage to keep going; useless ventures survive the decrees of bankruptcy. A standard of life far below what it ought to be and an enormous capacity to produce not turned to account present a startling paradox. A medley of shops, plants, factories, stores, mines, and transportation facilities are gathered into untidy industries. And the economic order is accommodated to the novelties which progress brings only crudely, irregularly, wastefully, and at an appalling cost in maladjustment and human suffering.

In the late twenties these various currents of opinion became articulate in a formidable body of literature. As the Great Depression lengthened and the return-to-normalcy was again and again deferred, a demand grew for a revision of competitive arrangements. The notion had become insistent that there could be too much as well as too little of so good a thing as competition. A continuous experience had revealed to practical men serious flaws in the prevailing system. And even if their gifts did not run to nicety of statement and abstract utterance, they could scribble concrete counts into a bill of indictment. An overdone competition was evident in goods for which there were no markets, in factories kept idle for want of orders, in laborers for whom no jobs could be found, in the serious discrepancy between adequate productive resources and unsatisfactory standards of life. The demand, borne along by the general cry for recovery, was for a policy at odds with the antitrust acts. As the state had intervened against monopoly and an underdone competition, it was now invoked to curb excessive zeal in the competitive struggle. As it had been called upon to see that collusion did not raise prices, it was now asked to fix a floor below which prices should not be allowed to drop. But the old skepticism of the state as an agent of industrial direction remained. It might pass enabling acts, see to it that rules were in accord with public policy, play the role of the negligent overlord, and by the gentler methods of persuasion and cooperation make industry an instrument of recovery.

INDUSTRY

But the immediate task of regulation might safely and properly be turned over to the interested parties. A term "self-government in industry" had a sonorous sound, an instantaneous appeal, and just the right touch of vagueness. So in the tumult and the hurry of action the term industry underwent a narrowing of meaning. The business group was lifted to primacy, the laborers were relegated to a secondary position, and the consumers were made "advisory" or left out of account.

The National Industrial Recovery Act was passed; a disorderly industrial system was to enjoy a reign of law. Each industry was to have a code, a formal organization, a scheme for protecting labor, rules of the business game, and an authority to quicken sanctions on paper into enforced usages. It was a daring foray into the politics of industry and it is not strange that it overshot the mark. The task concerned problems far older and more fundamental than the depression. An adventure in industrial reconstruction was geared to the tempo of recovery. The undertaking was far too gigantic for the resources at hand. Instead of beginning with key industries—coal, oil, lumber, textiles—where disorder was notorious, the NRA made the whole industrial system its province. There was a dearth of trained personnel; there could be at hand no large and competent body of technicians for so novel and exacting an undertaking. Intellectual assets were quite inadequate; there was little of concrete diagnosis on which to go; the trouble spots in different industries had not been located; and the evidence of distinct types of maladjustment had not been reduced to recognizable symptoms. Most important of all, the venture was too much a break with the past. The new controls worked best where there were, in trade association and industrial custom, firm foundations whereon to build. It worked most poorly where a rule of order had to be imposed upon an undisciplined mass of petty tradesmen. And there was too much of a simple faith that problems could be dealt with in isolation. A direct drive upon price, with little regard to other items in the bargain of sale, gives leeway to evasion. An attempt to set up a government for an industry, with little consideration of activities impinging upon it, was not headed for success. The arrangements were too novel and had too little in preparation to be easily assimilated into a going system. The decision of the United States Supreme Court in the Schechter case in May, 1935, was a blow to the NRA; but it was not fatal. Its province would have been more compact had it surrendered its control over local industries; and deficits in the statute struck down could have been eliminated by new legislation. The decision led to a retreat only because weakness was inherent in the overbuilt structure and the administration failed to stage a resourceful counterattack.

The NRA has come and gone—and lingered. In many an industry code provisions live on as trade practices; and in the domain of labor, the C.I.O. is clearly the child—legitimate or not, as you please—of the NRA.

PRICE AND PRICE POLICIES

In general the answers contrived during a hectic two years are no more but the questions are persistent. The result is a temporary halt rather than the end of the march. For the moment public policy has fallen back into its groove; and in a Robinson-Patman Act the state has undertaken to refine business dealings by bringing standards to the intricate phenomena of costs and prices. Reasonable differentials may be allowed for quantity; but price differences are not to be tolerated if the result is "substantially to lessen competition." And in the combat of "the independent" against the chains and the mail-order houses, a number of weapons are forbidden legal use. But the concern here is with a single aspect of imposing order upon industry. The larger attempt to subdue competition to the needs of a people has come to a pause—but it is certain to be renewed.

The economic order is still the creature of its own undirected growth. The fact of rivalry is inseparable from human affairs; but the pristine competition of the nineteenth century has already been changed beyond recognition. An up-to-date competition, with an ethical code, rules of the game, and an umpire, is not the old-fashioned struggle of each for himself and the devil take the hindmost. The machine techniques, the devices of the corporation, the procedures of business organization have stalked down the decades changing all that they have touched. There exists today a competition of big business as well as a competition of petty trade; but the ways by which the battles for custom go on are quite different. Both are to be found in the land, yet the general store and the chain outlet are focal points of quite distinct economies. In its heyday competition was regarded as the one way of industrial order—not a mere scheme of human arrangements. It was the great organizer which shaped all wealth to social ends. Its omnipotence was first challenged by the invocation of the state to maintain the conditions essential to its successful operation. Next, a large part of its domain—the railroads and public utilities—was wrested from its sovereignty and organized as a province of governmental regulation. Finally, by being given a set of rules and a moral code, it was converted into a mere instrument which must be guided to larger ends. Once a part of the natural order and an affair for the gods, it has come under the dominion of man. As industry becomes the concern of human beings and of public policy, the way of its control descends from the absolute and the imponderable to the concrete and the specific.

THE WAY OF CONCRETION

The plain truth is that a simple pattern does not present an inviting approach. As the world is not all black and white, so industry cannot be set down in terms of an antithesis between competition and monopoly. It holds far too much of detail and drama, of color and variety to be

INDUSTRY

crowded into a few simple molds. To set up a norm of "perfect competition," and to attempt to discover the principles that shape its imperfections, is as unpromising as a quest for the norms of abnormality. To set cases down along a straight line that moves from monopoly through duopoly and oligopoly to competition pure and undefiled, and to measure competitive forces by the relative number and size of sellers and buyers, is to make hypothetical economic phenomena the subject of mathematical exercises. The tricks may be pulled off with neatness and intricacy; but the result is not a picture of the pragmatic reality called industry. Many of our most important industries—coal, textiles, the garment trades—are so overcompetitive as to lie well back of the point of "pure competition" whence such a straight line of industrial form stems. All have come out of the past, all carry the marks of a half-planned growth in their structures, all have evolved their own distinctive usages. As creatures of society, these arrangements have divergent and changing patterns, and leave their distinctive marks upon the industrial activities which they govern. It is of course impossible to garner fact into significance without approach by an ordered way of the mind; and the studies which follow are based upon an arsenal of as-if's which will become explicit as the pages are read. But although a sharp line can never be drawn, it is one thing to employ a set of hypotheses which defines the character of method and quite another to formulate patterns into which observed facts are to be cast. The line has been crossed when the results of inquiry bear a stronger resemblance to the tricks of the trade than to the phenomena brought under analysis. A generalization is exactly what the word implies—that which under careful observation is found to be general among a series of related instances. But when the general has its source in the method of attack, it is theology rather than science which is set down.

In its concern with industry public policy is somewhat backward in getting down to the concrete. Legislation must be by way of general command and broad injunction; but statutes to be caught up into the law of the land must be quickened by officials and courts into living usages. The propositions which make them up must be flexible enough to meet specific situations. A knowledge of the concrete and the detailed is essential alike to their statement and their administration. If industry is to be directed to social ends, public policy must not be so aloof in its omniscience as to neglect the particular. So long as medicine refused to probe beneath the unity of the human body and prescribed panaceas for all ills, it was engaged in the practice of magic. The law has made itself the most human of all disciplines by performing its office where abstract standards of judgment must forever meet concrete situations fresh from life. In days of yore the anthropologist with the aid of his postulates spun out of his head theories of social organization and progress which are today engaging

PRICE AND PRICE POLICIES

museum pieces; it was only when he went to the Eskimos, Tahiti, and the lower East Side that he discovered how rich, intricate, and dramatic are the ways under which men live together in society. If public policy is to make an informed accommodation to activity and event, it must likewise humble itself and descend to the particular.

So industries have begun to invite particular study. From within, many an executive has been trying to capture a perspective which cannot be had from the administrative offices of a corporation. From without, congressional committees, bureaus of research, and lone adventurers have attempted analysis of the structure and operations of the aggregate of activities which revolve around coal and steel, sugar and cement. The number of such studies is small in relation to the everyday world which wants exploration. Nor is it easy to find one's way through the maze of conflicting fact, to penetrate a little distance into areas beyond the range of knowledge, to come upon an analysis which with confidence can be set down as of the industry—and not a mere reflection of a conceptual scheme taken to it. There are also the kindred dangers of garnering more of fact when what is needed is understanding, of setting dramatic incidents down as the order of events, of piling concretion upon concretion in the expectation that meaning will automatically emerge. However general its statement, analysis has meaning only in terms of a reference and in respect to particular questions. The accounts that follow all have a single reference; they all attempt to answer the same question. They look at an industry from the vantage point of the price of its principal ware. The price is the point upon which all that is order and disorder in an industry converge. The concern here is neither with the hour-to-hour or day-by-day movement of prices, nor with gathering price phenomena for quantitative diagnosis. Instead its focus is the plane upon which price is to be found and whether in respect to prevailing practice and performance it is relatively high or low. In each instance the usages of the industry are passed in review to determine whether they are advanced, up-to-date, or backward, whether they reflect efficiency or give tolerance to waste, whether their incidence is a reasonable price for the ware, a price that reflects unnecessary costs of production, or a price which bestows upon the consumer a gratuity at the expense of investor and worker. The end of all industrial activity is obviously an enlargement of the material means to human welfare. So the studies presented here converge into the common question of whether the good is produced in a quantity large enough and sold at a price low enough to have and to hold a secure place in the American standard of living. And to those of us who cannot escape an interest in the oughtness of things, it raises the added question—if a needed commodity is not within the reach of the people, what are the barriers which lie in the way? And how can they be removed?

INDUSTRY

Thus, in none of the accounts which follow is price an isolated phenomenon; in none is it the real subject of inquiry. In all it appears as the best available symbol through which industry may be approached and its performance assessed in the inexact terms which alone are available to public policy. But as industries have their divergent structures, so do prices have unlike usages in respect to their distinctive wares. If it has left subsistence agriculture behind, the family must take its income to market where it cannot escape a lively interest in the prices of goods and services. But within the household, the division of work and wealth, of leisure and opportunity among its members is in respect to other than pecuniary considerations and reflects a priceless economy. In the professions a service is proffered for a consideration; but price—which is still affected to be a matter of negligible consequence—is never fixed purely by market considerations. In law, medicine, and the ministry an ethical code decrees service free of charge to the man unable to pay. Among industries under the direction of the state, prices and the conventions of the business system may be employed. But with a service like national defense, which cannot easily be set down in pecuniary terms; or the maintenance of order, which cannot be sold unit by unit in the market; or the provision of education, which can be made to yield tangible values only in the indefinite future, the rule of the free good prevails. Charges are imposed as taxes, or prices are set down without regard to personal value received. All such services of household, profession, or state have their several places in the life of the community and price is suited to the office each has to perform.

In industries under the direction of business among the oldest of customs is that of tagging a thing with a price. Today prices are pivots upon which the whole system of business moves. A change in technical processes or corporate structure, in the wage of labor or the return to capital has its potential impact upon price. Its alteration imposes upon infringing prices a problem of accommodation. The shock of a substantial change goes resounding through the economic order until it reaches prices flexible enough to absorb or rugged enough to bear it. A price is a monetary summary of all the conditions which give value to a ware; a system of prices is a pecuniary shorthand for an economy at work. As a result the phenomena of prices are as broad and varied as the industries whose structures, arrangements, and activities they reflect. The mark of accident, of custom, of conscious policy is upon every price. If in the pages below there are extended accounts of the sources of demand and the process of marketing, of the subtleties of technology and the intricacies of financial structure, it is because each of these matters has helped to shape the pattern of the industry and to fix the price of its ware. A myriad of conditions—which reaches beyond the confines of a continent and

PRICE AND PRICE POLICIES

permeates the multiple aspects of a culture—lies back of the price of sugar, gloves, milk, an Oriental rug, a telegram, or a bit of junk to make it exactly what it is.

Thus price is no isolated phenomenon. Its meaning, its importance, its office of order is inseparable from the matrix of the ways of industry in which it is set. Questions of price resolve themselves into the diagnostic problems of industries at work. If a simple old soul like Zeus or Jove were lord of all, the harvest of fact might be easily garnered. If Nature were the sovereign, an array of homogeneous phenomena might be reduced to a mechanistic system of laws. But Whirl shares the throne with Order, and a stream of vital energy defies plotted courses and creates new channels for itself. So long as the world was left to God and the economic order to the automatic operations of the laws of supply and demand, systems were important as props to faith but detailed knowledge was of less account. But, if competition is to be directed to proper ends, concretions become the materials of control; and whether the state undertakes regulation or industry takes the way of self-government, a continuous series of judgments must be grounded in fact, analysis, and understanding. As time marches old trades disappear, new ones claim provinces, and industrial areas must be redefined. The arrangements which make up an industry can never be caught and imprisoned within the pages of a book; usages are gone or remade before we can exhaust their actuality. Nor are resources adequate for the exploration of more than a few domains of the multiple affair called industry.

This book is for those who are willing to take the way of concretion. It exhibits only a few fragments from the world of business. The usages and arrangements which it recites are not proof against amendment. But its trail leads into a province as rich in engaging material as ever met intellectual adventurer. Persons in quest of a royal road to an understanding of how the whole economic order works must go elsewhere. Here is set down no more than a prologue to American industry.

SECTION II
THE AUTOMOBILE—A LUXURY BECOMES
A NECESSITY

BY MARK ADAMS

WITHIN A GENERATION

IN 1896 the P. T. Barnum Circus baited the curiosity of its public with advance posters featuring an automobile, "The Famous Duryea Motorwagon." Elephants, Camels, and Ladies in Tights were relegated to background billing, for in that year the sight of those staple exotics was less new to the American people than the sight of a horseless carriage. There were only an estimated sixteen motor wagons to be found on the continent and the previous year there had been but four. The province of the automobile was limited to a few inventors preoccupied with domesticating new sources of mechanical power to the service of transportation. Its commercial importance was no greater than the sacrifices which their faith might persuade inventors to make to the cause of mechanical progress—a faith strengthened by the fruitful misconception that progress rewards its servants, inevitably and justly, with personal wealth.

By 1900 some inventors were producing a few automobiles for sale to the public as a rather expensive and unreliable—but also exciting and distinctive—mechanism of transportation. A manufacturing industry of respectable proportions had been attained—producing some 4,192 automobiles during the year with a wholesale value of \$4,899,443. By 1937 an automobile incomparably superior to Duryea's Motorwagon was the veriest commonplace. Most of those who in the nineties had tinkered or in the early years of this century had explored the luxury market had gone from the scene and several of the pioneers had died in poverty. But the empire of the automobile had grown mightily and prospered.

To the manufacture of the automobile are devoted net tangible assets of a billion and a quarter dollars and the labor of over two hundred thousand workers. But this is the mere hub of a series of activities which ramifies throughout the industrial system. Plants which might stand as giants in another context have sprung up to make single parts used in the assembly of automobiles. Machines which fill these factories for the making of machines are manufactured by still another sizable industry. And into automobiles goes a quarter of the steel consumed in the United

PRICE AND PRICE POLICIES

States, over half the iron, three-fourths of the plate glass, a fifth of the aluminum and copper, a third of the lead, nickel, upholstery leather, mohair. Rubber and oil producers are devoting four-fifths of their efforts to the service of automobile users. The retailers of automobiles and the service auxiliaries take in a sixth of the national income and, in decreasing amounts, pass it back along the lines of production. And a state industry, impelled by the automobile, is spending a billion dollars a year in the building and maintenance of roads.

But the commercial beginning of the automobile is hardly more impressive than its indirect sovereignty over other areas of our economy and culture. It has been an important causal factor in creating trade centers, in bankrupting village merchants, in making over the system of marketing. It has had a role in redistributing the population and in reordering the whole scale of land values. It has introduced a new variable in the economic calculus of railroads, street railways, city hotels, and country retreats. It is erasing old political and economic boundaries, setting up new areas of competition and authority, and promoting "a general social atmosphere of haste and change." To each of America's one hundred and thirty millions it has brought a change in his way of life, daily habits, and attitudes. It has lessened the fetters of time and space on the individual and laid upon his income new demands comparable with those of food, clothing, and shelter. The use of an automobile has come to be included within that American standard of living which it has helped to remake.

Thus has emerged within a single generation the mighty imperium of the automobile. Its authority over its executives, its technicians, and its workers is greater than that of the political state; a substantial fragment of the American people depend upon it for the wherewithal from which they are to fashion livings and find opportunities. The immediate province within which it lords it over lives and fortunes is larger than any state in the union, and its authority over habits of consumption reaches to the smallest hamlet in the land. Its government extends to the most intimate interests and the most ordinary activities of everyday life in America.

A bare outline of the coming of the automobile is one of the most startling dramas in cultural history. And the industry's price policy—a law for the imperium—has been a factor of consequence in a silent revolution.

PRICE EXPLORES A MARKET

At the turn of the century the automobile had entered the market as a luxury good. Its utility was limited by its unreliability, and its price

THE AUTOMOBILE

put it beyond the reach of the masses of consumers. The adventurer in an early horseless carriage was forced to exhibit dexterity with a kit of tools and to remain deaf to shouts of "Get a horse"; his initial outlay—far from proof against later out-of-pocket expenses—ran well toward \$2,000.¹ To persons able to indulge in nonutilitarian expenditure, the automobile offered speed and exclusiveness—sport for the adventurous and a mark of distinction for the elite. It had a fair market among wealthy sportsmen, gentlemen and ladies of leisure, and social climbers who, with a large body of water and a little more income handy, might have been interested in a yacht.

Such a market imposed its conditions on the industry. The appeal of quality—speed and impressiveness—was more important than considerations of price. The years following 1900 found succeeding models bigger, better, and more costly. An average wholesale price of \$1,170 in 1900 had reached \$2,120 in 1908. Moreover, since the wealthy were few in number, the market was limited. As a result small quantity and high unit cost eventuated in a price which closed the market to all save the socially and pecuniarily elect. So during the first ten years of the industry, as the product became more reliable, the impediment to general use in high price became more emphatic. Races and exhibitions stilled the misgivings of the public about the trustworthiness of the automobile but left it an object of desire out of the reach of the ordinary man. The industry seemed preoccupied in a competition for the limited market it had established among the well-to-do—and perhaps with the high per unit profit on expensive cars.

The break with accepted price policy was incisive and dramatic. It was the decree of a revolutionary minority. Even during the early years certain leaders—Henry Ford in particular—believed that if price was lowered, the automobile would find a wider market and if sold in volume could be produced at a lower cost. Whereupon price could be lowered again, costs reduced again, and sales again be multiplied. And—most important of all—that way lay profits. To sound business leaders this was heresy. Correctly they saw the automobile controlled by its market; that market as a demand for high quality, weight, power, comfort, and brass ornaments; and, as an inevitable result, high cost and a limited production. To them the market seemed far more capable of accepting high price than of foregoing expensive quality. They admitted impending changes which would necessitate adjustments among market, cost, and

¹ The War Department, in 1899, giving out a news release, stated that "Three automobiles have been purchased by the War Department for the use of officers"; and felt it necessary to hedge against possible criticism by adding, "Each is equipped so that a mule may be hitched to it should it refuse to run."

PRICE AND PRICE POLICIES

product; expected that in the fullness of time a fair price would emerge; and hoped that it might be a lower one. Moreover, the industry was booming; the luxury market was nowhere near the saturation point; there was no dearth of profits. It was assumed that the current market was to be the future market. Vagaries such as a potential demand which, with the barrier of high price removed, might be quickened into activity had no place in outlook or calculation. The attitude was realistic.¹

The advocates of low price, on the contrary, suggested something closely akin to economic planning. They proposed a venture beyond current realities into a prophecy of markets and an exploration of unrealized possibilities in the relation of production to unit cost. If they had been "practical" men they should have been warned by numerous failures among early adventurers into automobile production. But failures had been due to bad design, to wasteful marketing, to inefficient production as well as to bad guessing. Besides, many of the pioneers had been impelled toward recklessness by the smallness of their personal investments and their own undaunted optimism. They were reckless as men *must* be who live beyond the law—even accepted economic law—and they chose to accept the venture.²

As the chief and most stubborn prophet of planned lower prices and richer markets, Henry Ford started his drive. In 1907 he began to move prices down without waiting on those tedious adjustments of the market which were, by the majority, regarded as the law of the industry. His revolution came to a focus in design. Lower prices were achieved immediately by compromising with certain criteria of quality. It was essential to preserve the combination of elements which spell dependability and, insofar as mass production meant the substitution of automatic for manual operation, the result was generally an increased accuracy—and quality—in the product. But weight, power, wheel base, prestige, gadgets, and ornamentation were reduced to essential minima. As a result

¹ Business leaders shared the general conception of a limited market. Roy D. Chapin, one of the pioneers in the industry, discussing the localization of the industry in Detroit, has suggested that bankers in other parts of the country, particularly in the East, were so wary of the industry's future that even short-term credit was not extended and the industry was consequently centered in Detroit, where local banks were more optimistic.

² A deviation from "sound business principles" carries with it the penalty of a wariness among financial backers. The Henry Ford Automobile Company was dissolved in 1902 because of dissension over price policy among stockholders and officers, most of whom insisted on the manufacture of large and expensive cars. Ford's next venture, Ford Motor Company, began with production of a \$950 car in 1903; again stockholders became importunate and by 1906 the company was producing two models selling at \$2,000 and \$1,000. It was only after Ford had acquired a majority of the voting stock that the company began in 1907 a persistent drive toward lower prices.

THE AUTOMOBILE

of the new price policy sales boomed.¹ It was volume, rather than the march of technology, which made lower prices sound business. The

AUTOMOBILE PRICE POLICY AND SALES

Year	Ford price, ^{1,2} f.o.b. Detroit	Ford sales, ¹ number of cars	Ford profits ¹	Sales for the industry, ² number of cars
1904	\$950	1,708	\$283,037	22,419
1905	2,000	1,695	290,194	24,550
	900 1,000			
1906	2,000	1,599	102,398	33,500
	1,000			
1907	600	8,759	1,124,675	49,300
	700			
1908	2,000	6,181	1,150,983	63,500
	700 750			
1909	950 (Model T)	10,660	3,125,876	127,731
1910	780	19,051	4,127,208	181,000
1911	690	24,979	7,288,303	199,319
1912	600	76,150	13,552,239	356,000
1913	550	181,951	27,001,203	461,500
1914	490	264,972	24,923,449	543,679
1915	440	283,161	23,426,662	895,930
1916	360	534,108	57,056,429	1,525,578
1917	450 ⁴	785,433	26,715,944	1,745,792
1918	525	708,355	30,341,057	943,436
1919	575	537,452	69,924,411	1,657,652
		401,982 ⁵		
1920	440	1,074,336	53,448,480	1,905,560
1921	355	1,013,958	75,890,836	1,518,061
1922	355	1,351,333	133,248,623	2,369,089
1923	295	2,090,959	99,342,888	3,753,945

¹ Selzer, L. H., *A Financial History of the American Automobile Industry*.

² Automobile Manufacturers Association, *Automobile Facts and Figures*, 1936. The figures are not strictly comparable, since Ford figures are for fiscal years, but the trend is the point emphasized in each case.

³ It must be remembered that concurrent increases in quality such as that involved in design of the Model T make comparisons of these prices not altogether analogous to comparisons of dollar value.

⁴ Wartime prices reflected.

⁵ Upper figure for 1919 represents output for the 18 months ended July 31, 1919; lower figure, for the 6 months ended December 31, 1919.

PRICE AND PRICE POLICIES

technical progress of the industry, so frequently recited in the explanation of price decline, could not have been sudden enough to account for a drop in the price of Ford cars from \$2,000 and \$1,000 in 1906, to \$700 and \$600 in 1907.

The increased sales represented no immediate expansion of the market to areas of low income. In fact some of the sales came from the luxury market. But it did open the road to automobile use among the masses of the people. And the success of the policy seemed evident; for profits for the fiscal year ending in 1906 had been \$102,398, and for 1907 they reached \$1,124,675. The success of low prices, however, did not seduce the conservative majority from its preoccupation with the luxury market. If the sale of Fords boomed, the luxury market, too, was booming fabulously. Orders for all types of cars were received faster than they could be filled and the high-price section of the industry was too busy with production and profits to take stock of the situation. For a space of years Ford had no low-price competitors.

But lack of competition and a booming business did not content Ford. His plans called for still lower prices, still wider markets, and still larger profits. With the introduction of the Model T in 1908 attention was turned to paring costs on that car. Methods were progressively devised which would increase the economies of mass production—such as standardization of parts, the assembly line, spatial integration, and continuous process. The cost of the car came to be computed each year on the basis of last year's costs on last year's volume by last year's production methods, but such reckonings were modified, even recklessly, by regard for probable costs on next year's volume turned out under next year's production methods—methods adopted and financed with additional recklessness before next year could justify their adoption.¹ And each year somewhere above that prophesied cost was set a new and lower price. The gamble was always great, but the margin was always high enough to allow for losses. In the early years of its low-price policy the Ford company's profits hovered in the vicinity of 100 per cent of its net worth.

Eventually, by the new market Ford had pioneered, the industry was forced to turn to lower prices. But by that time Ford commanded tremendous volume. And the Ford plant had elaborated mass-production techniques so skillfully that he was not overtaken for a decade. The tremendous volume, however, wants more explaining. The role of price in the spread of the automobile empire was important, but the drama was no monologue. Lowering price removes an impediment to buying but it does not create a demand. The great increases in demand were

¹ A certain amount of prophecy is still perforce a part of the industry's evolution of price, but latterly elaborate and costly market surveys have been made to take some small part of the guesswork out of the process.

THE AUTOMOBILE

the products of forces converging upon the market. They emerge from far and near, they are aspects of a going industrial society; they find expression in the judgments of the market.² So an inquiry into the automobile market begins with the questions: what uses has an automobile? who buys it and why and when? A complete answer is impossible, but such an inquiry pushed far enough will give some identity to a market which played guardian angel to planners of low prices—and through them, within the life span of a generation, lifted the automobile from nothingness to eminence as our greatest industrial empire.

The vehicle, in the making of which this century has enlisted some of its most spectacular devices of mass production, is itself a production machine; its product, transportation. It is, like the mechanical refrigerator, the washing machine, and the typewriter, a factory-made machine which has served chiefly to expand the productivity of the individual and family as economic units.³ It has enabled the individual and small groups to produce transportation as need arises, in small lots, to order, for themselves.

The automobile offers mechanized personal transportation. As the early manufacturers expected, it has supplanted more bothersome instruments for getting about, such as the bicycle⁴ and the horse and

² It is for the very fact that the market gives expression to forces which it does not create that it is ever the least dependable factor in economic computations. There the producer competes not only with other producers in his line but also with producers of other commodities for the consumer's dollar. He does not exercise in the market the complete controls of ownership which make him master of the processes of production, but only the uncertain controls of suggestion and persuasion. The market is a sort of front-line trench to which he can bring his product and sales forces—like a general moving up ordnance and men—but where the tide of battle cannot be exactly predicted.

³ The low-price group, predicating their policies upon subsequent increases in volume, were favored by fortune in a market that exceeded their own optimism. In 1909 Durant—a notoriously optimistic plunger—was offering, and Ford—no pessimist himself—was accepting tentatively a price of \$8,000,000 for the Ford Motor Company which, through reinvestment of profits, within two decades was to have the status of a billion-dollar company. The deal fell through because Durant could not raise the required \$2,000,000 cash. As late as 1921 Leonard P. Ayres, an authority on the industry, was writing, "The use in the near future of anything like twice the present number of motor vehicles seems most unlikely." By 1927 the number of cars on the road had doubled.

⁴ In such instances the first step in mechanization in the production of consumers' goods has been to pool custom in support of an ice plant, a laundry, a printing press, and a railway, and to serve desires which can be regimented into a mass. The second step in mechanization has been to transfer productive activity back to the individual and the family and to free the individual consumer from the centralization which has forced his existence into a mass pattern. First, regimentation of the individual, then—in respect to ice, laundry, typing, and the like—the new freedom. As in the twenties the automobile developed a speed and a roadway comparable with that of the train, its greater convenience caused the public to prefer it for much transportation formerly done by rail.

⁵ Bothersome: A bicycle required strenuous physical exertion. A horse required regular care, feeding, stabling, pasturage when not in use, and imposed the trouble of harnessing, hitching, and road care when in use. The difficulty of horse ownership in crowded areas

PRICE AND PRICE POLICIES

buggy.¹ The *personal* transportation furnished by the automobile offered an escape from the mental and physical discomforts of having to conform to fixed schedules, of waiting for trains, of changes at inconvenient hours and out-of-the-way places, of dealing with ticket sellers, baggagemen, porters, and conductors from the inferior position of the amateur, of appearing self-consciously in public, of being unable to alter a destination after the start of the journey—in short, of being regimented into the ways of an unfamiliar and inflexible world. The car's speed is usually too great to give the passers-by time for an appraisal of occupants, and travel from doorstep to doorstep confers upon its passengers an anonymity and isolation from the world which train and streetcar cannot offer.

The automobile also increases travel by adapting itself to other instruments of locomotion. Transportation over fixed routes is at best an incomplete instrument, a backbone for a popular movement that needs to be supplemented at each end as the itinerant mass becomes a multiplicity of individuals who must find their way from and to distinctive points. Passenger travel via rail fell away almost by half during the twenties. The loss was especially heavy on short-haul traffic which entailed a terminal expense in respect to taxis, baggage transfers, and meeting schedules that loomed large in proportion to the total and often imposed distractions which made rail travel forbidding. With freight, too, such costs incident to short hauls were heavy enough to arouse vociferous complaints and lamentations. As replacement for, or supplement to, older forms of transportation, the market for the automobile grew.

But its demand was not limited to its employment as a superior substitute. Its use is vastly greater than the total uses of its predecessors. The total mileage in buggies in 1890 would pale into insignificance beside the hundred billion miles of automobile travel of 1930. Annual per capita passenger mileage of railroads at its peak in war-boomed 1919 was 446.1—by 1930 this had dwindled to 218.3—while annual per capita passenger miles traveled in private motorcars in 1930 were 2,697. If all railroad passenger travel had shifted to the new vehicle that shift would account for only a fraction of automobile use. The increase would not have come about had not the automobile found additional uses for itself. Its speed and convenience add up to a responsiveness which is more than these primary qualities. Its adaptability to individual need makes

together with availability of paved streets explain something of the automobile's initial invasion of cities.

¹ Interestingly enough, between 1900 and 1925 the horse and the automobile exchanged functions. The automobile, which began as a luxury diversion, a possession of the exclusive, became the accepted servant of practical use; the horse, which was the reliable mainstay of individual transportation, became a luxury recreation, a possession of the socially elite.

THE AUTOMOBILE

possible a multitude of petty uses which otherwise would have remained unthought.¹ Its responsiveness to personal desire or whim—expanding rather than merely rechanneling traffic—accounts in large part for the excess of its popularity over the expectations of the industry. The convenience of the automobile has multiplied the number of errands feasible to the average person. The housewife has come to drive instead of walk on her shopping tour—increasing the range of her marketing area and therewith the variety of goods available. The farm wife can supplement the shopping which formerly was confined to purchase of a week's supply of everything on Saturday with intermediate trips to the stores. The suburban husband can attend a meeting of the Knights of Hilarity at the downtown lodge hall. The number of conventions—social, political, and business—doubled between 1920 and 1930. Visiting among families became more frequent—and more selective. Owners have found in the automobile new contacts and a new personal freedom. A significant portion of automobile mileage is an expression of an increase in the range of personal activity.

A parallel increase in the range of business activity has followed. The farmer found it possible to drive into town for repair of a broken plow part without completely disrupting a day's work. A contracting engineer could extend the range of his supervision to several different operations more or less far removed from each other.² The doctor could make the rounds of his patients more speedily and frequently. The sales executive who wished to attend an evening conference 50 miles away could remain at the home office longer than train schedules would allow and still make contacts—and take his assistant with him without extra expense. The commercial traveler could visit in a single day retailers along a 200-mile route which, had he been forced to conform to train schedules, would have required a week, or more probably been neglected entirely.

¹ As evidence of the importance of its responsiveness to the will of a small group, note that the gasoline automobile as it is known today was not the first practical motor vehicle. Steam coaches capable of 10 to 15 miles per hour with six or eight passengers were a commercial success on the roads of England in the 1830's. But their success was *commercial* on *scheduled routes*. And the inroads upon the income of citizens interested in horse haulage were so formidable that the said citizens scampered pell-mell to their legislatures and had them driven from the highways—with the result that improvement was at that time shunted into railroad development.

The early steam coaches had undoubtedly been intended as a superior substitute for the stagecoach. But, although faster, it was equally tied to schedules, and superiority in speed alone was not sufficient to build up for it any great public demand which would ward off its misfortunes at the hands of the legislature. The modern automobile seems to have been developed as a superior substitute for the bicycle, the popularity of which depended on that same responsiveness which contributed to the success of its gargantuan offspring. The bicycle first gave to impetuous humanity a taste of freedom from timetables and scheduled routes, and helped to furnish a greater-than-anticipated market for automobiles.

² Herbert Hoover suggested once that the greater mobility it gives executives is one of the automobile's major contributions to our civilization.

PRICE AND PRICE POLICIES

As years passed the new instrument of activity became to its users a symbol of freedom. The owner has come to view his car as a device for escaping from or compensating for the routinized and nerve-straining atmosphere of his daily labors in the factories or offices of a machine age—such labors as are, ironically enough, typified by conditions on the assembly line in the automobile factory. One third of all automobile movement is “pleasure travel”—impossible by way of buggy or bicycle because of the labors involved in driving or pedaling—and has no end ulterior to freedom and relaxation in untrammelled movement. People go for drives just to get away from things; or they drive to a neighboring community with the intention of turning around and coming right back—destination being immaterial to the escape sought. Or a week’s trip back and forth across three states—spiced by vagrant side excursions conceived en route—is made by a family in order to spend a night with a relative, it being apparent that seeing the relative is the least important objective of the trip.

But such new uses—added to substitute ones—do not fully explain the increased demand for the automobile. Uses which appeared as conveniences survived as necessities, and the larger employment of the automobile stems from fundamental changes in the American environment. In its early role of sporting contrivance and badge of distinction, the motorcar might have been dispensed with or kept without disrupting greatly the course of its owner’s daily life. But as it came to appeal to the millions, the automobile progressively supplanted other items in the budget with a resulting change in the family’s way of life.

In the late nineteenth and early twentieth centuries the growth of cities had been spiderlike—a nucleus of skyscrapers and tenements in the center, with sprawling suburbs, scattered along railroads and interurban lines, each with an extension of its scattering streets and lanes. The suburbanite’s way of reaching work was a routine walk to the station, a ride on a commuting train, a supplementary streetcar ride, and a walk to the office. With the appearance of the automobile, this pattern could be changed. The wife might drive the husband to the office if the city were small, or to a suburban station if it were a metropolis. The design was easily altered. The spider legs along railway and interurban lines began to thicken. For if the distance to city or station were to be driven, a cheaper lot and a more expansive lawn beyond walking distance became more desirable than cramped quarters closer in. The path of city development changed. As the legs of the spider thickened, real estate promoters and householders clamored for streets as communities had once clamored for railroads. And streets and roads branched out toward a series of new suburbs quite far removed from the old centers. The newer suburbs were rapidly settled. City workers, once content with flats, felt the lure of

THE AUTOMOBILE

lower land prices, and came to prefer distance and a car to an expensive place in walking distance of work. The popularity of the new environment grew and others became converts to the car. To all who committed themselves to suburban dwelling the automobile was a necessity. It became an instrument around which the whole way of life revolved. A convenience, through the very transformation of the pattern of family activities, became a necessity. The urge for the car became dominant among items which made up the standard of living—and the demand for automobiles grew.¹

Such changes in the American way of life followed the introduction of the automobile everywhere. Farmers who had formerly purchased at the near-by general store began to make weekly excursions to more distant trading centers, where greater variety and lower prices were offered. The custom of the neighborhood store dwindled, its small stocks became more meager, and in many instances it disappeared—whereupon the automobile became a necessity even to the faithful few who had patronized the local establishment to the very end. The role of the automobile in the reorganization of the retailing system of the country is a story in itself. In a kindred way the car brought the seeds of revolution into the farmer's world. In the village community of old, which still is not outmoded in Europe, the agricultural workers lived and went forth day after day to cultivate their near-by acres. In America another system came into vogue; an isolated farmhouse was built near the center of the holding which was the hub of all activity. The village lends itself far better than does the country house to the demands of living; and the automobile makes possible its return. Only a shed for tools and housing for accessories need to be maintained "down on the farm." The automobile allows easily a distance of 25 miles between home and work; and in sections of the country where land is level and roads are straight, 50 miles is not excessive. Already a pattern of life along a radius is beginning to come into existence. Here and there farmhouses are being deserted and towns are being occupied by a country population; and the possibilities of the new motor technology are just beginning to be explored. The automobile bids fair to bring back the village community—with an assortment of novel elements of a new village life—on a grand scale.

As suburbs called for streets, so the new trading and the new farming called with the clamor of heavy traffic for highways. There was joined the cry of interested parties—merchants, the automobile industry, con-

¹ Goods are not inherently either necessities or luxuries. The automobile, a luxury in one way of life, becomes a necessity in another. It is of note, however, that there is frequently a lag in time between the change of a good's status in fact and its change in the mind of the public. Long after it had become a real necessity to a large segment of the population, viewers-with-alarm were waxing eloquent over the increasing sums "squandered" by Americans on automobiles.

PRICE AND PRICE POLICIES

tractors, and politicians. For a decade the affairs of city and state governments tended to center around the highway department. At the coming of the automobile roads were insufferably rough at speeds exceeding 5 miles an hour, and were not a heavy expense to the taxpayers. By 1935 a network of improved highways extended throughout the country, affording avenues for high and low speed transportation, and costing a billion dollars a year.¹ As highway facilities increased, the short-haul passenger traffic by rail declined, and the railroads discontinued many local trains. As trucks appeared to take over short-haul freight, the railroads tore up branch lines and feeders. Again cars became a necessity to a former nonusing remainder of the public, for the train service was no longer there to accommodate them.

Even more subtle changes in the way of life attended the general adoption of the automobile into the economy of the family. Evenings once employed on lawn or porch were spent in "catching the breeze" in the car. Recreational and social activities changed almost completely. When Sunday dawned bright and clear with a restless breath of spring in the air, the immortal John Doe family easily persuaded themselves that spending the day at some distant picnic ground communing with nature would be quite as good for their immortal souls as listening to the homilies of the pastor. Churchgoing fell off drastically. A taste of this freedom led to disaster. Editors began to preach the doctrine that long and frequent vacations were essential to the new era of efficiency—for did it not clear the mind, relax the body, and enable one to do twice as much work when one got back? The beach, the mountain, the lakeland—long popular with the rich—began to be invaded in waves by the middle classes and the

¹ Highway development followed an interesting course. Between 1830 and 1900, when the railroads were extending dominion over transportation, public interest in highway construction declined. Then with the introduction of the automobile came both extension and improvement, the climax of extension preceding the crescendo of improvement, the former between 1914 and 1921, the latter following 1921 which was marked by two phases, the first emphasizing heavy cross-country highways, the second light feeder highways.

Year	Total road mileage in U. S. (excluding city streets)	Percentage surfaced (feeder roads)	Percentage surfaced, high type (main highways)
1904	2,151,379	7.1%	0.1
1914	2,445,761	10.5	5.6
1921	2,924,505	13.2	9.3
1929	3,024,233	21.9	17.0
1933	3,040,000	30.0 ¹	17.4

United States Bureau of Public Roads.

¹ The swift comparative increase of light surfacing over heavy in 1933 represents a return to feeder-road surfacing as "trunk-line" highways neared completion.

THE AUTOMOBILE

poor, and the tide of invasion is still rising.¹ It became customary for "everybody who was anybody" to have a vacation at least once a year. The itineraries of the new freedmen multiplied tourist camps, park facilities, roadhouses, and hot-dog stands—and in turn lent increased convenience and new impetus to that swarming.

In the course of years custom became canonized as convention. Social pressures were enlisted in the drive. An automobile, if no longer a badge of great distinction, has become at least a necessity to acceptability in middle-class society. Cases are recorded of families which sacrificed heavily in other directions to buy a car in order that Young John might not lose caste among his companions in high school. And among the elders there is valuable prestige attached to having a car—especially a new car—parked in front of the house. Moreover, the automobile has become an accepted—even an indispensable—element in the ancient institution of courtship. The young man with a car has a tremendous advantage over the unfortunate who must walk or hire a taxi. The automobile is a token of economic status; it allows escape from the critical gaze of elders and acquaintances; and it provides instrumentation for the restlessness of youth which on dates prefers to go places. Preachers and judges have waxed eloquent in the condemnation of the car; but its popularity among the young persists, and anyone who has witnessed the exquisite tortures to which noncar-owning parents can be subjected by an adolescent son has little doubt about one important market factor. This seething of change in the habits of the people took place in an environment fertile for the nurture of the ferment. The vast distances of the American continent, separating community and community, created a need for just such a facile instrument of movement. The swift exploitation of great potential resources demanded an adequate and adaptable system of transportation. The swift increase in national and personal income supplied families with sums not earmarked by older habits of expenditure which could be diverted to the purchase of cars—even at the expense of impingement upon other items in the family budget.

The prosperity of the automobile industry was and still is contingent on the general prosperity of the nation. It is obvious, but easily forgotten, that an industry does not exist in isolation, that there is a great interdependence and interresponsibility among the autonomies which make up the industrial system. If the American economy brought gifts of surplus income to the automobile market, specific industries endowed it

¹ The number of bathing beaches in the United States almost doubled between 1923 and 1930, while attendance more than doubled. Attendance at Chicago beaches increased sixfold from 1905 to 1930 and doubled from 1925 to 1930. Hunting and fishing are increasingly possible to townmen. In 1916 14,975 automobiles visited the national parks; 128,074 in 1920; 897,038 in 1931. The American Automobile Association estimates that 45,000,000 people took vacation motor tours in 1929.

PRICE AND PRICE POLICIES

with invaluable inheritances. The oil industry, for instance, turned out as a by-product of kerosene a commodity called gasoline in surplus quantities.¹ And in the production of steel and the machinery of parts an excess capacity had been developed which made a beginning of automobile production easier.

And it must be noted that these tendencies were carefully cultivated by the industry. They did not put their trust in low prices alone to effect sales. In the first decade of the century automobile races were extremely popular. To the races all the early makers carried their latest products to compete for the prize moneys—and, most important, to demonstrate the exciting speed of their products to spectators, press, and public. The racing was later transferred from oval tracks built for horse racing to roads and to cross-country runs. Thus, through the same inexpensive mediums, the manufacturers persuaded a doubting public of the reliability of their merchandise. The resulting free publicity was supplemented by advertisements shrewdly cultivating latent desires for cars—and the ways of life which demanded them. Older attitudes were astutely enlisted in the support of the growing market and on occasion a sidelong attack was made upon prejudices and institutions which stood in the way.² Everywhere manufacturers fostered the setting up of agencies and repair shops and later adopted the market stimulus of installment sales.³

Thus out of a complex of phenomena developed a market able to support a tremendous industrial empire. A demand appeared large enough to foster an organization of supply conceived in terms of mass production

¹ In its early years the oil industry had to be restrained by law from introducing too much gasoline into its lamp fuel. Since automobiles, laws have been framed prohibiting the introduction of too much kerosene into gasoline.

² Notice the undermining of two prejudices which were currently cankering the minds of automobile buyers with doubt—(a) that the automobile is a luxury; (b) that money “squandered” on this luxury should be saved and banked—in the implications of an ad run in a “Middletown” paper when automobiles were just becoming widely owned. A banker, ordinarily at least a lip servant of thrift, is pictured telling a client, “Before you can save money, first you must make money. And to make it you must have health, contentment, and full command of all your resources. I have often advised customers of mine to buy cars, as I felt that the increased stimulation and opportunity of observation would enable them to earn amounts equal to the cost of their cars.”

And note how another ad from the same source appeals to a latent desire for an automobile way of life and ignores the existence of the church. The banker, so generally in that day the community patriarch, advises, “A man who works six days a week and spends the seventh on his own doorstep certainly will not pick up the extra dimes in the great thoroughfare of life. Some sunny Sunday very soon, just drive an Overland up to your door—tell the family to hurry the packing and get aboard—and be off with smiles down the nearest road—free, loose, and happy—bound for green wonderlands.”

³ Automobile travel as well as sale has profited from the catalyst of dribble spending. The passenger by rail puts down a cash outlay representing the entire cost of the trip. The motorist is likely when making a journey to ignore his fixed expenses, such as wear, and to regard the outlay for gas and oil as the cost of the trip.

THE AUTOMOBILE

—and a sequence of price cuts. But that demand emerged in a way too piecemeal, too involved, too humanly weighted with attitudes and customs either to be explained by a mechanistic price formula or to be described as a mass movement. Cars were bought; but the buying was not a single purchase of a unit of a commodity for a distinct use. It might be bought for business, or for the release and freedom it brought, or to impress the neighbors, or for any one—or more probably some dozens—of reasons. Its purchase was contingent upon such considerations as income, locality, available roads, and the conventions of the community. Its employment after purchase involved additional expenditures for fuel, tires, storage, repairs, and taxes. The growth of the automobile market was an unsteady, intricate, irregular, tumultuous affair which lacks an analogue elsewhere within industry. All the purchases aggregate into a huge mass. Yet the buying was by individuals, each prompted by complexes of reasons which were themselves serial. The diversion of the dollars of consumers to automobiles had repercussions beyond its own sphere. It withheld patronage from buggies, porch swings, urban flats, clothes, and even the church to bestow pecuniary custom upon the fabricators of tires, bodies, cushions, and the makers of their materials. The automobile represents a novelty which industry had to take in its stride. For reasons only partially predictable, the early adventurers into industrial planning prospered. A grounding of price in prophecy was found practical and helped to reshape a culture.

But our population has its bounds, and the expansion of the national income is not limitless. Inevitably there came a time when the further expansion of the market through the lowering of price ceased to promise increased profits. The impelling incentive of business enterprise is neither motorcars for the masses nor the creation of a motor-minded people unless the incentive of gain marches along. So a point was sure to be reached where the ways of low price and of money making parted.¹ A good historian would undoubtedly cite the introduction of the Model A Ford as the turning point. It marked the recognition, by the most inveterate of the prophets of lower price, of the march of automobile events into a new era. An expert technician could devise a neat chart exhibiting the point beyond which the profit upon additional cars would not compensate for the reduction in price throughout the already established market. Its simple graphic lines, however, would ignore a number of considerations making obsolete the price policy of the period of

¹ Even if they had been so minded, it would have been illegal for automobile manufacturers to have based their actions on altruistic motives. The Supreme Court of Michigan was explicit—*Dodge v. Ford Motor Company*, 204 Mich. 507 (1919)—on that point: "It is not within the lawful powers of a board of directors to shape and conduct the affairs of a corporation for the merely incidental benefit of the shareholders and for the primary purpose of benefiting others."

PRICE AND PRICE POLICIES

expansion—all of them pointing to change, not saturation, in the automobile market.

Chief among these is the used-car market. As during the twenties the automobile went down the price scale, the manufacturer encountered the competition of his product of former years.¹ The income groups into which a lower price could further extend the market had already discovered and acquired the secondhand automobile. Used-car dealers had made prices which the manufacturers of new cars could not meet and thus had effectually established a price floor for new-car sales. So manufacturers discovered that the larger market and the greater profit were to be had in an appeal to the median income group able to afford new cars. Accordingly it became wiser to build a more attractive car, to devise more effective sales methods, to make more skillful use of advertising than to give further indulgence to lower prices.

Moreover, the new-car market was coming to be a replacement market. As expansion toward the lower income groups was cut off, a more assiduous cultivation of groups who had already demonstrated ability to pay became necessary. The number of first-time buyers of new cars reached its peak in 1921 and the sales of the Model T were at pinnacle in 1923; thereafter replacement sales progressively increased. And this market—able to meet the money-outlay requirements of new-car ownership—came to choose less because of price, already at permissive levels, than for considerations of comfort, prestige, and performance. New sales devices appeared to mitigate the formidable barrier to purchase in the over-all price. A buyer replacing an old car brought to his dealer a trade-in; the allowance for it was a substantial subtraction from the price of the new car. Ingenious methods were devised to lessen the amount of cash immediately necessary and to lead the prospective purchaser to appraise the car he wanted in respect to a total cost made merciful by a reasonable cash-out-of-pocket exaction. Under installment selling, buyers discovered a \$250 price for a used car little more inviting than a \$600 price for a new car on terms of \$200 down and the rest "easy payments"—and found the \$600 car far more enchanting in appearance and more impressive to neighbors. And as high-priced cars moved toward the low-price field, the pecuniary advantage of the maker of the cheaper car narrowed. So as a winner of markets, price competition came to be succeeded by "the new competition" published in attractive design and through alluring salesmanship.

This shift in price policy received emphasis from changes in automobile use and public attitude. Highways had become smoother and straighter with an increased accent upon speed and power in the instru-

¹Each year since 1927—the date of Ford's final abandonment of the Model T and a policy of progressively lower price—there have been more used than new cars sold.

THE AUTOMOBILE

ment of transportation. The newer roads were less exacting upon the driver, and long trips and pleasure travel increased; the comfort of the car assumed new importance. An increasing consciousness and its growing acceptance as a token of prestige tended to make the automobile a "style product." Such changes were attended by a reordering of the industry. Ford had exploited integration and mass production to such limits as to be unapproachable in price. But changes in design, refinements, and embellishments came more easily to less standardized factories. So his competitors took the lead in the newer fields of competition which were opening. Ford proved as inflexible in recognizing and accommodating himself to the novel trends of the market as other manufacturers had previously been in overlooking the possibilities of low price and quantity production. But as Ford had forced them toward lower prices, they now forced him along the way of quality, performance, and style.

Thus the march of the industry toward lower price came to an abrupt halt. The simple function of price in the sale of an instrument of transportation was confused by matters of quality, performance, and methods of payment. In the minds of competing manufacturers the problem of basic price became the division—rather than the widening—of established markets. Yet, in intricacy and tempo, economic planning has increased. Price policy is less singular in emphasis and in purpose than in early years. Not less imaginative, it is adapted to more complex demands, qualified by more elaborate traditions, hemmed in by more of the necessities of technical procedure, financial structure, and labor policy than in the past. The inquirer into the automobile prices of today must study an industrial empire come of age, or at least in its course of growth confirmed in a fourth era.¹ To such an understanding must be brought a knowledge of that central core of its far-flung activities which cluster about its manufacture. Here as good a beginning as any is to be found in the compromise with quality which precedes, contributes to, and finds expression in price.²

DESIGN—AND ECONOMIC PLANNING

It is obvious to a motor-conscious America that the term automobile covers a great variety of products. In its adaptation to multiple use, a

¹ The first three: experiment with invention; luxury uses and markets; planned price reduction and expansion of market.

² Some critics, seeing that the consumer got more machine transportation and more metal for his money from Ford, have regarded this later trend as degeneration and have sought diligently some malevolent devil who could be caught in the act and exorcised. Defenders of the industry are probably more realistic in retorting that "values do not exist in materials but in the minds of the people" and that the industry was merely responding to a new demand of the market. See Kettering, C. F., and A. Orth, *The New Necessity*.

PRICE AND PRICE POLICIES

changing emphasis has found expression in divergent make and model. An endless field for variation lies in such elements as speed, power, weight, comfort, style, cost of operation, and provision for passengers. Into decisions as to design is crystallized the whole complex of economic planning by every manufacturing company.

The appeal of the design to the consumer is the key to sales. If a manufacturer is to survive he must this year and for years to come tightly hold his market. As a particular make falls behind in the race sales become cumulatively more difficult. Next year's model may be improved, yet a bad reputation will linger. Some designs have been publicly discontinued by their makers—a new name and a new start with no reputation seeming preferable to a continuation under the handicap. Moreover, the fewer the cars of a given make in circulation, the less extensive the service facilities accessible to it, hence the less desirable the car, hence the fewer its sales, and so on in a vicious spiral. Once a manufacturer loses his footing and starts slipping, he finds the downgrade greased. The wide range of the automobile and its continuous dependence upon service make for the concentration of the industry in a few companies.

As a corollary the manufacturer's grip on production and cost is at stake in design. A car must have wide consumer acceptance for mass output and its decreased unit cost under mass output is the primary law of production. A loss of sales volume raises the unit cost, eliminates profit, and impairs competitive position. The tyranny is inescapable; the quality and quantity of materials per car are specified in blueprints. If unit cost cannot be kept down, sooner or later price must be advanced and competition makes such a course perilous strategy. In short the order of the industry comes to focus at the designer's drafting board. The current concept of that order—from the car on the road to the fabrication of raw materials—finds expression in the blueprint. Upon the mind of the designer play the stipulations, requests, and experience of the consumer, actual and potential. These requirements are as numerous as the drivers of automobiles and as diverse as the uses to which a car is put. Some represent enduring demands, some are mere passing fads. By the designer they must be sifted, analyzed, assessed, and translated into "the car of tomorrow."

Adequacy, flexibility, indifference to route and schedule, and ease of adaptation to the road are essentials. Without them no car could be sold. Indifference to route implies a car that will run on any road the reasonable man may choose to travel, from the rutty country lane to the improved concrete highway. The variety of inviting roads demands an engine powerful enough to pull the car up steep hills and through sand belts and to drive it at speeds high and low on smooth pavements without time-consuming adjustments. It must have a standard width between

THE AUTOMOBILE

wheels; because its wheels were too close together to take advantage of ruts the Austin was impossible to rural buyers. It must have springs and a frame which will withstand the shocks of everyday travel. The car that sells must be able to start easily. On the road it must be dependable; it must not be subject to frequent delays for repairs, which means a self-starter, expensive bearings, strong gears, batteries, steels, and alloys of special quality. And it must, of course, be safe—all but foolproof—in its operation. It must allow the driver visibility in all directions, hold the road easily, and stop quickly and surely. It must, in case of accident, be able to stand the shock of collision with as little damage to property and passengers as possible. In terms of such requirements the designer determines the type of brakes, glass for windshield and windows, the steering mechanism, weight and strength of bumpers, frame, engine mount, and body. Such, roughly, are the essentials of an instrument of automotive transportation. In terms of these requirements there are today no really bad automobiles upon the market. The cars of lowest price are adequate to all reasonable transportation needs; the more expensive ones offer additional advantages in power, or speed, or weight. They may go a bit faster, hold the road a little better, and add somewhat to comfort on the journey. But, as the public knows, such advantages for motor movement are slight.

But an automobile is something more than transportation. In the purchase of a car the desires of the consumer stretch out beyond mere transportation. Alien considerations such as comfort, beauty, display, and prestige obtrude to register preference. The quest for comfort,¹ by motorist and designer, has in recent years been much in evidence. It has led to enclosure, wider seats, soft upholstering, special ventilation; it has found vent in so miscellaneous an expression as an automatic gear shift, a lower steering ratio, an increase in footroom between seats, and a cigarette lighter. With the essentials of transportation assured, one or another of these features may touch off consumer preference.² And if less important the development of prestige features has been even more spectacular. It has turned designers to lacquer finishes which flaunt newness, to large hoods hinting at tremendous power, to globular streamline fenders and radiators, to a slick cascading of lines from top to rear bumper, to a long wheel base suggesting expensive

¹ As evidence note the trend toward closed cars. It was marked even in early days when open cars were offered at lower prices.

² This phenomenon has caused many to exaggerate the gullibility of the consumer and charge him with forgetting the primary uses of the car in favor of gadgetry. Rather such a preference reflects a tacit and rather well-founded assumption of transportation adequacy with resultant verbal, not actual, overemphasis on gadgetry on the part of the consumer. It falls short of a compelling case against the manufacturers for making raids upon the income of the unwilling consumer and giving in return merely useless and ostentatious comforts and ornaments.

PRICE AND PRICE POLICIES

comfort, and to overhangs as an emblem of success in climbing the automobile social ladder.¹ Since the twenties the prestige appeal has been more conspicuously exploited with the advent of each annual model. As a result the automobile has become a style product and yearly models have become as important to the market as seasonal changes to the sale of women's dresses. In seeking increased sales for new cars, manufacturers have in advertisement and sales talk played up model change; and changes in successive designs have been conspicuous enough to create in the minds of some old-car owners a torment mildly akin to that of the woman caught in winter garb after Easter.²

The cost of changes is significant, for low cost comes by way of standardization. A continuous series of changes to add small comforts or to cater to the style craze of buyers is expensive and has been denounced as an extravagant toll upon the consumer. But such condemnation is perhaps more glib than just, especially when aimed at the designer. He probably does no more than aim consciously to accommodate the product to the distinctive uses which society makes of it. The human impulses to which he may pander lay dormant long before the seductions of the up-to-date car were a reality. For the consumer will buy comfort even at an extra cost; and on the initiative of the buyer cars are purchased to impress neighbors. And these facts are reflected back through the dealer to the manufacturer. Comfort and prestige are part and parcel of the complex commodity the public is buying.

In addition to adequate transportation and a degree of comfort and prestige, the consumer demands an automobile shaped to his own distinctive uses. He wants, too, a car that will serve as an expression of his own peculiar tastes and standards of value. All such demands must be taken into account in shaping design. Some companies make cars to

¹ Air resistance differences between the old style and the newer "streamline" design cars are slight at usual speeds. Appearance was by all odds the major factor in bringing in streamline cars. A much heralded "air-flow" model represents an attempt of a designer to keep a car with wider seats and body from looking stubby without needlessly lengthening the wheel base.

² Some economists—note Hoover's Committee on Recent Economic Trends—have looked askance at this "increasing development, largely irrelevant to consumers' needs, of 'deliberate obsolescence,' by which merchandising device an automobile that is mechanically sound and has never turned a wheel, automatically loses 20 to 30 per cent of its sales value when a new model appears," blaming the industry and plant overcapacity for the appearance of the phenomenon, but overlooking compelling values and attitudes of the consumer which are equally important and must share the responsibility.

It must be noted, however, that the retorts of the industry have looked even less to realistic explanation in defending the policy. Kettering and Orth, in *The New Necessity*, maintain that "whenever wants are synonymous with need, there is a static form of civilization that is unhealthy. When, however, different wants are created which are entirely different from needs, then there begins a mental reaction of far more importance than one that is purely economic. People begin to become more alert mentally, more willing to work, more willing to do the unusual."

THE AUTOMOBILE

order for the very rich. All large concerns and many small ones have responded to this multiple personal urge by getting out a number of makes and several models of each make every year. The buyer is offered an array of choices which range from a twelve-cylinder model which exalts power and prestige over cost, through a medium-priced car with much shine and many gadgets, to a low-price design with power and prestige at a level as modest as competition will allow. Within such broad limits the buyer is still given a chance to follow his bent. For the establishment with chauffeur there are expensive models with the servant glassed off; for the youngster, a one-seat sport roadster with a top that can be lowered to allow entry of spring air and moonlight; for the aesthete, a design in chromium and color to match shirt, tie, and bell-bottomed trousers; and for the family enslaved to utility, a sedan with single door, low price, and room for five or more passengers. All along the line the offerings are startlingly wide. And as a last touch of the designer's art, variety may be endlessly wrought in color, wheel, and accessory. An automobile to his liking can be found by every man—and every woman—who demands a reliable vehicle of transportation and wants to be "in style yet different."

But as the consumer suggests and the designer elaborates, the production manager enters objections. Yes—please as many customers as possible; for the greater the volume, the smaller the unit cost. But—every departure from last year's design means expensive changes in the scheme of production; it necessitates new or retooled machines, the retraining of labor, perhaps the employment of more expensive materials. And the multiplication of models means the multiplication of parts, each now to be produced in smaller volume. It means a compromise with standardization, a substantial threat of an increase in the unit expense per car in spite of volume.

Change must be had to hold the market. Change must be had if the car's style is to be different enough to contrast with last year's model, make the fact of obsolescence obvious, and persuade the owner to replace. But change must be had as cheaply as possible. So the industry has contrived ingenious ways for making easily noticed changes without incurring extraordinary expense. The shape and color of fenders and hood, the length of the cowl, the jiggers on the radiator cap, the color of the upholstery can all be altered annually with but little expense. Changes may be staggered over a period of time. An engine change may be considered necessary. In 1935 and 1936 partial changes may be effected, and in final form the new engine may be installed in the model for 1937. Changes in one make may later be extended to the other cars of the same company. Each of the Big Three—and several smaller concerns—offer cars at many prices under different names. An innovation may be intro-

PRICE AND PRICE POLICIES

duced in Buick, taken over into Oldsmobile or Pontiac, and eventually appear in the design of Chevrolet with or without minor variations. Plymouth and Dodge engines, or De Soto and Chrysler doors may be virtually identical, thus reducing unit cost through the economies of volume. Thus quantity production often confers upon the consumer a steering wheel, gear shift, or engine which belongs to a higher priced car. As an improvement is staggered down the price scale, an accelerating volume reduces the cost of novelties.¹

The crux of the problem is to create differences and yet to use standard parts. The costly changes in machines and processes must be as few as possible; for if expenses go up, price—the coarbiter of the market—will be sent to a level above that of competitors or profit must be cut. Techniques have been devised by the industry by which the demand for frequent change, heavily accented by style, has been domesticated to a comparatively reasonable price structure. The market is omnipresent and inexorable. In a majority of cases a difference of \$25 will influence sales; differences of \$5 and \$10 are often significant. The designer who interprets quality must keep his eye everlastingly on price. A failure in respect to either means the surrender of a market to competitors.

Fundamental to the whole structure is the tradition of price class. The man of small income or habits of thrift, when he goes to market, considers it a foregone conclusion that he is going to buy a low-price car. He brings to his purchase few abstract norms of what the car ought to be; but he does know something by experience and hearsay of the cars which are established in the low-price field, and he shops among the salesmen of them. The chances are about even that he will replace his old car with a new model of the same make if it has not changed its price class upward. This more or less prejudiced market will constitute a substantial backlog to keep up sales. But if in price one make is out of line with the rest, he is likely to cross it off his list.² So sound practice knows its upper and lower limits. The upper limit of the market price is the traditional class just ahead; the lower, a standard in quality and performance which cannot be sacrificed with impunity. It has proven possible for a manufacturer to invade a lower price class and to hold a substantial part of his old customers. An invasion of the high-price class is more perilous; the total

¹ Two important results of staggering change and expense are to introduce essential improvements in low-price as fast as in high-price cars, thus reducing quality differences, and to confer upon the integrated company which has many makes distinctive advantages in production.

² The fields of the automobile business are strewn with the skeletons of business firms which forgot the tradition of the price class. Dodge, for instance, had a narrow escape when after years of success in selling cars costing about \$100 more than a Ford—the relative not the absolute price is the thing—it changed managements, stepped out of its price class, evolved a car of elaborate design, and almost went on the rocks. It required another management to put Dodge prices “back where they belonged.”

THE AUTOMOBILE

volume of sales is smaller and habitual customers do not go along readily. In general a price in line with past performance and the quotations of competitors is a rule that brooks few exceptions.

As the price problem emerges year after year, many of its terms are unknown. The prices that competitors will charge are only predictions, which a knowledge of the psychology of rival managements and a little secret inquiry will not reduce to certainties. Tradition falls short of assurance since this year's car is not quite identical with last year's and conditions have changed. In the open market materials and workmanship command different prices; the magnitude of the national income has not remained the same; the purchasing power of various income groups has been altered, often very materially. The whole schedule of prices may move up or down; it is the relation of price to other prices which attracts or repels buyers. Here there are no absolutes; designer and manufacturer must hold—and, if possible, advance—their lines against their competitors. As for a choice between high quality and low price, the market insists upon both. The answer to the manufacturer's dilemma—one never sent from heaven—is the best design, with eyes upon all conflicting values, which he can contrive.

According to a traditional ideal it is all simple enough. A manufacturer designs his product, puts it through the processes of manufacture, aggregates items of expense into a total cost, adds a profit, and arrives at a proper price. Amid the actualities of the automobile industry it is radically different. The manufacturer decides first upon the proper price, subtracts a tentative profit, and arrives at a tentative total cost. Next, with an eye to materials, volume, and methods of production, he enters into a computation of the costs which may be allocated to individual items. And then, within expense limits severely marked out, he works out a design which will convert the most attractive combination of items into an artistic ensemble. In the task a number of essentials must not be overlooked. Motorists talk, news moves with almost the celerity of the car, and a car with a rear axle prone to failure has little chance in the market. An automobile without a self-starter, or adequate footroom, or glassed-in protection would be passed by even if an equal price had to be paid for a secondhand car with the requisite features. Such essentials as motor, chassis, frame, doors, and transmission are, with necessary adaptations, usually carried over from model to model. The changes are limited to a new carburetor adjustment, a bearing of a new alloy, a new ratio in the steering mechanism, a brace on a frame, a cover on a spring, a touch here and a touch there in response to the experience of repairment. The necessary body changes are also as a rule small, representing modifications of last year's model—more safety glass or stronger springs under the upholstery. The cost of such minima, a sizable portion of the given tenta-

PRICE AND PRICE POLICIES

tive cost, may be determined from experience. Again is narrowed the leeway of the designer.

In the resulting margin are concentrated prodigies of energy, ingenuity, and engineering skill to endow the car with superior sales appeal. In the low-price class, quotations are so close together as to put the stress of competition upon consumer acceptance. If one manufacturer comes out with a smartly styled car, the others must continue their distinctive appeals or follow suit. As mechanical development has slowed down, the difference between this and last year's model has come more and more to lie in "final touches." And final touches must be shrewdly contrived with the present and probable desires of the motorist in mind.

Most frequently inexpensive items which prove alluring are in the realm of style. The nicked rods leading across the radiator and the hood of the Pontiac are conspicuous examples. The bother to the manufacturer is that every other manufacturer is working the field of style to the vanishing point. And rarely can the consumer in his uncompromising single-mindedness be diverted from an insistence upon particularities which he has come to regard as all-important.¹ An attempt is made to add features which the consumer will readily buy—in the low-price field generally something the consumer has seen and liked on a higher priced car. The possibilities here are innumerable; for it is not written that any human being was ever completely satisfied with the car of his choice. The desideratum may be a change in body shape, an easily operated brake, the installation of a radio, a few more cubic inches of cylinder displacement, a second light of ornamental design at the rear, or such a sum of ornaments and gadgets as adds up to individuality. Now and then a gamble is taken on an expensive improvement in the hope that an increase in sales and large volume will bring the unit cost down. But usually the quest of novelty does not stray far from the path of business safety.

It is the manufacturer's unenviable task to bring this myriad of conflicting possibilities to focus in a design. He must act with due regard to the traditions of design, the previous year's model, the usable carry-over in manufacturing equipment, the available standard parts, the current resources in engineering skills, the plans of his competitors, and the trends in consumer taste. With an array of experts at his elbow, to level the gaps between planner's concept and future fact on as many fronts as possible, the manufacturer torn by conflicting urgencies does the best he can. In this work he has the aid of a consumer research department. It

¹ The 1936 Ford had a very attractive style—a modification of the previous year's Zephyr lines—but Ford salesmen report that prospective customers were all too numerous who asked point-blank if the car had hydraulic brakes and when told that it had not would hear no more.

THE AUTOMOBILE

attempts, through questionnaire, interview, and salesman's report, to discover what features buyers want and how badly they want them. The results of these surveys become more raw material for the designer's art. In addition he has the aid of a documented prophecy which, on the hypothesis of next year's design and its putative price, national income, and kindred factors, attempts to forecast the "estimated demand."

Expert engineers and accountants, with a glance at documents and figures, also begin computations of expenses aggregating into cost. They employ another hypothetical figure, a preliminary estimate of the anticipated rate of plant operation termed "standard capacity" or "standard volume." The cost of new machinery is noted, qualified by an assumed rate of obsolescence, and calculated in terms of expected sales. Probable expenditures for materials, hedged or unhedged as the market permits, are computed. The cost of labor is reduced to such precision as experience and circumstances allow. Then "a cost of production," figured to the last decimal place, is qualified by a series of averages and standards for investment, cost of capital, previous volume, and the past performance of price. Out of all this a "base price" is evolved. This base price is then subjected to critical scrutiny. It is reviewed in the light of competitive conditions, cost abnormalities; the trends of the industry. It is asked where the rate of return is likely to be high enough to lure competitive capital into automobile manufacturing. The relation of the industry to other industries, to the consuming public, and to the course of economic events does not escape attention. If, in the judgment of individuals in high strategic places, it is not satisfactory, a process of revision is ordered. Everyone from designer to production manager again gets busy until a design and a price are hit upon which in the judgment of those in industrial authority will do the trick. This, roughly, is the practice of the industry, although details vary greatly from company to company.

But whether or not it does the trick only experience can tell. The history of the industry reveals many incorrect guesses. It is by no means certain that the experts—the market surveyors and cost accountants—render more accurate a weighing of the multiform compulsions and desires which eventuate in design, price, and policy. At best they cross multiply each other's guesses in respect to volume, which affects cost and price, which in turn affect volume. They are dealing with a complex of interdependent market and production variables. No item in their calculations can be isolated and evaluated with precision. But they do lend an intellectual instrumentation to what must remain a matter of opinion; and the procedure does substitute a concensus of belief for the opinion of a single individual.¹ Moreover, since the manufacturer's share of the

¹ Competitors agree that Henry Ford himself decides what price and what design are to be announced the following year. One is told that he will not be convinced when informed

PRICE AND PRICE POLICIES

market must at all costs be held, a company when hard pressed will disregard its most careful calculations. It will allow competition to fix its price and even produce at a loss rather than lose a hold on its market. Before its entrance into the low-price field Packard made no pretense of following a policy of cost recovery. And stories are authentically told of other companies who revised price quotations within 24 hours of their public announcement. On occasion expert prophecy and advice on policy have been thrown to the winds and departures from announced prices have been decreed to keep a grip on the market.

But, uncertain as are its preliminary processes, this economic planning of the industry works. In any event, after the last prophecy is in and the final decision on policy is made, the model is reproduced in steel. It is then turned over to another set of experts, whose efficiency is less subject to question and whose task savors less of divination, at the testing grounds. There the quality of performance receives a final checking. Then it moves into production—and an instrument of transportation plus, the best that good judgment can make it, passes off the assembly line.

THE PATTERN OF THE INDUSTRY

No province within the empire of the automobile is autonomous; none is able either entirely to escape the dominion of another or to impose a capricious will upon it. Each is a state within a closely knit confederacy; each makes its contribution of influence to the scheme of arrangements under which the industry is carried on. Each makes exactions and applies pressures; each is, in turn, forced and persuaded. Even the pattern of a process is not self-contained; it dangles loose ends which are parts of other processes. Its miscellany of aspects are caught up within the compulsions of a culture.

An impulse toward a respectable and intermittent vagrancy becomes custom. The community adopts the novel means of transportation, evolves a new way of life, turns upon the individual, demands of him automobile ownership on pain of ostracism, builds roads, and demands that he pay. The urge of the individual and the coercion of the community conspire to impose demands upon the producer of automobiles. In response the manufacturer devises pneumatic tires and a self-starter; and from the impact of such devices, the use of the car ricochets upon new courses. The production manager demands standardization and low costs and the designer fashions interchangeable parts. A neat and precise schedule is brought to the assembly line so that cars emerge with that combination of colors ordered by an individual dealer or consumer less

in a specific case that this cannot be done, and argues and bargains relentlessly with experts, with his own force, and with parts suppliers to attain his goal.

THE AUTOMOBILE

than two weeks previously—an ingenious technical triumph in gearing variety into a scheme of mass production. Thus in various ways there is relayed throughout the production organization the demand of the consumer for a low cost attended by variety. So intricate are such relationships that an attempt to segregate into separate chapters the growth of demand, the designing, the production, and the marketing of cars is purely an artifice. In the discussion of any topic, what has gone before—and even what is to be said later—must be taken into account.

In all the processes of production, volume is the key to cost. In fact throughout the industry unit cost varies inversely with volume; for, with small volume, the allocation of overhead per car runs high and certain economies dependent upon mass production are not feasible. These inverse-to-volume variations in cost are large enough to explain why in a year of high national income and large sales a car can be produced at a large profit while its prototype of a year of depression is manufactured at a loss; why a steady lowering of prices with a persistent improvement in quality was possible during the years of the industry's growth; and why managements insist upon a retention of volume in the face of competition even though operations must be carried on at a loss. As good times alternate with bad and the years sweep on, the industry must make the best terms it can with the volume-cost relationship; for there is no escapé from this persistent tyranny.

But all this which now seems obvious is largely the creation of circumstances. There is nothing inevitable in the pattern of the industry, in the dominance of the assembly line, in the volume-cost relationship. Had the automobile appeared a quarter of a century earlier or had its coming been delayed for another two decades, the industrial structure would probably have reflected a very different design. Time, occasion, and expediency have contributed as much as foresight and managerial strategy to the industry we know.

The industry was born into a going economic system. In it the art of making machines was highly developed, and established plants were able to keep up with orders and still to have surplus capacity for other uses. A gigantic steel industry had already come into existence to furnish machines for the fabrication of consumption goods, to provide agriculture with implements, and to provide sinews of war. A lumber industry had grown great in providing materials for housing and furniture. Plants for the processing of raw materials were in a high state of development; wood-working plants were numerous and their processes were flexible enough to supply automobile bodies as a side line. The excess capacities of foundries and machine shops—turning out a catalogue of products such as steam engines, spinning jennies, cotton gins, farm machinery—were readily shaped to the manufacture of automobile parts. It was far cheaper to turn

PRICE AND PRICE POLICIES

excess capacity and slack seasons to account than to engage in the fabrication of a miscellany of products. So the making of parts was farmed out; of all that is comprehended within manufacture the automobile manufacturer did little more than furnish blueprints. The fabrication of materials and parts, which under other conditions might have been aspects of the parent venture, grew up as dependent provinces.

A lack of capital helped along the trend.¹ The early manufacturer had to reduce his financial requirements to a minimum. He was forced to get along with only the sum necessary to buy or rent his shed, to purchase tools, to meet current pay rolls, and to pay for parts fabricated by others. There were instances where even the act of assembly was farmed out and capital outlay extended only to cash to meet current bills. Even in respect to the demand for cash the industry's inheritance favored it. The parts manufacturers were established solidly by the time the automobile emerged from the experimental stage; and out of their comparative stability had grown a custom of extending thirty to sixty days' credit to industrialists of substance, dependable patrons who were good for their bills. So, when the adventurer in motorcar making arrived with a demand that might fill in intervals of idleness between really substantial orders, he was able to secure terms as favorable as if he, too, had resources accessible, in case of default, to suits for collection.

Moreover, in the industry's infancy the demand for automobiles steadily outstripped the supply. To assure themselves of delivery, dealers were induced to make a cash deposit of 20 per cent with each order placed and to pay the balance in cash on delivery. So the manufacturer—buying his parts on time—was able to assemble, meet pay rolls, deliver the completed car, and collect in cash the balance before the bills became due. Thus the necessity for large loans or for a recourse to the capital market in Wall Street was small. The manufacturers commanded adequate resources, not by raising money for their purchases, but by capitalizing the demand for automobiles. A motorcar, shaped to the motorist's demands, enabled its maker to command resources financed by other industries without ownership. It was his industry; but his strategic position rested upon the appeal of design. It involved sales rather than financial obligation. Materials, machines, and processes for the making of automobiles were at hand; the human ability to put these elements together into an automobile the public would buy was the rare and indispensable ingredient. As for the rest, the task of the manufacturer was reduced to simple terms. His office was to take the parts made by others and to fashion them into a motorcar. So, as the result of an overdeveloped equipment industry and a dearth of financial resources the assembly line

¹ For a detailed discussion of automobile financing see L. H. Seltzer, *A Financial History of the American Automobile Industry*—by far the best general work on the industry.

THE AUTOMOBILE

came into existence. The very use of an assembly line broke the complex process of assembly into its constituent steps, and this analysis, born of expediency, presented the problems and set the stage for the development of the spectacular methods of automobile production.

A short sketch of the current technique of production as it emerged from these early-century expediencies is likely to prove misleading in its simplicity. It has come to have three distinguishing marks—standardization, the assembly line, and integration—in the line of productive processes. All point toward economies when automobiles are produced in volume. It shares two additional advantages with other modern manufacturing industries—a heavy investment in automatic machines appearing as an overhead divisible by volume, and a buying power which attends large purchases.

In the early days parts ordered from metal and woodworking plants had to be standardized in order that they might fit. The harassed manufacturer discovered that an order of lock washers would not fit the bolts on hand because of a slight difference in version between the two supply companies over what was meant by $\frac{5}{8}$ of an inch or because the multiplicity of sizes and descriptive terms led the producer of the washers astray in interpreting the order. Refitting the washers by hand or reordering and waiting were alike costly. Such an experience bred its corrective; there arose the Society of Automotive Engineers to furnish standard specifications; and the industry became committed to the interchangeability of parts. Today a manufacturer may specify an SAE $\frac{5}{8}$ -inch nut and be sure that in size and thread it will fit any $\frac{5}{8}$ -inch bolt in the shop.

A standardization developed to avoid costly hand fitting has made possible many other economies. If two nuts are built to the same standard they are interchangeable. A single size may be used all over the car from front bumper to tail light. Thus a machine making a single nut may be operated continuously and without loss of time for alterations over a long period. It dispenses, too, with the skilled labor which would be required if continual slight adjustments in size and specification were necessary. Standards have been applied to steel alloys—where the number has been reduced from 150 to 50 basic formulas—and to many other materials and processes; and the resulting economies in continuous process have been extended beyond the making of parts for any one car. A standard part may be carried over from one year's model to the next, or employed in two different models by the same manufacturer; and the saving in continuous process is enhanced by a consequent saving in plant. The more far-flung the domain of standardization, the greater its economies.¹ The production

¹ For instance, engines and frames for Plymouth and Dodge, both made by Chrysler, were in 1936 almost identical—Dodge engine had $\frac{1}{8}$ -inch larger bore in the same block. Engine and frame in both cars were carried over with negligible change into 1937 with

PRICE AND PRICE POLICIES

of identical parts by the tens of thousands has made economic the designing of speedier machines for the making of such parts, and again, a resulting reduction in number and skill of the workmen required.¹

With specialization in machines has come the possibility of innovation in plant layout, again to reduce cost. In the old days, when a machine shop had a single lathe, parts to be turned had to be brought to it from all over the shop, and the costs in terms of haulage, confusion, and delay—and therewith larger inventory—were considerable. Even when several lathes were installed, habits of thought were so fixed that they were still grouped in one part of the shop, until some nameless automobile production foreman conceived the idea of spatial integration of processes and laid out his shop in such a way that stock material progressed by short stages from machine to machine until it emerged in finished form. The cost of transshop haulage was eliminated; confusion and delay were reduced to a minimum; and ready parts moved into process in a continuous stream. Such economies in particular activities are antecedent to the greater economy of the whole process. The various methods are dependent upon each other—and on volume. They find expression in that final and most famous triumph of automobile technology, the assembly line. A frame is settled on a conveyor at one end, gathers an accretion of parts as it moves along, and emerges at the other end a completed car. The assembly line is the twentieth century's favorite instance of practical magic.² It is fast; it is economical; but the particulars which make up an answer to the why are often smothered beneath the enthusiasm of the description.³

Speed is only another name for economy. A conveyor system, as a substitute for walking which takes expensive worktime, provides cheap mechanical transportation; the car is brought to the worker instead of the worker's going to the car. The parts are also conveyed to the worker at

consequent tremendous savings. And in one year basic doorframes for Plymouth, Dodge, and Chrysler were interchangeable.

¹ Ford once remarked that several generations at least would have been required to train enough skilled workers to produce the automobiles in current volume without automatic and semiautomatic machines.

² Legend has it that Ford conceived the assembly line for cars while watching the progress of carcasses along the conveyor in a packing plant. This accretion from another industry was developed highly by Ford and, shortly after, by other automobile makers. Its success became conspicuous and was widely studied by other manufacturers, who in turn adapted and readapted. Thus even mechanical progress appears as a social growth and again it seems impossible for any industry to disavow a debt to or deny its identity with and dependence on the culture which is its context.

³ The whole technology has been, perhaps, overparticularized in this section, with the intention of making it clear that economies in mass production must be seen as particularities in the making of a specific commodity, not something vaguely inherent in volume itself. Confusion has often resulted from the impression that size, the economies of mass production, and efficiency always go hand in hand.

THE AUTOMOBILE

the points of junction with the car; the arrival of car and part are so synchronized as to make the joining an aspect of the continuous process. The division of labor is pushed to the limit; the individual worker attaches the same part in the same way over and over again; and thus through repetition acquires habits making for speed and low cost. The use of unskilled labor is encouraged, since the worker must master only one small process, which can be learned in a short time. And the use of automatic tools would be cumbersome if they had to be taken to the car. Since in the assembly line the car is brought to them, cost is further reduced through the use of the machine.

But if the progress of technology has reduced heavy labor costs, it has been attended by a heavy investment in plant and equipment. As befits its primacy, the automobile industry employs an enormous segment of America's resources. As the industry expanded the investment requirements grew. One manufacturer after another whittled at cost, allowed competition to dictate his price, and attempted to keep intact—or even to advance—his net income. In a desire to reduce expenses, the manufacturer frequently invested a portion of his profits in extending plant or acquiring ownership in the production of parts. This turning back of profits has become a law of the industry; today the tangible assets of the industry are set down at \$1,200,000,000; and some companies boast, more or less accurately,¹ that they are in a position to mine the ore, smelt the steel, give shape to material, assemble parts, and sell cars—all within the confines of their own organizations.

This integration of production by the older companies, and the resulting economy, has become an important factor in the industry's milieu. In many ways it qualifies the process of designing, pricing, and planning. It has steadied design by revealing more clearly to designer and management its incidence in cost. In the old, strictly assembly days, the brunt of the investment and much of the gamble was assumed by the parts maker. The hazard of a novel design is more cautiously approached when the threat to investment is one's own than when it can be shifted to another. Moreover, a certain amount of integration allows economies which may be taken out in a lower cost or a higher profit per unit, in either event paving the way for an improvement in the competitive position of the company. Such economies present no sure-fire formulas for success. The industry is still far too much a rough-and-tumble game of design and appeal for such meticulous shavings of cost to assume an overweening significance. At best, integration presents a series of opportunities which may be turned to shrewd account.

¹ More or less: *e.g.*, Ford makes steel, glass, and parts, and owns railroads, but not always enough to furnish all his needs. The result is insurance against a shortage of supply rather than complete integration of production.

PRICE AND PRICE POLICIES

The policies of successful companies vary in the degree of integration. Ford, the most highly integrated of the Big Three, has recently been overtaken by Chrysler, who leans heavily upon independents for its parts. At least two makes are still on the market—one comparatively successful in its price class—which are strictly assembled cars. Even their engines are made outside the corporation. It is also to be remembered that economies in parts and materials, such as tires and steel, derive from standardization, automatic machinery, and large volume; and that these advantages are fully accessible to the makers of parts. Yet the competitor who lacks the art of economy in production wears price hobbles in the race. As certain companies have embraced the economies of integration, those who could not or would not follow suit have been at a disadvantage. As profits have been reinvested by leaders, the price of an equal footing has become progressively higher. If the game is a gamble, the ante has been raised and newcomers do not appear to take the places of those who have gone under. And volume, following low cost, has concentrated upon the better organized companies which remain.

The growth of investment which has weeded out competitors has created a more aggressive competition. The higher maintenance expense and a cost of operation less flexible than production—unless supported by mass production—would make investment rather a burden than an asset. When volume fails the venture is a prey to all the industrial ills which attend excess capacity. In fact such factors have created among automobile manufacturers some hesitancy about the long-time advisability of further integration. An increase in investment brings formula, schedule, and rigidity into operation. If frequent changes in design are demanded, why not, as in days of old, shift some of the risk and expense to the manufacturer of parts? As all cars become good cars in terms of transportation, the capricious factor of style increases in importance. Instead of investing in a plant to make radiators, when today's style may be outmoded tomorrow, it may be advisable from year to year selectively to buy from the radiator specialist the product which fits best with current design. Moreover, the trend today is to focus attention on specific weak parts in the car. The invention of a better brake may render an ancillary brake plant obsolete; it may be better policy for the manufacturer to buy from an independent concern licensed to make it. Since the appeal of style is strong in respect to some parts and weak as regards others, a partial rather than a complete integration may be the answer to a serious problem. The variation in volume of sales, which promises to endure as long as the national income fluctuates, makes a heavy investment a serious risk.

But, whatever the degree of corporate control, a technical integration of successive processes everywhere marks the industry. The manufacturer does not have to possess resources to be able to command them; and, what-

THE AUTOMOBILE

ever the facts of ownership, the operations by which materials and parts converge into cars represent a single technical process. It is control of design and sales which gives the manufacturer his strategic position; the importance of complete corporate integration is easily and frequently overemphasized.

In expanding physical plant, the industry had seldom to go to the conventional sources of capital, the banks and the stock market. Instead, extensive as have been the investments in automobile manufacture, the finances have come from within. A large cash surplus rather than a need for credit has been the rule of action. From early days to the present the consumer has usurped the role of investment banker and has furnished the industry with resources sufficient to meet the needs of productive capital—at first by going to market with a demand in the form of dealers' deposits that served as a basis for parts-supply credit, later by paying a price enough higher than cost to allow a surplus to be plowed back.¹ When the investment banker has on occasion helped, his funds have been used to extend corporate boundaries, to get control of a good thing, to solidify the direction of a going concern. Seldom have outside moneys been employed to extend physical facilities. It is of consequence, however, that the ministrations of financiers in combining companies have had their uses. The intervention has eased the insecurity of the one-make corporation, hedged the combine against fluctuations in motorcar appeal, spread the use of interchangeable parts over a number of models, and extended the economies of mass production.

The control of design gives the manufacturer the whip hand over the parts and materials industries. Whatever the instrument—ownership, contract, a continuous process of bargaining—his authority extends over the entire industrial domain.² Although the fashioning of parts and materials involves the larger part of the productive resources of the automobile empire, they constitute outlying provinces.³ Their supply is still an aspect of the production of automobiles. The story of the financing of production and a listing of tangible assets of the industry defy tale and reckoning. The resources of the manufacturing concerns are a far from reliable index of the assets of the industry; a calculation of the investment

¹ The consumer has, of course, been permitted to pay a price which includes an interest charge on the investment which came out of his own pocket. It is of note that such a charge is fit and proper, that it is quite in accord with the usages of the economic order.

² As an interesting side light on the strategic position of the designer: Ford's early cars were turned out *complete*, minus body and wheels, by Dodge Brothers machine shop, which had to turn away other business and was heavily pressed to meet schedules. They received \$250 per car; Ford's net profits were over \$165 per car, but the arrangement continued. Ford's designs and reputation gave him control—Dodge Brothers had only production capacity. Later they designed and marketed a car of their own.

³ A rough indication of the relative size of various branches of automobile production is presented by the estimates of the National Automobile Chamber of Commerce in *Auto-*

PRICE AND PRICE POLICIES

behind automobiles is arbitrary, even too capricious for record. For questions arise as to how much of the investment in a blast furnace, whose pigs of iron go into many products, is to be assessed against the automobile. Or, to take a relatively simple case, how much of the interest on the capital in a tire factory is to be charged up against the tires which make their inconspicuous appearance as a part of a new-car sale and how much against the tires which appear in the replacement market. The question invites neat academic ratiocination—and the answer is largely of academic importance.

The pattern by which the tributaries are tied into the automobile industry is quite heterogeneous. The relations may range from complete captivity to a substantial independence. The manufacturer may furnish design, materials, capital, and machinery and calculate the costs which will serve as a basis of payment; or the supplying plant may, through ownership of a patent, high specialization, access to materials, or ramifications into other industries, have a commanding advantage which can be turned to account in bargaining with the manufacturer. At best, however, such independence is relative; the margin on which the independent has to go is the superiority of his process or product over a possible substitute estimated by the sales force, or its advantage in lower cost over that of the manufacturer if he decides to produce on his own.¹

In spite of its inferior strategic position, the parts plant shows many attributes of the industry proper. It employs a similar technology of mass production; it makes a kindred use of standardization and specialization; it is alike at the mercy of seasonal and cyclical variations in volume, accentuated by the greater bargaining power of the automobile manufacturer to place orders for parts only at the last moment. As a result the parts plants, although the major agency in production as measured by investment and labor, are confined to a comparatively narrow margin of profit. The lion's share of the spoils of prosperity is left to the automobile

mobile Facts and Figures, 1934, p. 57, of the labor forces variously employed. The figures include only the workers whose products are destined for the automobile.

Motor-vehicle factory workers.....	190,027
Tire, parts, and accessory factory workers.....	200,000
Iron- and steelworkers.....	60,000
Nonferrous metalworkers.....	10,000
Rail and steamship workers.....	50,000
Lumber and woodworkers.....	5,000
Electric power and fuel workers.....	3,000
Other raw-material workers.....	30,000

¹ An account of the connections of the industry must be cut short. These ramifications extend throughout the whole of the economic order. As examples of such connections, automobile tires and gasoline are considered in later sections.

THE AUTOMOBILE

manufacturer. And the fabricator of parts is often impelled to have recourse to labor exploitation to soften the blows of adversity.

The position of labor in the manufacture of automobiles and the fabrication of parts is the obverse side of the economies of mass production. A standardization of product has carried with it a standardization of movement on the part of the workmen tending the machines. A specialization of labor has meant a simplification of the task of the individual in the productive process. The continuous process in manufacturing and along the assembly line has meant quick-time repetition. So the typical job of the automobile worker consists in a rhythmic series of simple, identical movements repeated at top speed for the eight hours of the shift. Cerebration is at a minimum; imagination would be disastrous to efficiency; the requirements are a sound body and reliable reflexes properly conditioned.

The function of the worker in the productive process—once imaginative executives and ingenious engineers have laid out the line—is that of an automaton. His task is in striking antithesis to the skilled craftsmen of an earlier day. But the person who must don a mechanized role during the hours of his work is not an automaton; he is before, after, and even during his shift a human being. His place as a nameless cog in a productive machine gives him little pleasure in his position, little of the craftsman's opportunity for a varied round of tasks, little of the artist's pride in performance, and no lift of anticipation as he goes to work. The half of his waking hours, spent in the repetition of an invariable series of movements, is almost abstracted from any human reality, tiring the specific nerves and muscles employed. It is timed rhythmically by the machine on the line rather than by any volition of his own, and his volition is prodded to consciousness by a foreman near by whose remarks, foreshadowing a ticket to the bread line, will follow any willful or careless deviation from the speed the line sets for him. The rest periods which he enjoys are specified, not by consideration of his comfort, but by a calculus of efficiency, based on observation implemented by stop watch and sliding rule.

The toll of cerebral inhibition at work, of rhythmical repetition and localized strain is severe. Wives testify that the physique of workers is low and their nerves tense after the day's toil; that they are in a sort of hypnotic state of strain not unlike the madness induced in the Emperor Jones by the nightlong beating of tom-toms which haunted his flight through the jungle. They testify further that this nervousness wears off after the ride home and a half hour of pattering around the house, but the worker finds himself too exhausted for any robust relaxation or play for an hour or two.¹ Altogether the lot of the worker employed in the

¹ Here is a time requirement not ordinarily envisaged in statistical tracts on shorter hours in the industry. Note, too, the factor of human obsolescence at an early age.

PRICE AND PRICE POLICIES

production line is not a happy one. Nevertheless the days of his employment along the line are generally regarded as the golden days of his life. For insecurity is about him, and the advance of technology and the seasonal and cyclical variations in production make uncertain his enjoyment of bread, a bed, and a car of his own; and these he has so long as he is employed.

The hourly rate of wages is comparatively high; for the productivity per worker, implemented by superb machines, is very high. But the machine which makes high wages possible helps to undo its own work by weakening the worker's bargaining position. It builds up his efficiency by simplifying his task and allowing him through habit to acquire great speed; it weakens his bargaining power by giving him a simple task to do; for a simple task is easily learned and invites the multitude. The security of tenure that might be his if he were skilled and not easily replaced is unknown. Any one of an army of millions of the unemployed can learn his work and in the course of a few days or weeks be as good at it as he. Moreover, because he can be replaced from the army of the unemployed, the management is under small compulsion to keep him on hand—by offering continuous employment—when he is not needed immediately to keep the line running. Like the parts maker, his capacity to produce is to be called into service when the automobile manufacturer can find a profit in its employment. The worker's employment usually extends over only a part of the year. It is reasonably certain only when production is at the peak; it may disappear entirely in years of low production. In periods of unemployment he must fend for himself in the world of outside employment. A small acceptance of responsibility for his fate by the automobile manufacturer and a none-too-great solicitude on the part of society and the government are to him at times of need scant aids. The protest of the worker is as much against the nagging of insecurity as against the conditions of employment. And the chief source of his discontent is as inaccessible to the individual management as to the worker. It stems from the system of irregular production and the cycle of prosperity and depression which through the market breaks into the industry from the impinging society.

As his most available instrument, the worker has looked to organization. A single individual here, as hardly anywhere else, is at a disadvantage in bargaining; he is too easily and quickly replaced by another. The gathering and training of large masses of men increases in difficulty more than in proportion to numbers; and collective bargaining presents an asset that may be turned to account. Until recently efforts at organization have been largely abortive. Amid the swift growth in early years the impact of season did not fall so heavily upon the industry. Dealers were willing to buy on a schedule and to keep cars in stock in offseasons to

THE AUTOMOBILE

be assured of a supply. In an expanding industry the introduction of the machine did little more than check the influx of new workers into the industry. Workers came from far and wide, from places so far apart and with such different ways of thought and of life as to make a feeling of unity hard to instill. It required time, the maturity of the industry, and heroic effort to wear away these barriers.

A second formal hazard to organization lay in the nature of tradition. The union had emerged from the handicrafts and still represented the interest and state of mind of the skilled worker. In a system where craftsmen process raw materials, where their multiple skills are difficult to attain, where apprenticeship demands a period of years, and where workers are not easily replaced, the union has its obvious strategy—the walkout. But such a type of organization is ill-adapted to the automobile industry. There the number of crafts have been multiplied; skills have been broken down into their elements; each of these has in itself become a routinized task; and the worker who demands more or is not satisfied with conditions is easily replaced. In such a situation a walkout would likely be permanent; it would be an invitation to management to fill jobs with the unskilled. Moreover, any single craft organization would at best comprehend only a tiny segment of the workers; craft unionism could succeed only through a multiple series of strides toward the general objectives; and the coordination of many crafts into a mass movement would prove cumbersome.

Of late efforts at organization have been directed along different lines. A single union is intended to embrace all the workers within the industry. It seeks to avoid the weakness of a straggling advance and the hazards of defeat which lurk in a weak confederation of small and multiple craft unions. To offset the weakness of the replaceability of the worker, a new technique—called the “sit-down strike”—has been evolved. In this the worker simply sits beside the machine and point-blank refuses to be replaced. As a justification he pleads such right to a continued tenure of his machine as the common law grants to the renter in the tenure of his land. The new strategy has met with bitter opposition from management. A Senate investigation has been a sounding board to give publicity to the use of espionage by employers; this has led to something of a counterblast of criticism and ill feeling from the industrial community.

The fears of the manufacturers do not center on the higher wages demanded by the organization. Labor cost is generally stated to be only about 15 per cent of total expenses; and even a 20 per cent wage increase at the factory proper would add no more than 3 per cent to the cost of the car. In a single decade, 1915 to 1925, managerial and technical devices were introduced which increased the productivity of labor by 300 per cent. Nor have the limits of technical progress as yet been fully explored. At

PRICE AND PRICE POLICIES

this moment new machine tools could be adopted which would reduce labor costs, at the expense of employment, by most of that 20 per cent increase; and to efficient management economies in other directions are available. And 3 per cent of price is a small segment of the range which attends the ups and downs of volume. Chevrolet, forced to raise wages under the National Industrial Recovery Act, attempted to recover in a higher price; but, driven back by a loss of volume, found it possible to absorb the extra expense. For the large firms profits are high; Chevrolet, for example, continued to pay an extra dividend despite the higher wage costs. To smaller firms in the industry higher wages are more formidable. Changes in productive equipment are less easily effected and profits are less munificent. These wage raises under the NRA served only to accentuate weaknesses which lay elsewhere in the setup. The resulting difficulties of the small companies were much remarked in Detroit.¹ Quite outside the quotation, "f.o.b. Detroit," lie wastes which might be overcome; a 3 per cent increase in the quoted price is quite small in comparison with the sum spent by the consumer in financing his car.

The bitterness of employers does not center so much in wage levels as in prerogatives of control. The management has been steeped in the religion of paring costs; it has become habituated to a sharp autocracy in enforcing discipline; and it is firm in the faith. It resents intrusion from the union to raise wages and costs; but the bitterness is toward the qualification of managerial authority within the industry. The direction of work and the fixing of standards is its prerogative; it is tolerant of no compromise with an outside authority. A drive for higher wages is a venial sin; an incursion into managerial discretion is a mortal one. It is a threat to the very foundations of the religion of the assembly line. Statements have been issued proffering increased wages and expressing bitter-end opposition to collective bargaining and to the union.

The mind of the worker belongs to another world. To him a higher income and better working conditions are the primary objective. If to the management business is a game with sacred rules, to the laborer it is a means of livelihood. But earnings do not drop from heaven, nor is their adequacy a gratuity of management. To the worker a union becomes an instrument necessary to a collective bargaining without which jobs and livings are insecure. In its absence an insistence upon higher wages may become an industrial sin whose penance is a period of starvation. If it is to succeed the union must have the loyalty of its leaders and the support of the rank and file; it must become a religion, be fitted out with a

¹Labor expenses were but a small part of cost changes resulting from NRA policy. Since the automobile is fabricated out of many parts involving many materials, the cost repercussions of several hundred codes would have to be considered if a complete story were to be told.

THE AUTOMOBILE

symbolism, and claim a devotion quite absolute and untainted by doubts in the faith.

Here is a basic clash between attitudes and concepts. Business is, on one hand, an adventure in quest of profits and wealth; on the other, the means of livelihood to a mass of workers. The battle breaks on the right of the workers to organize and bargain collectively. At the moment it may be that each is willing to grant the immediate demands of the other; with a glance toward the future, each views with distrust the course upon which the other is embarked. In the light of history, threats turn into actualities, and it is beginnings which need to be resisted. The stakes of the parties are high and the issue is of concern to the nation. The government, even if it wished, could hardly escape a part in the conflict; and the National Labor Relations Board has been forced to assume the role of mediator in disputes over wages and hours. By implication the right of the union to a voice in policy making—at least as regards wages and working conditions—has been drawn into the controversy. As the intervention of the government has become an established fact, the opinion of the public on matters in dispute has taken on of increasing importance; the public has come to sit as a jury on these disputes.

Before this new jury the manufacturer has had an effective first word. The very booming of the industry left a favorable impression upon the public mind. The mass of motorists were kindly disposed to an industry which had established the automobile securely within their own standard of living. The development of labor relations was presented adroitly. In 1914 the introduction by Ford of a minimum wage of \$5 a day was hailed as a generous paternalism. In the public mind little connection was made between an increase in wage payments of \$10,000,000 and an almost simultaneous extension of plant out of earnings and a dividend of \$12,200,000 to half a dozen stockholders. It was only on looking back that the speed-up was subjected to critical examination and the question of motive was posed in terms of a desire for greater productivity as against the impulse of generosity. In the same way the innovations of 1926 escaped critical attention. The 25 per cent loss in volume was not set down as a cause; the second stepping up of man-hour productivity was overlooked; and the introduction by Ford of the five-day week was acclaimed as heralding a new leisure and a new prosperity. It was only much later—after a four-, a three-, and a two-day week had followed in the wake of the five—that the beneficence of the revolution was questioned. But as the glow of expansion grew dimmer with age and at the onset of the great depression fell away to fitfulness, a critical attitude became acute. A similar skepticism about other industries resulted in a recognition of the problems of labor and of the expediency of collective bargaining in Section 7(a) of the NRA. And in 1935 the National Labor Relations Act

PRICE AND PRICE POLICIES

indicated that public opinion had come to recognize the aspirations of labor as a proper objective of national policy.

FROM ASSEMBLY LINE TO MARKET

And so an array of automobiles enters the market. They emerge from a series of heterogeneous arrangements which involve materials, designs, processes, finance, accountancy, and labor policy. In each of these change, tradition, and adventitious event have effected their compromise; in each the usages of production have been subdued to the exigencies of the market; in each a vehicle of transportation has become a work of art and a symbol of prestige.

The array of cars is extensive as respects both quality and price. In 1935—not the best of market years—15 companies, under 26 names, offered 55 makes,¹ in nearly 500 models. The range, in weight, power, and elaborateness, ran from a two-passenger, 2,000-pound, 4-cylinder coupe to a seven-passenger, 6,000 pound, 16-cylinder limousine. The price range is more limited, since competing makes frequently offer the consumer several models at an identical price; its lower and upper limits were \$395 and \$4,000. An attempt is always made to anticipate the dictates of every possible consumer, of every probable use, of every size of pocket-book. The models are formally introduced at automobile shows, now held in the late autumn, first in New York, then in other large cities, then in smaller municipalities.

The presentation of new models and prices each November gives the industry its grand moment of the year. No confectioner and no fashioner of women's dresses, exhibiting their most precious fabrications, ever crossed fingers and hoped more devoutly than the automobile executive in putting his product on the market. The anxious manufacturer has for comfort one divine dispensation—the American public in the purchase of cars is a gourmand and not an epicure; but even such a consolation is disturbed since purchase is the plaything of the two variables of the buyer's thinking and his means, neither of which the individual producer can foresee with accuracy. Strangely enough the manufacturer is least troubled by the customer's moods and preconceptions, which are the least concrete and predictable variables, and most troubled by the possibility of a change in buying power which is at least statistically approachable.

The manufacturer generally tries to anticipate adverse mental sets of mind. The buyer's mind is open to influences from numerous sources. A previous experience, an accident witnessed, the example of a neighbor, gossip, habit, vagrant associations are all factors in his judgment. But

¹ A distinction between name and make—counting as one in the former and two in the latter category as, for example, the Oldsmobile 6 and the Oldsmobile 8.

THE AUTOMOBILE

he is also subject to countersuggestions by the manufacturer. So at great expense research departments have been established to determine what features in last year's model aroused the objections of consumers; and, when an improvement is impossible, at least a change is made. The buyer's specific doubts can be stilled with concrete assurances. If, from stem to stern the car looks completely new, a series of general demurrers can be met with the assurance that here is something new and better.

Furthermore, advertising is enlisted in the cause. A campaign equaled in magnitude and adroitness by that of no other industry—except perhaps cosmetics—is called into play.¹ And that consumer must be either very stubborn or very impervious to suggestion whose mind is not in the course of months shaped to the belief that at last he is going to get exactly what he wants. Moreover, although they are separate and autonomous concerns, the dealers are enlisted by the manufacturers in the creation of expectancies. The attitudes, the preferences, the prejudices of a multitude of individual buyers present a problem to the producer, but a problem with which he knows how to deal. Each manufacturer is certain that he can vary his sales pressures enough to dispose of his share of cars in a given market so long as the market is there to be divided. In sum he has developed techniques which make him as much a master of selling techniques as his technical processes insure him mastery over production.

But in the matter of the buyer's means he is less adequate. Ability to purchase is a product of a going economic order; its foundations lie without, as well as within, the empire of the automobile. All the techniques he can contrive fall far short of an effective attack on the problem. The automobile is a barometer of the times. In years of high national income the public splurges on new cars. In years of low income most of its individual members buy in a lower price group, purchase a second-hand car, or keep away from the market.² In any of these events some manufacturer loses a sale and finds himself helpless to do anything about it. A last resort of the individual is to do without a car; but to this extremity few are driven. Families have been known to move into cheaper apartments which lacked bathtubs rather than give up the car. When in

¹ Some indication of the importance of automobile advertising may be had from the figures of the 1936 expenditures of this country's 132 largest corporation advertisers. In that year the advertising expenditures for toilet goods and "medical" supplies totaled about \$41,000,000; for foods and beverages, \$35,000,000; for automobiles and accessories, \$23,000,000; for smoking materials \$12,000,000; and for home furnishings and kitchen supplies \$13,000,000. Automobile advertising represented about one-sixth of the \$123,000,000 spent by the industries for advertising in 1936. See "Outlays of 322 Advertisers," *Printers' Ink*, January 28, 1937, p. 63.

² The average life of a car is about seven years. But this figure is inexact and the rate of retirement varies with other factors than mere business conditions. Obsolescence is a most uncertain abstraction.

PRICE AND PRICE POLICIES

the great depression the new-car sales cascaded downward, the figures for automobile registration remained almost static.¹

As plenty gives way to dearth the motorist makes his accommodation. The adjustment is effected, not by banishing the automobile from his standard of living, but by finding a new place for the car within it. As a vehicle of transportation it continues to be regarded as a necessity; but as a symbol of social prestige its value falls. A large, shiny, stylish, silent-performing car comes to be a luxury; and the appeal in the extra degree of speed, power, comfort, or fashion depreciates. The car that survives is the one that comes to be chosen as a diminished income makes necessary the revision of the family budget. The shift of emphasis during depression affects the whole market. It shunts the buying of new cars toward the low-price field. It gives impetus to the shift already under way, as the discrepancy in performance between the expensive and the cheap car is narrowed. The makers of high-priced cars are left stranded until increased incomes bring back the luxury trade. And the cheap car has the better chance at being replaced. Even if obsolescence is partly psychological and the life of the car is somewhat at the option of its owner, the old car must eventually land in the junk heap. Still the small car manufacturer faces a period of years of small sales which would embarrass and probably bankrupt an industrialist less munificently buttressed with cash surpluses.

But even granted the surplus, the going would be difficult were not the manufacturer in a strategic position to distribute the costs of adversity. He can shift a heavy burden of losses to other corporate units who can levy no demands upon his treasury—to manufacturers of raw materials, whose charges represent some 60 per cent of the wholesale value of the car; to laborers, for whom no employment can be found and who therefore have no claim to wages. As a result the industry's disaster

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ADJUSTMENT OF MARKET TO DEPRESSION

Year	National income	New-car sales	Registrations
1927	\$75,831,000	3,580,380	23,133,243
1928	78,496,000	4,601,141	24,493,124
1929	80,757,000	5,621,715	26,501,443
1930	87,969,000	3,510,178	26,545,281
1931	53,499,000	2,472,359	25,832,384
1932	39,545,000	1,431,467	24,115,129
1933	41,813,000	1,985,909	23,843,591
1934	49,575,000	2,869,983	24,951,662
1935	54,955,000	4,119,811	26,230,834
1936	63,799,000	4,616,274	28,221,291

Automobile Manufacturers Association, *Automobile Facts and Figures*, 1937.

THE AUTOMOBILE

appears publicly in the garb of a deficit in the purchase of steel, coal, machine tools; in the balance sheets of parts makers, who go under quietly; in the losing race between income and outgo of the dealer; in the shock of a lower living standard, which the laborer must take; in the expenditures of the government for relief. Here are several grounds of complaint, yet there is no personal villain in sight.

The retail dealer holds an anomalous position in the structure of the industry. He is normally the representative of the manufacturer blessed with strategic position and staying power. Yet, scattered in local trading centers, he shares with labor the office of chief complainant against the ways of automobile making. In corporate terms he is completely independent of the manufacturer. In no legal sense is he an agent; hence, in the eyes of the law, he paddles his own canoe and is responsible for his own troubles. He buys cars outright from the manufacturer and pays cash for them; he owns or leases his own place of business; he purchases his own equipment; he carries on his own affairs, hires his own laborers, and accepts the profit or loss from his own enterprise. To the man-of-the-law he is as free as is the grocer to "do as he wills with his own"—to advertise, to cut prices, to hold a fire sale, or to short-weight the customer, say, by detaching an oil filter.

His comfortless independence has been as studiously preserved as the right of the worker to his individual bargain. For as autocratic as the power to fire the worker is the manufacturer's power to abrogate the contract under which the dealer is allowed to buy cars. And, like the worker fired, the dealer without a franchise faces continuing expense without the wherewithal to carry on. Rather than abandon a source of income—potentially a fairly good one—he voluntarily submits to the controls of the manufacturer, who, with a precious volume at stake, supervises the dealer's conduct at every point where sales might seem in jeopardy. So in a reality not yet reflected in the law the dealer is a dependent of the manufacturer.

The extent of his subordination may be gauged by the nature of the controls exercised over him. The retail price of the car he has bought outright is set by the manufacturer and quoted to the public in national advertisements. His place of business must meet the approval of the factory representative; the manufacturer chooses and the dealer pays. The prices he charges for repairs, the costs he incurs for parts and equipment, the stocks he must keep on hand are all specified by the factory. The system of bookkeeping is standardized so that the manufacturer may keep accurately informed about conditions in the field. His salesmen are sent to school, where an expert from the factory explains talking points and sales techniques; the amount and even the wording of local advertising are specified by the manufacturer; the arrangement of his

PRICE AND PRICE POLICIES

display rooms may be dictated; and even the style of lettering on show cards has been subject to control. In one instance a manufacturer, hard pressed for credit, forced upon dealers, in advance of their needs, some \$50,000,000 worth of cars. As a consequence many dealers were forced to negotiate loans and turn over cash to the party to the contract in the better bargaining position. In effect the manufacturer's power has been sufficient to enforce a mortgage on the dealers' property to insure a loan to himself.

A complete list of such controls sounds rather appalling. One is moved to wonder why the dealer does not exercise a freedom which is alike legal and real, and quit the business. The answer is twofold. First and of minor importance, he has a certain human inertia to overcome and a living at stake; second and more important, it is freedom in the abstract which is likely to fire the imagination. In the concrete it is everywhere a highly compromised virtue; anywhere else he may turn, the dealer is confronted with constraints and hazards; his contractual servitude along this road of submission may offer the greater opportunity and the greater income. The franchise is at stake—and with it investment and source of income. In no instance are the controls imposed merely captious; in many instances they aid rather than embarrass the dealer; their intent is in accord with the aims of his own business. The stipulations as to price, sales, and service are intended to add desiderata to the ownership of the particular car, to ensure its dependability upon the road, and to enhance its reputation. Local advertising is controlled that it may the better gear in with the strategy of a national publicity which employs magazines, billboards, and the radio. The intent is to merge all pressures into a balanced and coherent picture in the mind of the reader of the best-car-in-its-price-class. The community of interest between manufacturer and dealer is extensive and real; the mutual objective of endeavor is maintenance of competitive position and extension of sales. The market for the automobile is national; a central control of the general strategy of sales seems the obvious answer to an obvious problem.

To the manufacturer his imposed controls seem highly justified. A damaged reputation for his car, a tradition of small sales, a lack of prompt and dependable service are local hazards against which he seeks protection. In such matters there is a threat of damage which even a change in dealers cannot undo.¹ Even the quotas which he sets for his dealers—a source of persistent complaint—are a device for holding sluggish dealers to a standard of performance. The practice is an inevitable result of costs which run inversely with volume. A large share

¹ In any locality sales become cumulatively more difficult once a particular make falls behind in the race. The fewer the cars of a single make in circulation, the less extensive the service facilities, hence the less desirable the car, hence the fewer the sales, hence—and so on in a vicious spiral.

THE AUTOMOBILE

of the market in the manufacturer's price class is a prerequisite to low price, profits, and eventual survival. The system of quotas may be enforced directly by making the purchase of a certain number of new cars a condition of the continuance of the franchise; or indirection may be employed by rewarding the sale of the full quota with a bonus.¹ In either event the quota is an index to the importance of the salesman in the community and the industry. However different it may appear in outward form or at law, the position of the retailer is that of a salesman on commission.

A single sales organization for the entire country, with branches everywhere, is a possibility. The device is in vogue elsewhere,² provoked experiment in the early days of the industry, and under other circumstances might have become a reality. But resourceful representatives, willing to take a business fling on their own, were readily available; and the manufacturer discovered that the sales manager on a secure salary is generally less efficient than the independent dealer who must bend every effort to keep out of the red. In the expansion of sales a temporary peace—the more temporary the better—seems preferable to status. Under current arrangements the dealer finds many aspects of his situation little to his liking; but his piecemeal efforts at amelioration fall short of any fundamental attempt at reform. The manufacturer is definitely persuaded that a measure of insecurity is a necessary incentive to efficiency. So in the prevailing setup, some 35,000 nominally independent dealers are under a dominant protectorate of less than twenty manufacturing companies.

And although he has bought it outright, the dealer sells the car at the price fixed by the manufacturer.³ The price is quoted in national journals accessible to all motorists, and above or below that price the dealer is not permitted to go. But the dealer must serve as shock absorber between the manufacturer requiring volume and the consumer demanding the utmost he can get for his money, so here again there is a substantial peradventure. In most of his deals—in 1935 the percentage was 86.6—he must, as a condition of sale, evaluate and buy from the customer a used car. Thus is created a zone of bargaining. In the trade-in allowance is included a real price concession forced by the intensity of competition.³ It is the dealer's misfortune to find himself at the point of contact between

¹ The bonus is a device for enlisting the personal and material resources of the retailer in the unqualified cause of salesmanship. In the language of analogue it is an incentive to marketing speed-up.

² Note the case of office typewriters, as against portables, where dealers are agents, the title passes directly from manufacturer to consumer, and retail outlets are interlocked into a single sales organization. The sales of office typewriters, like those of automobiles, are almost exclusively to a replacement market. It is interesting that the two industries have contrived quite different arrangements to meet almost identical problems.

³ At an NRA hearing on the Motor Vehicle Retailing Code a dealer stated that in 1932 a typical new-car sale involved a payment of 20 per cent in cash, 40 per cent in notes, and 40 per cent in used car. Estimates of "average" loss on a used car at that time ranged around \$30.

PRICE AND PRICE POLICIES

producer and buyer, the point where the consumer makes his demands in an open market, and to be compelled to make such concessions as the customer can exact at the expense of his own return.

As a result the dealer's commission is a variable amount. The wholesale price to him and the price he must ask his customer are fixed; his commission is the difference minus the variable item of his loss on the trade-in car. The amount by which his allowance exceeds the market value of the car is a net deduction in his commission. The dealer's margin is usually 18 to 22 per cent of the retail price of the car, although on some models it runs to 30 per cent. But such figures are quoted prices, failing to take into full account the dealer's concessions on used cars, and on the whole are rather misleading. Allowances granted by dealers vary with their keenness to make sales, and the actual price paid for the new car varies greatly from model to model, from dealer to dealer, and from community to community. It shifts as the course of popular preference veers and responds rather sensitively to the competitive situation in various localities. Although explicit in national advertising, the maintenance of resale price by the manufacturer is seriously compromised in practice. It was no accident that the first item listed under "unfair"—that is, undesirable—practices in the dealers' NRA code was the giving of excessive allowances on used cars. And most of the following items were concerned with plugging loopholes in the ban laid on these excessive allowances. Such concessions were the equivalent in respect to the automobile of the "sales below cost" or "destructive price cutting" of other industries. It was "the fly in the ointment of security," "the rat in the granary of profit." The attempt to outlaw excessive allowances came from the chief risk bearers in the industry; it was an attempt to force competition to find some battleground less perilous than price. In that period of turbulent clamor to the government for protection from losses and for the comfort of a controlled price, in the automobile industry it was the voice of the dealer rather than the manufacturer which joined the general business chorus.

This fact bears eloquent testimony to the extent to which the risks of competition had been passed on to the retailer. Behind the lines the manufacturing executive has rested in the semimonopolistic security of a reputable trade name, and the dealers have been posted in the front trenches to defend frontiers in a competitive struggle. It is the dealer who must be inspired with a wartime fortitude—a chance at survival if he fights on, the certainty of annihilation if his market lines give way. But, like a good general, from behind the line the manufacturer lends aid and encouragement in the fight. He has persistently attempted through persuasion and coercion to limit allowances on secondhand cars. The used-car market is a factor of consequence in determining the volume of sales;

THE AUTOMOBILE

and in the secondary price competition on trade-in allowances he has had to protect his own make. But the manufacturer's concern has never carried him to the extreme of sharing losses.¹

The general situation has satisfied no one. The dealer complains of his losses, of too many competitors in large centers, of the despotic nature of factory control, and of the tendency to shift unpleasant problems to him. He regards with envy the contracts for large purchases which are generally handled by the manufacturer without benefit of his retailing services. The producer has a low regard for the ability and resourcefulness of the dealer. He believes that the current system of marketing falls far short of efficiency and is sure that the prevailing rates of discount at which the dealer handles cars are too high. Threats and complaints come in abundance from both sides. But the manufacturer holds the more strategic position, and there is little immediate prospect of the dealer's improving his position. In plain fact during good times the dealers' income is fairly high; so resentment is sporadic rather than protracted. Without prolonged depression discontent is not likely to accumulate into a volume which will drive dealers into close-knit organization and effective action.

To the manufacturer the relationship represents a deliberate policy. If he has shifted to the dealers a heavy burden of the hazards of competition, he has done so knowingly. It may lack the greatest warmth of sympathy, but his accommodation has been in accord with his understanding of the necessities of the situation. From its primary inception to the ultimate sale of the car, the manufacturer has kept the consumer in mind. His product and announced price have been arrived at from considerations of the state of the retail market. To his larger strategy the dealer must adjust his tactics—and carry on the fight.

Design and pricing are aspects of a single process. The manufacturer has designed and priced his car with an eye to the offerings of his competitors. This he has done with thoroughness, painstaking care, and anxiety, informed perhaps by a certain amount of industrial espionage. And the spread between factory and retail price reflects alike the experience of years and the current ways of the industry. In that spread the manufacturer has attempted to leave leeway for the dealer to make concessions and still chalk up a fair return.² He has left the net commission high

¹ A scrapping program to be subsidized by manufacturers has been suggested many times and attempted once, but this is the sort of exception which serves to emphasize the rule.

² It has been suggested that certain companies have on occasion raised the quoted retail price and left the commission unusually high with the conscious intention of giving their dealers an advantage in the dickering over trade-in values. What could otherwise have been a \$750 car is quoted at \$800 with the expectation that dealers would, if necessary, offer \$50 more than competitors for the trade-in and be able to sell the customer on the

PRICE AND PRICE POLICIES

enough to maintain the sales talk, to carry the large army of salesmen, to support the gigantic sales-promotion campaign which keen competition has unloaded upon the retail end of the industry. In the uniform schedules of repair charges, which have little direct bearing on new-car sales, he has been reasonably generous to the dealer at the expense of the consumer. He has left a net return at once high enough to allow the dealer to carry on and low enough to permit no slackening of the pace of competition for trade. If his policy is not sentimentally paternalistic, it is at least businesslike.

The interests of the consumer are not so consciously served in the expensive sales setup which the dealer must maintain. It is he who must pay the extra 25 per cent which separates retail from wholesale price. According to recent figures the 190,000 salesmen in the industry average about one sale of a new or a used car every fifteen days. The figure, rough as it is, gives some indication of the pressure to which the potential buyer is exposed and of the heavy charges for which he is assessed. In addition there are expenses for overhead, advertising, and retail management which help to swell the costs of the competitive armament of the industry. In their aggregate the consumer pays a sum far in excess of the amount required to move the cars from assembly line to concrete highway. But, however vocal or mute his complaints about the extravagance of marketing, the consumer cannot reorganize the industry. There are severe limits to what he can do for himself to get the service and the price he wants from a highly competitive industry. When a single marketer gets out of line, the consumer can usually force him back into accord with competitive practice. But when decisions arising out of specific conditions have crystallized into a customary pattern for the industry, there emerge compulsions against which he is helpless. They may be inimical to his own interests, yet his only recourse is to take his business elsewhere. And where the custom of the industry is general, he may be all dressed up in complaints and yet have no place to go.

THE SHAPE OF BORROWED THINGS

An attempt to catch on paper the activities of an industry is an art. It is a groping for an understanding of phenomena not to be captured neatly and finally within an exact formula. The portrait painter, called upon to catch the manner of a man, first renders outlines, tones, and interrelations with constant reference to the model. Then he steps back to review the semiphotograph and returns to add interpretative touches that will bring appearance, personality, and character into the finished

idea he is getting an \$800 car as cheaply as other \$750 cars. The quoted price, unreal as it is, has a psychological validity in the buyer's mind.

THE AUTOMOBILE

likeness. Something analogous to this attempt to penetrate where the rigidities of exact method fail is attempted in this word sketch of an industry. In the pages above has been presented a picture of a jerry-built structure of many architectures, thrown together within four hasty decades, in response to America's imperious desire for automobile transportation. As with any industrial edifice, in the course of its building weights and stresses were not evenly distributed. But it is a tribute to the ingenuity of the practical architects that the structure holds together as well as it does. The process of addition and revision, patching and tying, goes endlessly on. But a touch here and there is needed to bring the intangibles into the superficial likeness, to reveal the unique in organization, and to round out the picture of the industry.

It is of everlasting interest to inquire how the making of automobiles came by its distinctive pattern. At present the industry is a giant, blessed with wealth, advanced in technology, rational in business methods, exalted to a high place in the national economy. Yet more than three decades ago—when it was small, poverty-stricken, technically nebulous, and fumbling—a rough draft of the current scheme of operations was hit off. Slight accommodations in old forms have served to meet a changing expediency, and today the industry operates rather smoothly within arrangements contrived in the first decade of the century.

The pattern of the nineteen hundreds was itself a patchwork of forms which had been in existence long before the industry was dreamed of. The origin of design was much like the making of a crazy quilt by the housewife of yesteryear. She reached a hand into a ragbag, chose the most usable scraps, trimmed them to a mutual accommodation, and fashioned a large cloth whose distinctive mark was its capacity for service. In some such manner the automobile industry began. A wishful phrase "horseless carriage" was wrought into an inventor's model which it seemed possible to duplicate and sell. But like his kind the inventor was too poor to fashion automobiles in volume. He had only an idea, others had wealth. There was, however, a legal procedure evolved through the centuries for pooling resources, carrying on a venture, and dividing profits. So a corporation was formed, the investor and the inventor agreed upon shares, and the motorcar went into production. But the corporate venture was too uncertain to attract a sufficient capital and too small to command a supply of materials and adequate productive equipment. So it called to its service trade and specialization—usages milleniums old. Steel mills, machine shops, and woodworking plants were at hand with facilities that might be turned to account. For fitting them into the pattern, another old form—the contract—served admirably; and the fabrication of parts was adventitiously allowed to grow up outside the manufacture of automobiles proper.

PRICE AND PRICE POLICIES

The fitting of borrowed scraps into a pattern demanded neatness and acumen. The demand of the market was for many cars, the capital which the companies could attract would buy parts for only a few. Since recourse to the investment banker was not available, scissors had to be used upon other material to contrive a scrap that would fit. Other manufacturers, cursed with overcapacity, were using favorable terms of credit to lure potential buyers; and the insistent demand for automobiles left dealers wanting more cars than could be made. The maker of automobiles, as a mediator between parts manufacturer and retail dealer, created a working capital for himself. He required of the dealer a deposit of cash with each order, exacted the balance due on the delivery of the car, and imposed a tribute of taking a fixed number of cars the following year. With these sums collected from dealers who were willing and able to assume exacting obligations, the maker of automobiles was able to satisfy the financial demands of the makers of parts and to keep the stream of supplies flowing. As a result the old forms of contract were touched up with the novelties which an accommodation to the emerging design of the industry demanded. The line of industrial activity stretched from source of supply to motorist; and to complete the design required only a formula for the aggregation of parts into a car. The press of circumstance made a speedy putting together of parts the focus of the manufacturer's efforts, and eventually there emerged from the borrowing, shaping, and synthesis of method—touched by a brilliant ingenuity—the new technology of the assembly line. Thus in barest outline there emerged a quilting of old and recreated forms into an industrial pattern which, through adaptation to changing conditions, has persisted.

It is interesting to speculate upon what form the industry would have assumed had it come into being twenty years earlier or twenty years later. At the earlier date factories for the fashioning of parts would not have been so accessible and business opinion was not yet so ready for the conversion of dependent industries into a great empire. At the later date other scraps of usage would have been within reach of the quilter and other gaps would have loomed to call for adaptation or sheer creation. But it is idle to surmise what materials would have been at hand and what critical necessities would have shaped them to use—for materials and necessities alike, twenty years after, belong to a business culture which the automobile itself had helped to shape.

Its beginning has given character to the industrial pattern. As the stress of growth or the beat of change has shown cause, old practices have been reshaped and new ones have sprung into being. The design has been much enlarged and greatly elaborated. But, for all the shreds and patches of revision, the lines of the original pattern stand out sharply today. As the design changes, so does it persist. The corporate organization has been

THE AUTOMOBILE

little modified. Adopted to effect an alliance of ability and wealth, it has remained a workable form of business organization. A flexibility in structure and procedures has adapted it to pragmatic use in the hurrying world of business. But a new life pulsates beneath established forms. As the assembler has come into size, wealth, and power, he has acquired the upper hand in negotiations with firms from which he draws his supplies. The method by which the dealer pays cash on receipt of the bill of lading for the car has persisted. And now, long after the manufacturing companies have accumulated huge surpluses of liquid assets, the payment in cash is still exacted. But the dealer's contract to take a certain number of cars has been softened to meet the buffets of an intensified competition. The older dealer bought on a schedule accommodated to the regular movement of production and carried heavy inventories through slack seasons. The dealer of today accepts under protest a more flexible quota, buys on a schedule suited to the fluctuations of the market, and allows the manufacturer—and the workers—to absorb the costs of a seasonal market. As the automobile was more widely sold, many more dealers were needed; but the number who could personally finance their purchases could stand no such increase.

In fact as outlets grew, retailers had to be enlisted who had small resources with which to carry on. The practices of banks were hardly flexible enough to allow such inventories as collateral for loans. So a new agency, the finance company, came into being to endorse the dealer's note and to give it currency in banking circles. Its office was, for a fee, to stand surety for the dealer's note. Likewise, as the limits of the group of cash buyers were reached, a need for consumer's credit emerged. A finance company, usually a subsidiary of the manufacturing company, assumed the function of endorsing notes with the cars purchased as sole collateral, making them acceptable to commercial banks. Thus the dealer, without tying up funds or assuming risks, might dispose of automobiles on the installment plan.

As time passed the industrial relationships implicit in outline became articulate. As orders grew in volume the once-independent manufacturers of parts have become tributary to the masters of the assembly line. From this nucleus the empire of the automobile spreads out fanlike through fabrication of supplies toward the production of raw materials.¹ As yet

¹ Secondary lines in the pattern have been reformed. The yearly change in model, intended to accommodate technical change to the fiscal year, has remained. But as it has run its annual round, the beat of technology has been obscured by the note of style. A policy which was once aimed toward improvement in an instrument of transportation has evolved into the deliberate obsolescence of a prestige-giving property. A long time ago an idea seemed fixed in the minds of the public that a horseless carriage should look like a carriage without a horse. The Willys model of 1937, it is said, was designed to make the hood reminiscent of a Douglas air liner. To the diminuendo of technology and the crescendo of style the making of models goes its changing way.

PRICE AND PRICE POLICIES

the surges of organization have not come to rest in a fixed pattern. The stress of events still disturbs the balance within the industry; the process of accommodation forever goes its way. Yet the elevation of the lords of the assembly line into sovereignty and the proneness of usages to harden have had their arresting affect. They have created a situation in which only the circumstance backed by necessity can innovate. Many problems, apparent to observers and urgent within the industry, are slow in getting stated and sluggish in coming to solution.

The seasonal demand for cars, with its incidence in partial unemployment, has prompted the federal government to suggest reform. The introduction of new models has been shifted from midwinter to the fall in order that the spurt in orders which it brings should not be piled on top of the chronic spring demand. A round of difficulties lies inherent in the variation in sales that attends the cyclical swing of prosperity and depression. The costs fall heavily upon all concerned—manufacturer, auxiliary industry, working force, and motoring public. Sales pressures are at a level too high to withstand the unrhythmic shock. The congestion of traffic in many centers is becoming a deterrent to the ownership and use of automobiles.¹ Labor is becoming dissatisfied with its status, and management is becoming dissatisfied with the dissatisfaction of labor. Organization of workers is stating—even if it is not creating—problems of industrial relations and is bringing a host of unknown factors into the affairs of the industry. But in the long run, as an agency of mediation, the union may ease somewhat the strain between management and labor. These, and multiple problems of their kind, are insistent; already nebular changes are under way that may touch off a new crystallization of industrial pattern.

The array of problems calls for concerted action from all parties who have a stake in the outcome. A smoothing out of the curve of demand in response to the necessity of orderly production invites no easy or speedy solution. A buffer may be erected in cars carried in storage and in large inventories; but here as elsewhere the individual corporation is helpless, and no single manufacturer can afford to assume the financial burden unless his competitors fall in. An attempt to distribute sales over the year by the manipulation of prices seems unpromising, and sales pressure is too competitive an instrument to be so purposively used. It is no accident that the only action thus far along this line has been under government auspices. Advertising and promotion involve vast expense; yet a disarmament would necessitate an agreement—possibly a division of the market—among competitors. The variation from year to year in the size of the national income has created for the automobile industry an omni-

¹ Washington streetcars were recently carrying posters reading: "Don't kid yourself, there's no parking space. Ride the streetcars."

THE AUTOMOBILE

present worry. But it ramifies far beyond the making of cars and the fashioning of their parts to the limits of the economic order. It belongs properly to the politics of all industry.

This catalogue of things to be righted would be incomplete without reference to the ever-present problem of installment sales. It was with this device that the manufacturer of new cars fought a rear-guard action when at the call of quality he was forced to beat a retreat from the lowest cost transportation at the lowest price. A selling on time is among the oldest of customs; and in its modern pattern it is too familiar to Americans to need elaboration here. The buyer borrows that he may buy, and pays interest on the money. The article bought is mortgaged to the lender as surety, but as surety it is not sufficient for the loan. So the buyer takes out insurance and pays other fees, variously labeled, to remunerate the lender for the possibility of loss. The buyer likewise sacrifices his liberty to change his mind about the expenditure of his future income. The procedure has stirred discussion, caused alarm in informed circles, and elicited protests from sellers who dispose of their products for cash or on short-term credit. Yet it has prompted little protest and less reform within the industry. Usually the buyer is required to pay enough in cash or a trade-in equivalent to bind him to the bargain. The sums put down give him such a stake in the transaction that only in desperation is he likely to default and lose the car he has put up as collateral. But the payment in cash is small enough to allow a mass of people to buy beyond their current means. The used car likewise has come to be sold on installment, but initial outlays in cash—one-third or more of the total—are usually higher in proportion to price; and since the prospective life of the car and the period during which repossession would return to the dealer anything more than half a ton of scrap iron is shorter, a quicker liquidation of the entire amount is demanded. That in 1935—the yearly variations are not great—about 60 per cent of all cars were sold on installment indicates the effectiveness of the device.

Installment selling is affected with an interest to the whole industrial system. Its prestige value gives to the motorcar a strategic place in the standard of living, and this distinction the manufacturer has not been slow to turn to account. The situation has allowed the adroit exploitation of a sales device to turn a larger share of the limited national income into the purchase of motorcars. The pinching of finances which attended the depression did not cause any very large number of purchasers to default; they conserved the investments they had already made in their automobiles. Neither the manufacturer nor his finance corporation suffered heavy losses; the incidence of budgets revised downward had to be taken up by the makers of other wares of trade. One manufacturer has recently experimented with a no-cash, long-time installment sale of new cars. He

PRICE AND PRICE POLICIES

can hardly be accused of losing sight of added risks in the calculation of rate of interest and collateral fees. Yet, at least in the early months of purchase, the buyer has a lower stake in the transaction and the amount due has as surety an obsolescing collateral. As a result a sudden shrinkage in the national income might fall with increased heaviness upon the whole industry. Installment selling is a hazard to the economic order; but there exists no agency which can make the matter an object of deliberate attention. As matters of control now go it remains an unraisable problem in the government of industry. Its shortcomings can be set down, its hazards to the going industrial system can be told off; yet today installment selling is firmly entrenched within the industry.

As yet the place of the motor vehicle in the larger system of transport has not been fixed. A number of novelties—the truck, the bus, and “fourth-class transportation by flivver”—have come to disturb a national system of transportation established around railway arteries. A competition between unlike instruments, such as motorbusses and trains, can hardly find a common plane; the railroad, for example, must maintain its own right of way while the motor carrier uses the public roads. A number of agencies, too separate for an easy unity of action—the gasoline tax, the state highway policy, the supervision of the Interstate Commerce Commission—must be employed in fusing complementary and competitive services into a national instrument for the movement of persons and wares.

In fact the problems that center around the motorcar are inseparable from American culture. To the automobile manufacturer the price of the rubber that goes into tires is a matter of some concern, yet his control cannot reach across half the world to the plantations of the Orient. Nearer home, what happens in the steel industry has serious repercussions for him; yet, aside from contract, he has no formal way of exerting authority over the ideas, usages, and conditions which pass by contagion across the industrial frontier. The automobile industry is interested in exports; the trend of its informed opinion is toward a freer trade; yet it can do little to tear down the national barriers which keep American cars out of foreign markets. Even more important, it has no lens with which to bring to focus the incidence of style and season upon the unemployment problem within the industry. The public is concerned in the dockets of the courts crowded with traffic cases; in the repercussions of tithes of the national income channeled into automobile purchase; in the incidence of ownership upon the growth and elaboration of the institution of debt; in the influence of the motorcar upon housing, family life, the perils of travel, child welfare, recreation, land values, the movement of population, the growth of cities, the vitalizing of education, the new mobility of crime. Such matters of interest, unable to win expression in pecuniary magnitudes, are vital to a people who are without channels of influence.

THE AUTOMOBILE

What is here named the "pattern" might be called the constitution of the industry. Like other great charters, of which the Constitution of the United States is the classic example, it is in large part unwritten. It is a fabric of tacit assumptions, of everyday practices, of accepted usages—a fabric which has a design and is still being woven. It is a recognized scheme of control, with its points of discretion, its distribution of tasks and responsibilities, its miscellany of personal rights recognized and in the making. But zones of authority are not marked out with clean-cut lines; questions of principle appear only as factors in practical decisions; policy emerges from the continuous stream of business decisions. The consumer, a party vitally concerned, has no formal place in the scheme of control; and circumstance, of near kin to the expedient and the adventitious, has a unique role in the conduct of affairs. The details of operation—investment, wages, costs of parts, dealers' commissions, relationships established by contract, current accountancy—are subject to its sovereignty. The outlay for relief, the toll levied upon other sections of the economy, the cultural effects of the automobile, which cannot be written down as money sums—all such intangibles lie beyond its authority and its conscious concern.

And price, which is a concise compendium of the constitution, the volumes of statutes, and the corpus of administrative decisions, reflects the pattern of the industry.

SECTION III

THE AUTOMOBILE TIRE—FORMS OF MARKETING IN COMBAT

BY ALBERT ABRAHAMSON

WHAT IS A TIRE?

IF ONE asks, "What is the price of an automobile tire?" the proper answer is that there is no such question.

The purchaser, sent to market by an elementary need, discovers a bewildering array of lines, grades, brands, and sizes. The manufacturer has used up no small stock of technical ingenuity in imposing variations in processing, materials, quality, and performance upon the simple norm of a tire. In general his "first-line" tire is superior to his "second," and his second to his "third." But if he makes several first lines, better and worse are not beyond the realm of opinion; and, as between competing manufacturers, there is no standard of goodness which can be called to certain judgment.

Formulas and methods are closely guarded. Even if available there would be no agreement as to their relative merits. Sizes are certain; tires must fit neatly—or not at all—the wheels to which they are attached. But beyond the two figures connected by a multiplication sign, in which size is quoted, the rule of uncertainty prevails. The fabric base of the tire is composed of threads made into plies; there is variety in the number of these, in their composition, and in the design into which they are made to fit. The rubber employed falls short of uniform quality; treads differ in thickness and in the tracks which they leave on yielding ground. A tire is a compound of many factors; the variables may be fitted together into an all-but-innumerable number of recipes. It is probable that a group of engineers, gathered into a room, could never reach an agreement upon the specifications for a first-line tire.

For performance there is no absolute; a standard tire is the judgment of some man—technician or businessman—as to the best compromise between the conflicting values of bulk, endurance, dependability, and price. What to one producer is a second-line may be to another a first-line tire; and, according to the president of the Goodyear Company, "many people make third-line tires and sell them as first-line."¹ The

¹ Federal Trade Commission, *In the Matter of Goodyear Tire & Rubber Co.*, Docket No. 2116, hearings, p. 571.

PRICE AND PRICE POLICIES

quest for standards is further confused by the changing functions imputed to the tire. The enhancement of nonskid quality is always at the sacrifice of wear. The ordinary tire outlives the full round of the seasons once, twice, or even three times; the service it is called upon to perform varies with the weather. A stressing of its usefulness in rain and in sleet is to ignore the less spectacular demands which fair and warm days make upon it.

The consumer, for the most part, ignores these esoteric questions, and would if he could make long life the test of his tire. But as yet endurance has no unit of measurement and life expectancy can be predicted by no mortality tables. A tire seems to be something more than the sum of its parts, something different from the aggregate of its processes. A couple of tires of identical make, subjected to the same wear and tear upon the road, will prove to possess quite different spans of life. A third-rate tire may occasionally last as long—or even longer—than a first-rate tire. Life cannot be built into a tire accurately within many thousands of miles. In spite of heroic efforts of manufacturers to make brand names a symbol of an enduring mortality, spectacular success still lies in the future. The certainty in the mind of the car owner is due as much to the reiterated beat of advertising as to the concrete fact of regular performance.

The reason for the wide variation in performance among tires of the same grade turned out by a single manufacturer is not entirely clear. At hearings before the Federal Trade Commission an engineer testified to variations in the elements out of which a tire is compounded. Materials, as yet not of uniform quality, account for one-half to two-thirds of the difference; workmanship is responsible for another one-fifth; and variations in chemical, engineering, and vulcanizing specifications make up the remainder. But, no matter how carefully specifications are controlled, the only test is actual performance—and down the highway “300 per cent variability is possible.”¹ In part the result is due to the vagabond experience of the tire but just as important is its adventure in construction before it “hits the road.”

In its own purchase of tires the federal government sets up specifications for both material and performance.² The actual results of tests and the evidence afforded by the lists of successful and unsuccessful bidders confirm the conclusion of heterogeneity. At any given moment no unit of measurement can reduce automobile tires to comparable items; nor can the definition of a tire be pent up within the precisions of terms. Only in the rough everyday of casual purchase, where brands

¹ *Ibid.*, p. 9596.

² United States Bureau of Standards, *Federal Specifications for Tires, Pneumatic Automobile and Motor-cycle*, ZZ-T-381-b, May 22, 1936.

THE AUTOMOBILE TIRE

and grades and even performance are lost to account, is it true that a tire is a tire.

THE DEMAND FOR TIRES

Unlike the purchase of an automobile the acquisition of a tire is a simple act. Style and design play singularly minor roles. Although some consumers, impelled by advertising, have come to demand particular treads, it is quality of wear and freedom from skid, rather than appearance, which recommend a tire. The ordinary purchaser wants a tire—a tire dependable in use, durable in quality, cheap in price.

The demand for tires is not a thing apart; it is an aspect of the demand for transport by automobile. A pneumatic casing protects the wheels of the vehicle, makes possible its high-speed motion, and softens the bumps of the road. But, apart from the car, the tire has no utility and no function to perform. It is thus the automobile which establishes the market for tires and fixes the limits of demand.

The number of automobiles in use determines the volume of tire construction. In good times the car owner may discard tires that still hold a bit of hazardous life; in hard times he may turn to cheaper brands or have old casings retreaded. But such variations are trivial, and, so long as he keeps his automobile active, his purchase of accessories must continue. The automobile represents a lavish outlay of cash or an incursion into debt. Tires, like gasoline, are necessary to exploit the investment; but, in comparison with the investment in the car, their cost is small and they involve only dribble spending. As a consequence, changes in the price of tires have almost no effect upon demand; the vital stimulus to their purchase is operation of a car.

This does not mean that the demand for tires is inflexible. Total sales vary widely from year to year. In respect to about one-fourth of its business the industry is as responsive to periods of prosperity and depression as the demand is insensitive to price. As the sales of new cars drop off, the business of equipping them with tires declines rapidly; as the automobile industry takes the upward curve of production, the manufacture of tires responds with a surge in output. But "original equipment" is no static affair. Until 1919 a car carried no more tires than were needed in actual operation. Then, as an enticement to sales, manufacturers initiated the practice of providing "spares" for a car "all ready for the road." Now the new automobile carries one or two extra tires—a practice which tends to merge original equipment with replacement. In 1910 "the average car" was equipped with four tires, by 1934 the figure had gradually risen to five. Since the number of new

PRICE AND PRICE POLICIES

cars depends upon the capacity of the people to purchase, the "original demand" for tires varies with the national income.

The remaining three-fourths of total production is for renewals.¹ The replacement of worn by new tires goes on ceaselessly, heedless of price and in disregard of fat years and lean. A few owners put their cars on furlough during the depression because depleted finances could not stand the strain of new tires; a somewhat larger number devoted painstaking effort to repair or explored the possibilities of the rebuilt product. But such lapses from the ordinary behavior of the motorist were pent within severe limits. The life of the tire ceases suddenly; if the car is to be used, the accessory must be found. The volume of automobile mileage decrees the demand for tires. Thus an insensitivity in demand to changes in price is accompanied by a direct responsiveness to sales of new cars and travel by automobile.

In reality the measure of tire demand is car mileage. A tire is a unit of uncertain size, which may yield less than ten or more than thirty thousand miles of untroubled driving. A factor needed to correct statistics and to endow them with meaning is the gradual change in the character of the tire. As the years have passed, a greater mileage has been packed away within cotton and rubber. Until 1922 "fabric" tires accounted for nearly the entire output; the material was cross-woven threads with an equal warp and woof. There followed a cord construction in which the lengthwise threads were very heavy and the cross weave very light. This new method gave an added flexibility, since the textile base with its rubber covering could "give" with surface changes in the road. And eventually the cord tire emerged into the "balloon." Now individual cords without any cross weave were run from spools directly into the tire. The size of the tire was larger; it required a higher volume of air rather than a heavier pressure to carry the weight of the vehicle. The result of the economy in pressure was greater flexibility,

1

PRODUCTION AND SALE OF TIRES

Year	Estimated production of tires	Original equipment sales	Renewal sales
1910	2,400,000	724,000	1,525,000
1915	12,000,000	3,583,720	7,871,820
1920	32,400,000	8,472,461	20,564,539
1925	58,784,073	17,211,726	39,287,651
1930	51,610,000	13,969,780	37,231,455
1934	47,232,000	13,509,555	31,875,298

United States Bureau of Foreign and Domestic Commerce.

THE AUTOMOBILE TIRE

an easier accommodation to the road, and an increase in comfort in driving.¹

The incidence of this revolution in construction has been an enormous increase in the life of the tire. In 1910 a fabric clincher tire lasted about nine months. In the mid-twenties, when the shift to the high-pressure cord was under way, its longevity had increased to one and a half years. At present conservative estimates place the span of life of the average low-pressure balloon type at not less than three years. A translation into terms of mileage gives the matter real significance. In 1914 a pleasure trip in a car equipped with short-life tires was frequently interrupted with blowouts; the tire was on its last legs at the end of 3,500 miles. By 1922 the average tire was able to do a life stint of 8,000 miles; and by 1930 its mileage span had again doubled. Today a tire that is worthy of its name ought to be able to put in at least 25,000 miles.² Here a constant change has been rung on the quality of the commodity, and as a result the increase in the demand for "cushioned mileage" has not led to a corresponding demand in the number of tires. A technology which stubbornly has refused to accept the *status quo* is responsible for this paradox.

The failure of unit sales to grow with an increase in car mileage has also been accentuated by the practice of retreading. At one time the car-

ESTIMATED PRODUCTION OF AUTOMOBILE CASINGS
By Types in Percentages

Year	Construction			Rims	
	Fabric	High-pressure cord	Balloon	Clincher	Straight side
1910	100.0	....	....	98.0	2.0
1915	95.0	5.0	....	89.0	11.0
1920	65.0	35.0	....	70.0	30.0
1925	14.1	51.8	34.1	50.8	49.2
1930	.....	16.9	83.1	6.3	93.7
1934	.....	12.6	87.4	....	100.0

United States Bureau of Foreign and Domestic Commerce.

² The figures are secured from the Leather and Rubber Division, United States Bureau of Foreign and Domestic Commerce. They represent, of course, only average figures for the life of all pneumatic casings for passenger cars, trucks, and busses.

The situation was presented strikingly at the public hearing on the retail code for the rubber tire industry held August 3, 1934. A member of the Retail Code Authority stated: "A few years ago we saw a tire selling for \$32 for a Ford delivering 5,000 miles. Today a tire goes 30,000 miles and its cost is \$5. So we have two declining curves: where formerly one bought two and one half tires a year, he now buys one and one quarter."

PRICE AND PRICE POLICIES

cass wore out as quickly as the tread and had to be discarded. At present the fabric may still be in good condition after the tire has worn smooth. The art of retreading—or, more euphemistically, rebuilding—began in the mid-twenties and has spread widely. If the process is skillfully performed a rebuilt tire may give as much as 75 to 80 per cent of the mileage of a new tire. The extension of the practice in recent years has reduced substantially the sale of new tires. But the tire itself is only half responsible for its own durability. Its life depends also upon the severity of the work it is to do. In 1910 it had to bump along as best it could over dirt and gravel roads; now it takes the path of least resistance down the concrete highway. And good roads—a stimulus to the use of tires—are an obstacle to their rapid obsolescence. Thus public expenditures upon highways cut down wear and tear, add thousands to the mileage within a tire, and reduce the number of units the motorist must purchase.

This arrested delay in mortality is fundamental to an understanding of the industry. The new-car buyer secures his tires—four to six of them—as part of his equipment. They are purchased in very large lots at bargain prices by the automobile manufacturer. Thus to their substantial profit a giant concern becomes the agent of innumerable consumers of low bargaining power. They secure excellent and durable tires at less than current retail prices. More than this, as tires are improved, the renewal demand is projected farther and farther into the future. The popular practice of turning in the old car in the purchase of the new frees many owners from ever having to negotiate the purchase of tires. In such cases the second or third owners constitute the sole source of replacement demand. The increase in the life span of the tire reduces the number of occasions upon which a toll can be collected for a sale made; it leaves a large part of the motoring population without conscious awareness of a price attached to the use of tires. It may eventually come about that tires acquired as original equipment will last as long as the car itself. If they are allowed the indulgence of a single retreading, that day is not far away. If and when it comes, the demand for tires for replacement will be like the demand for steering wheels, and will cease to be a factor of account in the conduct of the industry.

A similar effect would be evoked if the life of the automobile were reduced. It is estimated that the average automobile is in active service for seven or eight years. The annual average mileage is about 8,300. A tire may last three years or longer; its obsolescence then is often rather deterioration through age than exhaustion by wear. Recently the automobile industry has exhibited some concern over the overlong life of cars; the failure to bring prices down has caused low-income groups to rely upon secondhand cars, and has created an attitude which makes for

THE AUTOMOBILE TIRE

demanding of them the last fraction of service they are capable of giving. If obsolescence were speeded—either by manufacturing poorer cars or legislating old cars off the road—the renewal market for tires would be put in jeopardy. The demand would then be limited to original equipment; and purchases would be confined to the makers of automobiles. This gloomy prospect has led to the recurring suggestion that a holiday be declared on improvement. Although this might seem profitable to the industry, it would be at the cost of an improved product. There is little evidence that such a program of stabilization—and of arrested progress—can win industrial acceptance. Nor are rival firms likely to surrender such an opportunity to win and hold customers by superior quality in an intense competitive struggle. Moreover, in the motor world news gets around quickly; and a manufacturer is likely to consider the matter carefully before he depreciates a trade-mark which has cost large sums to build up.

The incidence of all this upon the industry is clear. The demand for tires, very sensitive to automobile sales, car mileage, and national income, is singularly impervious to price. Even if they were given away, additional tires would be of little use to the motorist and could find only a functionless place apart from the automobile. And conversely the price might be substantially increased without a material reduction in the demand for tires by current car owners. And so long as tires continue to be improved, manufacturers must continue to face a falling per-car market. Thus the industry is a victim of its own good works. An improved tire, itself a product of market rivalry, intensifies the competitive struggle. The very conditions which create the demand for stability put security beyond the reach of the industry.

THE STRUGGLE FOR SECURITY

Industrial security is as important as social security. Like individuals, the companies which make up an industry must attune themselves to the order of change. A constant vigilance and a guard against shock is the price of survival. An obscure invention, an ebb in the tide of fashion, the shrewd contrivance of a substitute, an economy in the process of marketing—and the laggard faces the doom of bankruptcy. The unit which would realize a continuous round of profits must forever make its adaptation. And industrial security is essential to the achievement of social security. The fortunes of workers are tied up with the solvency of their companies; their security—save for the pittance from relief—is inseparable from a going industrial order.

From its beginnings the tire industry has been plagued with hazards to corporate security. As the automobile ceased to be a luxury and became an everyday necessity, tires took a similar position in the standard of

PRICE AND PRICE POLICIES

living. The factories migrated from New England to Ohio; a nearness to textile mills became less important than proximity to the assembly lines of automobiles. There the industry developed an efficient management, a supply of skilled labor, and a sympathetic banking community. The location proved attractive; and now more than half of all tires are produced in Ohio. But such concentration has had its costs; the great mass of tires for replacement are produced at some distance from their markets; and the expenses of distribution are prone to run high. Here the industry is vulnerable; here is an easy point of attack for concerns who specialize in economies in marketing. Through mail-order houses and chain stores, tires have reached the consumer more cheaply; but the diversion of business has had a very unsettling influence upon the established concerns within the industry.

There is nothing natural or inevitable in this concentration. It is not demanded by the technical processes of production; nor does the building up of consumer acceptance behind a brand name demand that all units be produced in one place. A number of small independent producers have located plants close to large consuming centers; and savings in the cost of distribution have been a factor in their survival. The large manufacturers, fearful of the competition, have retaliated with branch plants. These have recently been extended, in part, no doubt, because of labor troubles at Akron. Ford is entering the industry and is now making a substantial fraction of his own tires; and a closer tie-up between automobile and tire manufacturers is in evidence. If the concerns were starting all over again, they might establish chains of small factories and feed the surrounding markets from these outposts. It is possible that in the future such a relocation of factories may solve the enigma of national production and local consumption. But, with factories once established, the costs of decentralization are immediate and the savings can be only slowly realized. Against any apparent gain must be set off the intensification of overcapacity that must result from new construction.

A surplus of plant capacity is persistent; in its omnipresence the threat to the security of the industry can be given graphic statement. In 1936, a year of great prosperity, approximately 55,000,000 tires were produced. It has been estimated that the industry could furnish from 80,000,000 to 100,000,000 tires with little change in labor force, machine equipment, or industrial organization. The reasons proceed from the adventitious development of tire manufacture. As long as the motorcar was a plaything for gentlemen, the tire industry was insignificant. The boom which attended the expansion of automobile sales gave to tires a major position in the aristocracy of new industries; for a time there seemed to be no limit to the market for cars or for tires. Thousands of enterprising

THE AUTOMOBILE TIRE

business promoters sought to find a vent for their talents in the new venture. The boom gradually subsided as the markets in the upper and middle income groups were exploited. The tire industry settled down; the weak units were weeded out; a process of concentration got under way. As the shift was made from a free-for-all gamble—at which from one time to another more than 500 concerns participated—to a regular and even to a routine business, the number of companies declined to about 30, and between 1915 and 1935 the average number of tires produced by each establishment jumped from less than 100,000 to well over 1,000,000.

All along the smaller companies continued to be a plague to the industry. A precarious financial condition forced upon a number of them, not bankruptcy and withdrawal from the field, but reorganization and another competitive chance. Others were merged or sold outright—frequently at distress prices—to new adventurers. In such cases depreciation of plant and obsolescence of equipment were more than offset by the reduction in the capital charge which attended the writing down of the initial investment. As a result the new or the reorganized companies were able to become low-cost producers.¹ Such a superiority had its source, not in efficiency, economies, or even business shrewdness, but in the earlier absence of these very qualities. Thus an active competition persisted from plants which had failed; an excess productive capacity was kept active; and the investments of bankrupts were used to subsidize a destructive campaign for markets.

Even plant equipment bears a taint of immortality. Its belated obsolescence and stubborn refusal to wear out increases a capacity already overdone. In some industries, notably petroleum, the effect of a technology dynamic with innovation is to render machines out of date at the end of three or four years. Ability-to-produce thus becomes an aspect of the going organization of the industry. In tires, even though the commodity is forever changing its identity, the methods of production have been able continually to turn to account the old equipment. A last impulse toward overcapacity has been mechanization. The machine method goes back to the beginnings of the industry; but year after year its processes have been more closely articulated and the task of production speeded. After 1927 the tempo of change was quickened. It is estimated that in the decade from 1922 to 1932 the number of tires produced per worker increased by 100 per cent. The change represented no revolutionary upheaval in manufacturing but rather an unbroken

¹ The Fisk Company, for example, in a reorganization obtained a plant at a very low price. Under the manufacturers' code of the National Industrial Recovery Administration, the transaction evoked numerous questions regarding the basis for costs. The competitors of Fisk wanted costs comparable with their own. They pled that plant items should not be taken at actual cost but on the basis of fair market value as determined by outside accountants and engineers.

PRICE AND PRICE POLICIES

series of improvements in mechanisms and organization. An old plant, even if not to be completely reshaped along modern lines, could be retouched with improvements not prohibitive in cost. The result was the addition of a substantial increment to an already unruly capacity to produce.

All these factors contributed to the growing uneasiness of manufacturers. A construction of plants for a demand which did not materialize created the initial problem. The charity of the law of bankruptcy allowed concerns to linger which had already gone to the wall. The character of technical change permitted old equipment to continue to serve after new methods had come into vogue. The attempt to effect savings in marketing added branch factories to existing plants. An improvement in the efficiency of labor increased the number of tires to be had from given productive resources. And, in an indirect but real sense, the improvement in product and curtailment of demand moved to the same end.

Thus the stage was set for industrial insecurity and a violent competition. The focus of the struggle was control of volume and its ultimate end was business survival. The individual manufacturers were under persistent pressure to use plant facilities to the full, to spread overhead costs over the largest possible volume, and to turn every competitive advantage to fullest account. Since the demand for tires is insensitive to fluctuations in price, the use of such devices as advertising and price concessions could not increase the total volume of business. Nor as a means of promoting sales of tires were the manufacturers in a position to bring the automobile within the reach of lower income groups. Their competition for trade had to be conducted within the fixed limits of the available market. The struggle for individual security had to take the form of an attempt to divert the business of competitors. A device, salutary if put to a limited use, was employed by all. The quest of security by the individual concern accentuated the general insecurity within the industry.

THE HAZARD OF RAW RUBBER PRICES

This competitive struggle among tire manufacturers began in the market for raw materials. Here is a factor—the price of raw rubber—which lies outside the internal organization of the industry and yet vitally affects its conduct. Although it is the world's largest consumer, the United States has little control over its rubber supply. The bulk of production comes from British Malaya and the Dutch East Indies. It is a product of the tropics; yet its control lies with nationals of Western countries. Thus realms of discretion are sharply marked off between the actual growing of rubber in the Orient, the control of production in

THE AUTOMOBILE TIRE

western Europe, and the utilization of the product in the United States.

In rubber growing a neat mechanical adjustment of supply to demand has been impossible. It is some seven or eight years after planting before trees begin to bear; and once committed to their economic mission they continue to produce in utter disregard of the requirements of the market. An increase in demand is attended by a delayed response in supply, while economic forces help nature to make belated adjustments; and, in reverse, a superfluous supply can only slowly and painstakingly be whittled down to the reduced demand. In consequence, while control of production takes its ponderous course, the market fluctuates between glut and scarcity; and price may rise from a given base to its multiple and presently fall back.¹

In this country the largest use of rubber—many times as much as in all other wares together—is in the making of automobile tires. The violent changes in price are grave hazards to the cost of manufacture. At one time rubber may constitute the significant item of expense; at another,

¹

WORLD RUBBER STATISTICS—1860-1936

Year	United States gross imports of crude rubber, tons	N. Y. price of rubber per pound, cents	World rubber plantations, acres	World rubber production, tons
1860	750	62	.....	1,500
1865	3,000	87	.....	6,000
1870	4,296	99	.....	8,500
1875	4,586	66	.....	9,000
1880	8,109	85	.....	17,000
1885	11,354	60	.....	22,500
1890	15,336	84	300	30,750
1895	18,646	76	1,000	37,000
1900	22,026	98	7,000	48,000
1905	28,637	128	125,000	62,000
1910	45,003	207	1,125,000	95,000
1915	101,095	66	2,500,000	155,000
1920	253,680	36	4,500,000	295,000
1925	400,423	72	6,000,000	525,000
1930	487,627	12	9,000,000	825,000
1931	501,788	6	9,075,000	800,000
1932	414,697	3.5	9,125,000	709,000
1933	418,902	6	9,150,000	853,000
1934	463,020	13	9,225,000	1,019,000
1935	467,146	12.3	9,250,000	870,000
1936	488,145	16.4	9,250,000	856,000

Leather and Rubber Division, United States Bureau of Foreign and Domestic Commerce, *Rubber: Some Facts on Its History, Production, and Manufacture*, January, 1937.

PRICE AND PRICE POLICIES

by benefit of a pecuniary economy wholly fortuitous, it may be small in relation to total cost.¹ The price of rubber is forever a gamble; it can never be turned to a solid calculable account by the manufacturer; it is always a major threat toward insecurity. Moreover, the members of the industry are vulnerable in rather different ways to fluctuations in the price of rubber. The large companies carry heavy inventories; usually they keep on hand a supply for several months as a safeguard against emergencies and as a strong selling point for large orders. The automobile manufacturer, the mail-order house, the chain stores, want assurance of prompt delivery; and an adequate supply of raw material is a buttress against the loss of their custom. In contrast the small manufacturer carries only an insignificant inventory, often no more than a month's supply; for usually he cannot afford to have his investment tied up in the storeroom. If he is hard pressed financially—particularly if his credit has been stretched to the breaking point—his hand-to-mouth purchases may be even more current. Instances are on record in which the manufacturer has been forced to rely upon c.o.d. purchases and to pay for them through current intakes of cash.

The incidence of such practices in respect to inventories is a wide difference in the costs of rubber. As the price rises, the large manufacturers are able to use material that has cost them less than their smaller competi-

¹ The following percentage distribution of tire production costs was made by the United States Bureau of Foreign and Domestic Commerce. The 11 pounds of rubber in the average tire in 1927—when raw rubber was in the neighborhood of 40 cents—accounted for one-third of the production value. In 1931—the price had then gone down to 5 cents—it was only one-seventh; and cotton fabric became the most important material in cost. The percentages, based upon census data and other estimates, are at best merely approximate; but they are suggestive.

PERCENTAGE PRODUCTION COSTS OF TIRES AND TUBES

	1927, per cent	1929, per cent	1931, per cent
Rubber.....	30.68	23.45	14.75
Reclaim.....	2.29	2.16	1.73
Fabrics.....	12.16	18.63	15.40
Fuel and power.....	1.27	1.34	1.72
Other materials.....	11.00	10.21	9.13
Total materials.....	57.40	55.79	42.73
Salaries.....	4.65	4.04	5.41
Wages.....	13.81	16.50	15.53
Other "added".....	24.14	23.67	36.33
Total overhead.....	42.60	44.21	57.27
Production value.....	100.00	100.00	100.00

THE AUTOMOBILE TIRE

tors. On occasion the difference may be as much as 10 cents a pound, and the large producer will have the competitive advantage of \$1 or more per tire. Such a handicap, if it persists, may mean insolvency for the little fellow. As the price falls, the advantage is with the small producer. His outlay for raw materials declines almost at once, since he does not have to exhaust an inventory.¹ Yet, in the long run the advantage is definitely with the manufacturer who is in the stronger financial position. Inevitably the buyer, large or small, is driven to speculate in the rubber market; the market impinges too directly upon his business for him entirely to avoid this risk. And the profits which accrue from anticipating rises and falls in the price of rubber are quite substantial and may even cancel the deficits of an unprofitable manufacturing venture. But unequal hazards attend indulgence; a few wrong guesses may wipe out the small adventurer where his stronger rivals are able to withstand the consequences of their mistakes. When on occasion the rising price of rubber runs wild, it is the small company which goes under. His more powerful competitor usually maintains his solvency through sheer reliance on cash reserves or credit resources.

The effect of this is to make bigness an instrument for survival rather than an agency of productive economy. It is probable that concentration would have occurred in any event for it is a part of the cultural inheritance of modern industry. The manufacturer can turn his size to account in the struggle for markets; it allows a wider division of risks and provides a necessary cushion for shock. But such assets are also essential as a protection against the violent fluctuations in price in the raw-rubber market. If he is to survive, the manufacturer must be in position again and again to weather periods in which prices of raw rubber are continually breaking wrong; and, when prices collapse, he must be able to write off a high-priced inventory as a necessary cost of production.² In the struggle raw rubber seems to be on the side of the big guns.

Not content forever to stand the shock, the large manufacturer has taken the offensive. He has sought to insulate himself against market

¹ An interesting point was raised at the Federal Trade Commission hearings on the Goodyear tire case. The president of the General Tire and Rubber Company stated that many American tire manufacturers were caught in the spring of 1926 with large supplies of high-priced raw rubber. The Sears, Roebuck and Co. was able to capitalize on its contract with Goodyear, which provided that only rubber bought at low current market prices should enter the manufacture of All-State tires. It was claimed that this permitted the mail-order house to make prices much lower than manufacturers with high-priced raw material could afford. *In the Matter of Goodyear Tire & Rubber Co., op. cit.*, pp. 2645-2646.

² There is no unified agreement that the larger unit is the more efficient. The Sears, Roebuck and Co., whose tires were made on a similar contract by a large Akron and a small Iowa factory, claimed before the Federal Trade Commission that the cost was greater in the large establishment. E. G. Holt, rubber expert in the United States Bureau of Foreign and Domestic Commerce, claims that the "size of plant per se has practically no influence on the cost of production, given a basic volume of, say, 4,000 tires daily."

PRICE AND PRICE POLICIES

fluctuations by reaching out toward control of the sources of supply. United States Rubber produces from one-fourth to one-third of its requirements; Goodyear has rubber plantations in the Panama Canal Zone, the Philippines, and Sumatra; Goodrich, like some of its competitors, has had buying agents in Singapore; and Firestone owns a plantation in Liberia. As yet the holdings represent but a fraction of the world supply; and the plantations are subject to the regulations in vogue where the rubber is produced. But, in terms of the competition between manufacturers, an integration of all the activities through which a tire is produced may have significant results. It may free favored producers from the tyranny of the market, allow them to secure their rubber at the "cost of production," and make more calculable the way of business enterprise. They are, to be sure, unable to grow enough rubber to satisfy their full needs; yet the average price will be more certain for them—and over long periods lower—than for their competitors. A buttress against the unruly forces of the market, even though its protection is still partial, is an instrument in the service of security.

The growers of rubber have on occasion attempted to stabilize its price or at least to minimize the fluctuations. These attempts have usually followed a market collapse that left plantation owners in severe distress. The Stevenson Restriction Plan, inaugurated by the British in 1922, set as its goal a "fair price" which was to be based upon the "cost of production." Production was allocated to all the plantations in the British Empire and an export tax on rubber in excess of quotas was used to police the system. An administrative norm quickly appeared in a theory of the proper recovery of costs. The notions of cost accounting, transported from metropolitan industry to the Eastern plantation, lent themselves none too comfortably to the "rubber estates"; and they were incongruous in their application to native producers. As in the production of cotton and tobacco, the tending and tapping of rubber trees is inseparable from the way of life of the growers. The problem was further complicated by the intrusion of alien western values into a distinctive native society. The result was that cost of production lost its literal meaning, was translated into a set of fictions for various items of expense, and became an apologia for a higher price of rubber. Such inherent defects made the enterprise difficult; and success was uncertain with only 70 per cent of the world's production under control. But other factors obtruded to break the scheme. A drastic restriction, attended by a sharp rise in demand, caused the venture to get out of hand, and price went to a sensational height. The high price stimulated production outside the restrictive area and in America encouraged the use of reclaimed rubber. Still Britain's control held an umbrella over competitors until its percentage of the total world output declined from 70 to 50 per cent. An

THE AUTOMOBILE TIRE

attempt to secure Dutch adherence failed; loyal producers, unwilling to be penalized for compliance, resorted to smuggling; and the venture collapsed.

Again in 1932, when price fell as low as 3 cents a pound, the collapse of the rubber market evoked a demand for control. The Regulation Agreement, in effect since 1934, covers about 98 per cent of the world's production. Its professed objects are those popular to all schemes of restriction—"reducing existing world stocks to a normal figure," "adjusting in an orderly manner supply to demand," and "maintaining a fair and equitable price level which will be reasonably remunerative to efficient producers." Like the older plan, the present form of regulation makes use of prorated production. The duty of enforcement falls to the government; a steeply graduated tax, supplemented by a system of coupons and licenses, prohibits exports in excess of quotas. The current success of this scheme of control has caused some apprehension among American tire manufacturers. It had been expected that the price might reach 18 cents; this figure has among producers come to be the symbol of a "fair price" which covers "costs" and a "reasonable profit." But it has not halted there; and furthermore, the agreement covers the control of the planting of new trees, which must have its long-time consequences upon rubber prices. Even if supply is neatly "adjusted to current demand," a sudden expansion in the uses of rubber will lead to scarcity. Although the power of the committee in control extends both to production and to counter-adjustment, the immediate pressures upon it are largely toward restriction of output.

An essential shortcoming of the plan, as with most forms of production control, is that an important party to the industry is left outside. A bargain has two parties, each with power over its terms; a competitive market is a continuing bargain between sellers and buyers. But here is a treaty for the production of an important commodity, and the nation which is the largest consumer is all but left out of account in determining output. An American representative without a vote virtually leaves America without a representative. A regulated production, as a barrier against a chaotic fluctuation in price, is in the interest alike of the grower and the manufacturer. But the point to which price shall be allowed to rise presents a different question; and here the interests of the two groups are in sharp contrast. At the moment an overdrastic restriction has caused a scarcity of supply and has proved an instrument of overhigh price. The American manufacturer wants a stable supply at a reasonable price. Over a longer period interests may be more in harmony; an extreme scarcity and an exorbitant price may be disastrous alike to grower and to manufacturer. The current experiment is all the more delicate since production and consumption break along national lines. It is the conta-

PRICE AND PRICE POLICIES

gious touch of use from America which gives value to rubber trees half across the world; yet American fabricators are mere observers in an international restriction of an indispensable raw material.

A potential check on high price is the availability of substitutes. Of these the most important is reclaimed rubber. The quantity is not unlimited; nor does used rubber possess the high elasticity of the new material. But as the price of rubber rises there is a greater utilization of this supply. An analogue to a substitute is the retreading of old tires. Although the demand for tires is all but impervious to price, a slight change may be effected in the consumer's habits. Tires may be used slightly longer; rebuilt tires may become more popular. This shift is too slight to be reflected in the statistical picture of demand; but if raw-material costs become excessive, a technique may be sought to make more effective use of rubber in the production of tires. A final source of supply—still of limited commercial importance in America—is synthetic rubber. As yet the laboratory has not yielded a product comparable in all respects with raw rubber. Its greater resistance to oxidization, heat, and various oils and solvents has established something of a market for synthetic rubber where its distinctive qualities are of paramount importance. The effective barrier to wide use is price; so long as its synthetic production costs 75 cents a pound, it cannot enter the market as a genuine competitor to natural rubber. At some time in the future modern technology may turn out at a low price an elastic substance far superior to rubber. Or, more likely, ways and means may be found to convert synthetic rubber into a commercial product able to meet raw rubber on more equal pecuniary terms. Until then the artificial product will remain a matter of academic interest and of future hope to the industry.

The industrial insecurity, fostered by the market for raw rubber, is accentuated by the complexity of distributive arrangements. Here an unwelcome situation has arisen out of a number of significant changes which virtually amount to a revolution.

THE EMERGING MARKET STRUCTURE

The tire manufacturer has been subject to numerous pressures in the field of distribution. As the demand for tires swung from a rising curve into a straight line, the economic utilization of plant capacity and labor force became an insistent problem. The individual manufacturer came to view larger business as the surest means to industrial security; and a price low enough to attract volume, spread overhead thin, and reduce the unit costs of production would be its own justification. So the psychology of the industry shifted from profits to output. If sales were assured, it was certain that profits would take care of them-

THE AUTOMOBILE TIRE

selves. The tire makers proceeded to engage in a battle royal, each for more than his share of the tire business.

A plum—somewhat more attractive on the bush than in the hand—is the long-term contract for large volume. It provides, at least temporarily, an assured market for tires. It frees the regular output to be sold through regular channels from having to bear the total expense of plant, equipment, and labor. It gives, so long as it runs, a steady flow of income unvexed by the bothers of collection. But it presents its problems and compels its adjustments. The other party to the contract is skilled in negotiation, has power to shape the terms of the bargain, and is insistent upon prompt delivery. Its orders are likely to come in when regular business is heavy; they have to be executed when the factory is already running toward capacity. The ways of accountancy are not immune to contractual compulsions; items of cost may with propriety be very differently assessed against short orders and long volume; and overhead may sit more lightly upon the tires which are fabricated for a mail-order house or a chain of stores. Moreover, the approach to the expiration of a long-term contract creates a crisis for the tire manufacturer. But for all that, the arrangement spells profits and symbolizes potential earnings for the future. This business is the object of a struggle among manufacturers so intense as to lead to extreme price concessions. It has its bothers, its exactions in service, its inconveniences to production schedule, its low rate of return as an offset to large volume; yet it is a prize eagerly sought for.

The large and regular buyers make up rather distinct and separate groups. The automobile manufacturers are the most important. As purchasers of original equipment they handle a substantial portion—in good times, when cars in volume leave the assembly line for the road, well above one-quarter—of the entire business. And through the practice of giving spares with new cars, they control about 8 or 10 per cent of the renewal sales. Probably more favorable prices have been offered to this group than to other large purchasers. The concessions have in part been justified by savings in distribution costs. The tires attached to the vehicle reach the motorist through the efforts of automobile manufacturer and dealer; the only distribution expense to the tire producer is carriage from plant to assembly line. Another enticement is the free advertising which tires as original equipment secure. The new car transmits, by mere contagion, a portion of its prestige to the automotive equipment. As a result, tire manufacturers are able to rationalize a meager—or even an unprofitable—contract in terms of current contributions to inevitable costs and intangible benefits in the calculable future.

The great concentration in the automobile industry has produced an equal concentration in the buying of tires. The bulk of the original

PRICE AND PRICE POLICIES

equipment market is in the hands of a few all-powerful consumers. In some instances, the arrangement between seller and buyer has a seeming irrevocability—the case of Firestone and Ford is in point. Here the dictates of price must come to terms with personal friendship; the construction of a new tire factory by Ford has affected some tire makers adversely; but it is probable that the contract with Firestone will be one of the last to be touched by the new competition. In other cases, as contracts expire, there is a persistent shopping around for better prices. If it is possible to hold it, a tire manufacturer must not allow a contract to leave his hands. Its loss necessitates a readjustment of his business to a smaller output and an all but inevitable higher unit cost. Moreover, it promises a larger volume and a lower unit cost to the competitor who gets it. The names of the companies and the cars for which they supply tires are well known within the industry; and the loss of an important contract will be noised about and may spell a depreciated prestige. The struggle among the large tire manufacturers for contracts from automobile companies is bitter.

Another group of important tire buyers is the commercial consumers. Originally the factories themselves solicited these accounts and gave the owners of fleets of cars special discounts. Then the business fell into the hands of factory-owned stores or dealers in the cities, who secured special discounts from manufacturers and passed them on to large buyers. Now the trend is reversed and the manufacturer is again taking over volume sales. The competition is keen and frequently “offside” quotations are made in a desperate effort to get the business.¹ Thus a large section of the tire business lies outside the competition for direct sales to the consumer. The presence of large buyers—automobile manufacturers and commercial accounts—removes a substantial segment of the business from the domain of the open market to the realm of private bargaining. Here his power enables the large purchaser to reverse the position of the petty buyer as it exists in the retail market and to take the dominant role in the bargaining process. Instead of the vendor turning to his own account the weakness of the ultimate consumer, the vendee of substance can bring the seller to terms. He is able to wrest price concessions which no small purchaser could secure. As a consequence, in respect to a substantial volume of his output, the tire manufacturer wins only a meager profit and may incur a loss. Yet inevitably

¹ Once such a lower quotation is made, the whole price structure may be affected. In part this is due to the size of the market touched; in part it is a result of the communication of the cut to other purchasers, some of whom represent noncommercial elements in the commercial accounts. A commercial account in some instances includes the owner of two cars, and all his employees, relatives, and friends. Dealers are confronted with stories of lower prices offered by competitors on such accounts and promptly cut prices to meet.

THE AUTOMOBILE TIRE

the large company is impelled by the conditions in the industry to seek volume contracts.

These arrangements do not impinge directly upon the wholesale and retail marketing of tires. At least in terms of physical sale they are set apart. In one case the tires enter consumption as an incident in the purchase of an automobile; in the other they appear as bulk sales direct from the manufacturer to commercial consumer. But—as the industry is never allowed to forget—the demand for tires is fixed by the number of automobiles in use, and total sales maintain a dignified indifference to high and low prices. As a result the economic repercussions from these large contracts run their course through the whole of the industry's affairs.

A factor of direct consequence is the large chain which purchases from manufacturer to sell immediately to consumer. In recent years this practice has effected a revolution in tire marketing. The change has come about so unobtrusively that it can scarcely be traced; and very little accurate information has been preserved of a retailing structure which is now ancient history. Nevertheless it is possible to ferret out a part of the chain of circumstance which has helped to bring instability into the retail market.

The early tires bore the mark of unreliability. Not only was their normal *span of life* short—less than a year—but their life expectancy had set over against it blowouts and other casualties. It was highly convenient for the garage to act both as the agency of sale and as the instrument for intermittent repair. As the tire improved in quality, the link with the garage was broken, and a multiple of simple sales agencies entered the tire business. At first these were small shops—auto equipment stores, hardware shops, experimental ventures in the sale of tires new and secondhand. In 1922 approximately 98 per cent of the retail tire business was handled by the independent dealer. The small balance was controlled largely by the mail-order houses.

But other groups were not slow to enter the trade. Between 1924 and 1925 the chain and mail-order outlets jumped from a control of around 5 per cent to about 15 per cent of renewal sales. The oil companies, lethargic until 1930, suddenly came to life and decided to spread their overhead by carrying a line of tires. Five years later through their service stations they possessed about 10 per cent of the business. Spares, of little consequence until 1928, emerged as standard practice; and now at least 8 per cent of the renewal trade goes to the automobile manufacturers. As early as 1924 some retail outlets were owned and operated by tire manufacturers; between 1925 and 1935 these stores increased their sales from less than 1 per cent to around 10 per cent of the business. In the meantime the independent dealer fared badly; between 1922 and

PRICE AND PRICE POLICIES

1928 the volume of sales increased from 28,000,000 to 45,000,000 tires; though independent dealers sold more tires, their share of sales declined from 98 per cent to 85 per cent. By 1934 both total sales and percentage control of the business had again substantially declined. Of the 35,000,000 tires sold in the renewal market, the independent dealer controlled about 57 per cent—less than 20,000,000 tires.¹ His decline was evident alike in renewals and in total sales.

A number of new trade practices attended these structural changes in the retail market. Each emerged in response to industrial exigency; each was a potent force in pushing the competitive struggle to further extremes. In a prolonged period of flux the tire manufacturers—caught by innovations in marketing which they had not initiated and for which they were unprepared—proceeded to take measures to secure their positions. The independents—jobbers and retailers—found their security imperiled by giant marketing concerns whose only solicitude for the *status quo* was to demoralize it. Against the novelties they sought material salvation, and exerted pressure upon tire manufacturers to aid them in the struggle for survival.

A device employed by all the large producers, to maintain and expand their markets, was advertising. Sporadic attempts were made to evoke style in tires; treads were changed in design; tires with white side walls and “jumbo” sizes were given wide publicity. Companies even engaged in stirring campaigns to attach selling phrases to particular brands. Some were advertised as “geared to the road,” “uniflex,” “balanced”; others were endowed with “speed,” “strength,” and “stamina.” Still others were “easy steering for fast-moving traffic,” “safer,” and “graceful.” A later emphasis was put upon resistance to skidding and blowouts. One concern advertised its product as the “safest tire ever built”; another countered with a “proven blowout protection of super-twist cord in every ply” and the “life guard tubes that render blowouts no more hazardous than a slow leak.” The verbal bombardment of the public soon had consequences upon the price structure. The “consumer acceptance” created for a particular brand a market superiority. Without regard to quality such a tire could command a higher price than one produced by a small manufacturer who did not advertise. Some petty concerns catering to a local market developed an acceptance of their particular brands and within their areas could market their products at the prices of nationally advertised tires. The majority of small manufacturers, however, found that if they wished to expand their market areas in competition with well-known tires, price concessions were necessary. As a result there grew up customary differentials between advertised and “unknown” tires.

¹ Statistics compiled by Professor W. W. Leigh, University of Akron, 1934. Figures for later years taken from estimates of trade journals.

THE AUTOMOBILE TIRE

In a stable market an informal differential—based upon market acceptability—may prevail for months or even for years. In tires the market was so unsettled that differentials could not be stabilized and varied between 10 and 25 per cent. A tire which was not “pulling” might widen its differential, pick up a market, and then slowly build up its price and narrow the differential. On one occasion the price of a first-line tire sold by Sears Roebuck was increased and the differential from the nationally advertised line cut from 25 to 10 per cent. Such frequent shifts in differential were significant of the instability of the market—and gave it an added impetus. Nevertheless the principle of different prices for products comparable in quality but incomparable in consumer appeal won general acceptance in the industry. The experiment of the NRA in fixing prices for tires made use of this practice. It was essential to the acceptance of price schedules by the industry; and, although an attempt was made to hide it by a classification of tires, the differential was a germane part of the scheme of price control.

In the industry advertising has a recognized function in respect to price. Its industrial office came up repeatedly in the hearings of the Federal Trade Commission on the Goodyear-Sears contract. The relevant question was whether the mail-order house benefited from advertisements of Goodyear tires. The tires manufactured by Goodyear for Sears Roebuck bore no mark; and the mail-order house could not use the manufacturer's name in its advertising. In one instance competitors issued a statement that mail-order and chain-store tires were without benefit of the name of a responsible manufacturer behind them. To meet this propaganda Sears Roebuck made reference to its source in such terms as “leading” and “largest” manufacturer but could make no specific mention of the name. The Goodyear Company argued that the price differential between the Sears Roebuck tires and the Goodyear brand was justified by the difference in costs; that the added value accruing from advertising applied only to the advertised brands of the company.¹

The effect of advertising has been to intensify the struggle for the existing business. Carried on by all the large manufacturers, it has tended to have a stalemating effect among them; the pressure on the public could be effective only if some failed to advertise. As between the advertised and the unadvertised brands it opened a wider zone of discretion; the smaller producers were forced to meet the challenge with the means at their command. Since their production was small, they could not advertise in a national market; and they lacked cash for the luxury

¹ A lawyer for Goodyear stated, “We believe that the showing of the total amount expended in respect of advertising for the full history of the company is relevant as giving some measure of that value which is given to Goodyear dealers in the sale of Goodyear tires and not to Sears Roebuck in the sale of a tire to Sears Roebuck.” The “total amount” was \$72,000,000. *In the Matter of Goodyear Tire & Rubber Co., op. cit.*, p. 9346.

PRICE AND PRICE POLICIES

of a long-time campaign of promotion. To survive they had to have immediate results in sales; and business here and now would respond only to price concessions.

In the rivalry for markets some manufacturers began to operate their own retail outlets. As independent concerns failed under the stress of the new competition, many were reorganized as company stores. The large tire manufacturers were unwilling to see their retail outlets disappear; a departure involved the losses of bankruptcy, the immediate decline of sales, and the surrender of a marketing outpost. In a few instances the company-owned store was recognized as a valuable weapon in the struggle for business and was aggressively pushed by the manufacturer. By the early thirties Firestone had 400 and Goodyear around 300 of such stores to account for an important share of the renewal market. In a sense the company-store arrangement paralleled the contractual relationships with large consumers; it provided a measure of security in a harassed retail market. It seemed to the manufacturers that the tributary outlet provided buttress against the revolutionary changes in marketing; whatever happened they had guaranteed to themselves assured ways of disposing of their products.

The result was to create—inadvertently it is true—another factor in the competitive struggle. In several cases these stores were located upon favorable sites with consequent high rents and operated in a manner conducive to piling up a heavy overhead. Some through sheer volume and managerial skill returned profits; the majority were carried at a loss. According to the Federal Trade Commission, Firestone spent between \$25,000,000 and \$35,000,000 in the establishment of company-owned stores; and during the period 1928 to 1933 sustained losses in operation of over \$7,000,000. For approximately the same period Goodyear lost \$9,500,000 in the operation of its stores.¹ Profits were subordinated to the maintenance of volume and to “meeting competition.” Moreover, since these outlets were now an inseparable part of the manufacturer’s total business, the allocations of cost were essentially matters of accounting procedure. To have allowed these stores to live as best they could or to die would, in such a competitive situation, have been a tactical blunder. Along the hostile front they had become a necessary instrument of industrial warfare. Behind them lay the vast resources of a large corporation which could be drawn up to enable them to remain in the market. Thus, as the company-owned store faced competition, a “floor of costs” ceased to be a barrier to extreme price declines.

The struggle focused around the retail chains. Through their ability to make lower prices they had gradually been gaining business at the expense of the independents. As large buyers they had been able to wrest

¹ *In the Matter of the Goodyear Tire & Rubber Co., Findings as to Facts and Conclusions*, Docket No. 2116, p. 69.

THE AUTOMOBILE TIRE

favorable bargains from producers; these contracts were a part of the "hedging" process practiced by manufacturers in their search for security. But the initial advantage of low purchasing prices was intensified by an economical system of distribution. In arguing its case before the Federal Trade Commission, Sears Roebuck drew a picture of an organization attuned to low-cost marketing—through direct shipment from manufacturer to store, low rents, lack of frills, little promotion, absence of credit facilities, limited service to customers.

Other marketers achieved similar results. A concern which handles many lines of goods can—at least for a single product—make cost allocation do the price work of efficiency. The gasoline service stations were an obvious example. The United States Rubber and the Goodrich companies manufactured to order an Atlas brand for the Standard Oil Company of New Jersey. In effect the stations owned or dominated by this concern constituted a retail chain in the marketing of tires. However, their chief product was gasoline; the sale of tires, a "pickup" business, merely supplemented the main source of revenue. It was not customary to allocate costs to tires; rent and overhead were free; and even the station attendant's services could be ignored since he was only incidentally a vendor of tires. This situation characterized the service stations generally; and three-fourths of them sold tires. Thus a tenth of the total renewal business came to market through gasoline stations without the burden of distribution costs. Organizations, strictly marketing in character, had similar opportunities to make cost allocations an instrument in the expansion of business. For both Sears Roebuck and Montgomery Ward the sale of tires was but a fraction of a business which numbered literally thousands of consumer goods. In general their products were sold at prices lower than those in regular stores; yet the cost burden which each was forced to carry depended upon the competition prevailing in respect to the particular ware. Moreover, the companies were concerned with total sales; a standard commodity such as tires was ideal for bringing customers to the store for the purchase of other goods. Costs were distributed to take account of strategy; and tires were passed along an established marketing channel with only the minimum of distributive expense.

All these innovations in marketing struck steadily and disastrously at the business of the independent dealer. Many who survived followed the practices of their larger competitors; they increased their lines to distribute their risks among several products. Then these independent dealers came into the advantageous position of the chains in shifting costs to carry tire competition. It has been estimated that, in the early thirties, 85 per cent of the approximately 200,000 outlets of all types did less than an average volume of \$2,000 a year in tires. At an NRA hearing it was stated that 160,000 dealers had total annual tire sales of less than \$1,000

PRICE AND PRICE POLICIES

each; and that fewer than 1,000 dealers had annual sales of \$25,000 or more. Only 10,000 units in the country were really dealers in the sense that more than half of their annual volume of sales was in tires. The bulk of them were tire merchants on such a small scale that the trade must have been a mere incident to some other business.

In so insistent a situation a violent competition between retailers would have been difficult to avoid. A static demand for tires, fixed by automobile movement, was turning into a declining demand through continuous improvement in the product. A part of the business, once belonging to the retail market, was moving outside to become subject to bargaining arrangements between manufacturer and large consumer. And as the market narrowed, there emerged innovations in the field of distribution which brought tires to automobile owners at lower prices. Many of the retailers were in a position to allocate to other products their costs of doing business and thus to pursue the will-of-the-wisp of volume in disregard of price.

The stimulus to price wars came from two sources. The small tire manufacturer, selling an unadvertised product, maintained his market only through price differentials, his first-line tire selling for about 25 per cent less than the advertised brands. As consumers betrayed an increasing sensitivity to price, regular dealers selling well-known brands at a higher price took steps to meet the competition. This might take the form of discounts on the quoted price, larger trade-in allowances on used tires, or free merchandise. The initial group met the challenge by a further resort to discounts and premiums or again cutting outright to protect their differential. Added to this was the competition arising out of long-term contracts between manufacturer and large buyer. Some of these arrangements produced unexpected results; brands of tires produced by the same manufacturer were made to compete with each other. The All-State, for example, was manufactured by Goodyear for Sears Roebuck and sold at a differential usually of 25 per cent. It competed directly with other tires made by Goodyear and sold under brand names through regular dealers. It is significant that this competition became so keen that Goodyear dealers prevailed upon the company to put out a second-line tire, the Pathfinder, to meet the Sears Roebuck price. In turn the mail-order house retaliated with a second-line tire also manufactured by Goodyear and marketed at a differential under the Pathfinder price. Eventually third-line tires appeared to be used in the war between the two types of outlets. The Atlas tire, made by two large competitors of the Goodyear company, was priced about 10 per cent below the standard first line. Like the Sears Roebuck contract, these arrangements forced a lively competition between the advertised tires of a manufacturer and tires fabricated by him for a marketing concern. Large commercial accounts, handled by dealers, were a bone of contention; and tires made by the same company

THE AUTOMOBILE TIRE

but handled through different types of outlets were frequently pitted against each other.

In these price wars financial strength was the key to survival. Many independent dealers could not operate on the margin left after discounts and trade-in allowances; they failed and left the business. Many of these outlets were reestablished and supported by the tire companies; and thus the costs of competition were thrust back upon the manufacturer. The large chains were in solid financial condition to weather price wars; and through actual economies in purchase and distribution—or the device of cost allocation—they were consistently able to meet competition. According to the Federal Trade Commission, Sears Roebuck made a gross profit on its tire business—even with large trade-in allowances, free tubes, and special discounts for pairs of tires—which on occasion ran as high as 60 per cent. The small independents rather generally lost money on tires; but many held on through profits upon other lines of merchandise. The larger dealers, committed to the trade and fitted out with elaborate methods of costing, felt themselves hard pressed. In the middle twenties they had been able to sell tires at the dealer-consumer prices recommended by manufacturers; but as the warfare increased this was no longer possible. These dealers exerted continuous pressure upon their sources of supply for respite from the unruly forces of the market. The manufacturers were in a dilemma; either their independent dealers must be helped over the hard places of competition or they had to face the loss of these outlets. In the quotation of prices to dealers the custom developed of including as a factor, along with size and type, the immediate pressure of competition. In consequence the net billing list became a bewildering array of preferential items with discounts for cash, discounts for special price sales, discounts for special brand tires, and discounts for “cutbacks” to “meet competition.” Additional protection was granted through bonuses for volume of business; and key dealers were frequently allowed special price concessions over the regular trade discounts. At first this was usually an extra 10 per cent; later it was extended to 15 per cent; and at the height of price cutting reached a maximum of 22½ per cent. Some dealers were reimbursed by manufacturers for losses sustained during price wars. The tires sold at cut prices were replaced at such prices as to keep the stock intact without financial loss to the dealer.

Thus all down the line from manufacturer to consumer the quoted price became a fiction. As many as five to ten discounts attended the marketing progress of the tire; the variations in size, brand, and rate made any generalization impossible. When tires moved through jobbers, additional discounts were made. In the retail market the quoted price was at best a point of pecuniary departure. Consumers could shop from one dealer to another securing different bids on old tires; actually these

PRICE AND PRICE POLICIES

allowances were price concessions on the purchase of a new tire. The special discounts, free merchandise, and offerings for purchases in pairs constituted further deductions; and frequently even this disorderly structure of surreptitious price cutting was broken by the price war. Under the stress of competition the quoted price had become merely a peg upon which was strung a myriad of subtractions.

In this industrial warfare the manufacturer was alike cause and victim. Out of the competition between large and small producers emerged advertised and unadvertised brands. The line between first-quality and inferior tires was never distinct and often blurred; consumers developed a skepticism of differences and became conscious of price. It is an ironical fact that this was fostered by the contractual arrangements between manufacturer and large marketer negotiated in the cause of security. The tire sold at a differential through chain stores competed directly with the advertised tire. The price declines which followed forced tire companies to take over stores or to underwrite the deficits of their independent dealers. Contracts for large volume and over a long time, intended as a buttress to security, made more intense the way of business rivalry. An epitome of the whole situation is an intense competition among four tires manufactured by the same company.

Although competition lacks its yardstick, this unorthodox struggle for markets has served the motorist well. The trend has been almost constantly toward better quality, longer wear, and lower price. In all the bothers attending ups and downs in price and through all the vicissitudes in pioneering methods of distribution, the tire industry has served the public—even at the expense of investor, manufacturer, and dealer. It is at least not the inefficient who have survived. And a regulation which might cure the evils of the situation or create a neater pattern upon competitive behavior might arrest change and impose a higher price upon the buyer.

THE DUEL OF INDEPENDENT AND CHAIN

The predicament of the tire industry received public attention through the investigation of the Federal Trade Commission. For some time previous to 1934 it had been rumored that Goodyear was secretly manufacturing the tires sold by Sears Roebuck. However, Goodyear evaded or even denied the existence of a contract. It has been suggested that the impetus to a government investigation came from one of Goodyear's competitors who had been unsuccessful in the quest of the profitable contract.

Prior to 1926 the mail-order house sold tires purchased from a number of small manufacturers under the brand name of "Justice." These were inferior to the "standard" brands and Sears Roebuck was dissatisfied both with the quality of the product and the volume of sales. Representatives called upon Goodyear to discuss the possibility of a large purchase;

THE AUTOMOBILE TIRE

negotiations resulted in a three-year contract by which Goodyear was to fabricate—according to distinct specifications—tires for Sears Roebuck. The terms of the contract were unique in the annals of the industry.¹ Instead of an agreed price, or the quotations of the market, it was provided that casings and tubes should be billed to Sears Roebuck at cost of manufacture plus a 6 per cent profit. This was intended to include costs of shipping and handling but no selling or advertising expense. Furthermore, within thirty days after the end of the calendar year there was to be a “recalculation and redetermination” of the intermittent billing prices; and an adjustment was to be in accordance with the “then actually determined factors and bases.” In case of disagreement the matter was to be referred to an arbiter—a firm of cost accountants—for final settlement. The buyer furnished the molds for the manufacture of tires. It specified sizes, types, and tread design. Although the secrecy of various processes was to be respected, representatives of the buyer might enter the plant to inspect materials and to make sure of the quality of the process. But the formula for manufacture was the property and the exclusive knowledge of the manufacturer. No mention could be made of the source of supply. The Goodyear company agreed to refrain from selling through other outlets tires or tubes bearing the name or tread design of the tires fabricated for Sears Roebuck. It promised to maintain in its warehouses a thirty days’ supply at current demand.

Subsequently this contract was superseded by two others, one in 1928 and another in 1931. These gave minute definition to particular sections of the first contract and made minor corrections; but in its essentials the earlier arrangement was continued. Costs of manufacture were to comprehend “all proper items,” including shipping, warehousing, and packing expense; but were not to cover “selling, advertising expense, interest on borrowed moneys.” A compromise was struck on losses arising out of the manufacture of “seconds.” The profit was to be 6 per cent when the price of crude rubber averaged 25 cents or more per pound; and 6½ per cent when it fell below. At various times other arrangements were made affecting the cost of tires. A falling rubber market attended the making of the first contract; at that time Goodyear agreed not to include within costs rubber purchased or contracted for prior to March 15, 1926. The second contract assured the buyer the erection of a new plant in the southeastern part of the United States to take care of its requirements in that territory.²

Prior to negotiation of the third contract, Sears Roebuck announced its intention of terminating the arrangement. The stated reason was that

¹ For copies of contracts see *In the Matter of the Goodyear Tire & Rubber Co., Findings as to Facts and Conclusions, op. cit.*, pp. 12-35.

² Sears Roebuck also received permission to secure a supply of 200,000 tires a year from a small factory in Iowa.

PRICE AND PRICE POLICIES

better terms could be secured from other large companies or from a group of small manufacturers. The Federal Trade Commission could find no evidence of the proffering of bids by competitors of Goodyear; and no indication that any manufacturer could sell tires to Sears Roebuck at a lower price was apparent. Conference between the parties resulted in the continuance of the plan; but to the third contract was appended a "secret agreement." The manufacturer presented to Sears Roebuck as a gift 18,000 shares of treasury stock at the stated valuation of \$450,000, and a cash payment of \$800,000 for the purchase of 32,000 additional shares of Goodyear common stock. The treasury stock had just been bought in at a cost of approximately \$1,000,000. These arrangements were not divulged to the stockholders of Goodyear; and were kept carefully guarded in the confidential files of the corporation.¹

The legality of this contract, when challenged, had to be tested against the general language of a federal statute. The Clayton Act permits a discrimination in price which is based on "differences in the grade, quality, or quantity of the commodity sold, or that makes only due allowance for difference in cost of selling or transportation." But it forbids a disparity in price whose effect is "to substantially lessen competition" or whose tendency is "to create a monopoly." And, to confuse permission with prohibition, it tolerates price concessions made "in good faith to meet competition." Thus a concrete problem in the conformity of industrial activity to the canons of the law turns upon competitive intent and the intricacies of cost calculations.

Attorneys and accountants for Goodyear argued that the company was in two separate businesses. First, it manufactured and sold through its accredited dealers a trade-marked line of tires; second, it fabricated tires to order for large distributors. The tires produced for Sears Roebuck—which assumed the office and bore the costs of distribution—belonged to the second category. Costs were reckoned in the usual way, as they would be for stoves, radios, or electrical refrigerators; they comprehended every legitimate expense of production. It was improper to include among them analogues to the costs incurred in the marketing of Goodyear tires. Moreover, the "cost plus contract" was not peculiar to Goodyear. Atlas tires, sold through the filling stations of the Standard Oil Company of New Jersey, were made to order. The United States Rubber Company manufactured tires to specifications for Montgomery Ward, with the added provision that the purchaser could supply the rubber if it wished. As for Goodyear's branded tires, that was another—and an irrelevant—matter. The tires were marketed through company-owned and independent outlets; the process was more costly; the expenses included an element of good will created by the expenditure of \$72,000,000 in adver-

¹ The Goodyear company likewise withheld this bonus agreement from the investigators of the Federal Trade Commission at the time the preliminary survey was made.

THE AUTOMOBILE TIRE

tising. And cost statistics were introduced to show that the bulk of the price spread between Goodyear and All-State was due to differences in costs of distribution. In short the argument ran that Goodyear-as-manufacturer-to-order must not be confused with Goodyear-as-manufacturing-merchant.

The attorneys for the Federal Trade Commission argued that all costs should be counted in the contract. It was their opinion that, unless total expenses were uniformly distributed among all tires produced, the spirit of the Clayton Act would be ignored. The members of the commission, however, made a more literal interpretation of its provisions and allowed the exemption of distribution and selling expenses for Goodyear tires from the cost calculations under the Sears Roebuck contract. Nevertheless the commission found that the "difference in price shown in this case far exceeds any demonstrated difference in savings and bears no reasonable relation to the differences in cost."¹ In support it offered statistics to show that the company derived larger profits from Goodyear dealers than from its sales to Sears Roebuck.² On March 5, 1936, the

¹ It said further, "The practice of giving large and powerful purchasers a disproportionately large discount is not justified. Such a discrimination, when made merely on account of size, tends toward monopoly and the suppression of competition. If the quantity proviso be interpreted to mean that a manufacturer can discriminate with respect to quantity sales to any extent he desires, the section would be rendered meaningless and ineffective. It is clear that the quantity proviso can only have been intended to preserve to the manufacturer a license to grant him a favored price without restraint." *In the Matter of Goodyear Tire & Rubber Co., Findings as to Facts and Conclusions, op. cit., p. 96.*

GOODYEAR'S COSTS AND NET PROFITS ON AVERAGE TIRE PRICES FROM 1927 TO 1933

	All-Weather— Goodyear	All-State— Sears Roebuck
Tire size, 4.50 X 21		
Net billing price	\$ 6.66	\$4.04
Distribution expense	\$2.29	\$.28
Factory cost	3.39	3.51
Total cost	5.68	3.79
Net operating profit	\$.98	\$.25
Tire size, 6.00 X 21		
Net billing price	\$14.75	\$9.11
Distribution expense	\$4.91	\$.48
Factory cost	7.55	8.06
Total cost	12.46	8.54
Net operating profit	\$ 2.29	\$.57

In the Matter of Goodyear Tire & Rubber Co., Findings as to Facts and Conclusions, op. cit., p. 98.

PRICE AND PRICE POLICIES

commission issued an order to "cease and desist." The Goodyear Company—open to suits for triple damages from competitors if the order should be upheld—turned to the courts.

At the time of this appeal the Robinson-Patman Act was passed. It provided that there should be no discrimination in price between different purchasers of commodities of like grade and quality, "where the effect of such discrimination may be substantially to lessen competition or tend to create a monopoly." Differentials making "only due allowance for differences in the cost of manufacture, sale, or delivery resulting from the differing methods or quantities" were permitted; but after investigation and hearing, if it found that large purchasers could buy so cheaply as to make the differentials "unjustly discriminatory or promotive of monopoly," the Federal Trade Commission was to establish quantity limits. An innovation in the law, intended to expedite litigation, was a procedure which virtually imposed upon the alleged violator the task of proving his innocence. Other provisions were aimed at outlining substitutes for price concessions such as free service, advertising commissions, or free transportation.¹ Shortly after the passage of the act Goodyear abrogated its contract with Sears Roebuck, explaining that it did not wish to hazard possible violation of the new statute. Yet its stake in the legal controversy with the Federal Trade Commission was too large to allow the matter to be dropped; there was the constant threat of suits for triple damages by independents who thought themselves injured by the contract. So, though the arrangement had been ended, a test of its validity was carried to the courts.

The consequence of the act upon contractual arrangements within the tire industry is a matter of conjecture. The legislation is so novel that after several months speculation as to its meaning has not been stilled. It may languish on the books through studied oversight; or a vigorous attempt may be made at enforcement. In the latter event, its words will probably undergo the scrutiny of corporation lawyers in an attempt to limit language or to discover loopholes. A period of watchful waiting may ensue while the industry observes the intent and success of enforcement agencies. It is not inconceivable that there may be, in the name of the higher law, a resort to the courts for relief from its compulsions. Moreover, a piece of legislation must be fitted to the going industrial order. The earlier antitrust laws voiced an economic faith but did not give it a general reality. In the great variation that marks industry, the blanket language of an act strikes at different points and with different results; what may be in accord with opinion and practice in one industry

¹ For a discussion of the features of the act see a series of articles on "Price Discrimination and Price Cutting," *Law and Contemporary Problems*, June, 1937.

THE AUTOMOBILE TIRE

may be alien to the ways of another. In consequence, a mutual process of adaptation takes place. The industrial units make what concessions they must to abide at least by the letter of the law; and the statute gradually takes on concretion from the particular conditions with which it is confronted.

It is significant that in the Goodyear investigation and under the Robinson-Patman Act proof is by way of cost accounting. In measuring the Goodyear performance against the requirements of the Clayton Act, the Federal Trade Commission had to ferret out unit cost to discover whether the price concessions exceeded the savings made possible by the large-scale and long-time contracts. At best standards are only approximations, but the procedure gives to costs a definiteness and finality which do not exist. It is a right and proper question whether the plea of Goodyear was not justified; that under the Sears Roebuck contract it was a manufacturer making goods to order—a presumption which would change the calculation of many items of cost. Some of the Goodyear costing methods are equally disturbing. The allocation to Goodyear dealers of losses on company-owned stores put them at a competitive disadvantage. The large expenditure for advertising maintained, even if it did not increase, volume; this made possible economies in production, reduced overhead per unit, and made for a lower cost for Sears Roebuck tires. Yet such items are not recognized within the provisions of the contract. Every large manufacturer is engaged in many businesses, at once distinct yet interlocked. An over-all average, for a single commodity or for the whole of output, must rest upon the usages of calculation current to the corporation. In fact the going relationship is too much a tangle of activities ever to be reflected with precision by such a device as cost accounting.

In an attempt at enforcement the Robinson-Patman Act faces similar problems. After investigation and hearing the Federal Trade Commission may set limits to the price concessions granted to large buyers. This may involve an invocation of cost accountancy, a protracted period of investigation, and an appeal to the courts. The methods of proof acceptable to the law do not promise rewarding results from the judiciary. The testimony to be discovered in cost accounting is too approximate, too purposive, too grounded in presumption to be easily suited to the common-sense rules of evidence. And the possibilities of evasion, cloaked in slight changes in industrial organization, in lack of similitude between kindred wares, in plausible hypotheses of calculation, are enormous. Although the extreme fluctuations in the price of rubber may forbid the use of the device to the tire industry, elsewhere the provision of raw materials as well as specifications and molds may make the manufacturer appear to

PRICE AND PRICE POLICIES

be the agent of the merchant.¹ Or the disparity may be concealed by a sale to a distributive subsidiary at the same price as to large consumers. Under such subterfuges—and their number is legion—reasonable price differences may be maintained within the letter of the law.

The purpose of the Robinson-Patman Act is to allow the small independent to survive an effective competition of the large chains. It must be remembered that the discriminatory discount is merely one of a complex of factors which makes for the impotence of the independent merchant in the market place. He often epitomizes the most inefficient form of marketing; the goods he sells pass through a multitude of hands; in relation to the organization of his store the small volume is conducive to high costs. Even a subsidy of his business through low wages to his workers and a depressed standard of living for his family may not put him on a plane of equality in competing with the far-flung and large-scale concern.

In the tire industry financial resources have become essential to survival. In a rising rubber market the output of small manufacturers, purchasing at frequent intervals, reflects the latest quotation; and the large producer, who has taken advantage of low prices to lay in a long-time supply, has a decided advantage. To stay in business the small manufacturer must recover on his expenditures. In part the burden of carrying on may be shifted to the independent retailer through lower margins or through forcing him to take the cuts necessary to meet competition. The price war is an overt manifestation of an overbuilt retail structure which faces a static or even a declining demand. The resultant losses can be met only by those units which are in a strong cash position. This very ability to meet competition, whatever the point of attack, stimulates further demoralization of the market. Moreover, it is highly doubtful if the tire manufacturer can escape the compulsions of large buyers. Within the last few years the marketing chain has moved from a status of tolerant suspicion to one of high respectability; its control of volume gives it a commanding power over prices. Amid regulatory measures its use is attended with hazards; but among large buyers there is strategy enough even amid statutory requirements to turn bargaining power to account.

An attempt to mold the industry into the likeness of the Clayton and the Robinson-Patman acts must buck the course of industrial events. In spite of the good intentions of Congress and the heroic endeavor of agencies of enforcement, its success is dubious. Nor are the legislative

¹ The practice of fabricating wares to order from the materials, within the molds, and to the specifications of the buyer is reminiscent of the ways of the craft guilds and of petty trade. Yet today the practice attaches to large rather than small transactions. It is common in dealings between manufacturer and merchant and little used between retailer and consumer.

THE AUTOMOBILE TIRE

standards assuredly of an unqualified advantage to the public. Almost half of the retail price of an advertised tire goes to pay the cost of distribution. The mail-order house and the large retail chain represent the first intelligent attack upon the wastes of distribution and the first systematic attempt to bring economy into the processes of marketing. Under the outlawed contract Sears Roebuck was selling an excellent tire at a low price. The total expenses of distribution were probably less than one-fourth of the cost of the tire. The product was given wide advertising through consumer good will, the most effective form of publicity. The benefits of the contract were shared with a large part of the public. The price cutting practiced by Sears Roebuck and other chains undoubtedly sped many an independent toward financial ruin; but it is an open question whether the life of the small independent can be perpetuated by legislative act. It is all but axiomatic—except to those who associate goodness with smallness—that the consumer is under no obligation to subsidize an inefficient retail organization.

It is frequently urged that the destruction of the independent means destruction of competition. The event, however, is quite as likely to provoke a new kind of competition—that of giant chains vying among themselves to get their products cheaply to the consumer. In such an event an excessive margin of profit is not likely to appear; but if through collusion between chains, the rewards of efficiency are pocketed rather than passed on in lower prices, there will be a call for government intervention in the public interest. It is possible that the future holds a centralized control of marketing organizations. If so, the state is likely to prove impotent, and the move will be an invitation to federal control. A trend toward bigness may create conditions which make easier the formation of combinations, but bigness in itself is not of necessity a move into monopoly. There is a competition of giant business as well as of petty trade. It is quite fitting for the government to insist upon a fair field and no favors among rival tradesmen. But in its regulatory endeavors it should trim its sails to the winds of change that blow; it should not attempt to impose the hypothetical norms of trust-busting statutes upon an industry already overcompetitive. And it should not play favorites between rival forms of marketing, or, above all, put a premium upon inefficiency.

With the business upturn in 1934 the tire industry enjoyed its share of industrial prosperity. A rise in the price of tires was accompanied by a decline in price wars. The revival of business brought a boom to the automobile industry and by contagion to the manufacturer of tires. The increase in general employment imparted its stimulus and replacement sales were stable. The influence of a militant National Association of Independent Tire Dealers was reflected in the approval of a code of fair

PRICE AND PRICE POLICIES

trade practices by the Federal Trade Commission in October, 1936. A definition of price discrimination was framed along the lines of the Clayton and Robinson-Patman acts; and a number of unfair practices—sales below cost, deceptive marking or branding of products, the passing off of rebuilt tires as new—were prohibited.

The industry awaits with interest the development into a code of concrete usages of the general provisions of the Robinson-Patman Act. A concern with the disclosures of the Federal Trade Commission in the Goodyear case has been shifted to the reception of the case by the courts. The heavy losses on company-owned stores have stirred the large manufacturers to the necessity of shifting the burden of doing business elsewhere; this may be hastened by the pay-roll tax provided for by the Social Security Act. And with intense anxiety the industry follows the experiment in production control of raw rubber under an international agreement. In spite of such hazards, there is a belief in some quarters that stabilization for the industry and security for manufacturer and dealer lie just around the corner. To others any peace which prevails is only a lull that precedes another reorganization in a dynamic industry that seems doomed forever to the instability and insecurity which is competition.

SECTION IV
GASOLINE—THE COMPETITION OF BIG BUSINESS

BY IRENE TILL

THE PRICE WAR

At any wayside filling station the man in the car purchases, say, 5 gallons of gasoline at 16.8 cents per gallon. It is a simple everyday act; yet here is what lies back of the transaction—

AT THE major company stations the posted prices for gasoline are usually identical. Differentials exist among "premium," "regular and "third-grade" gasoline; but the prices for these grades—in any one market—are the same whether purchased at a Gulf, Sunoco, or Socony station. The unbranded gasoline of independent companies¹ is customarily marketed a cent or two below the majors' prices. This is not the result of written agreement; it is a matter of current trade practice; the differential has the approval—or at least the grudging tolerance—of the large oil companies.

These prices may remain stable for long intervals; yet stability is always threatened and rests upon the shakiest of foundations. For the oil companies are engaged in a desperate struggle for trade, and any of them would shave its price a trifle if it thought a larger gallonage lay that way. The prices endure at the sufferance of competitors who avidly seek each other's business. A price cut can bring increased sales only for the shortest moment; for cut is certain to provoke cut, and no one can tell where the mischief will end. The price may be driven down by fractions of a cent until it has been cut in half. The differentials between grades and dealers, which make up the price structure, may be shattered. A price cut is at once a temptation to gallonage and a threat to profits. A price war is forever imminent; an untoward event or a misunderstanding is enough to touch it off.

The cause of the price war is the intensity of the business struggle; the occasion is some fact or fiction bred in an atmosphere of suspicion. Some service station dealers become persuaded that others are granting price

¹"Independent" is the name applied to a miscellany of units in the industry. The company may be unintegrated, partially integrated, or—if it is small in size—wholly integrated. The term, though highly useful to the trade, cannot be given a clear-cut definition; a unit, for one purpose classed as an independent, is elsewhere listed as a middle-sized or major company.

PRICE AND PRICE POLICIES

concessions to increase their gallonage. It may be through "under the canopy" discounts; or courtesy cards or truck or taxicab discounts may be widely extended to customers; and a large part of the business going through the service station may be below the quoted price. Or a "premium" may be a device for securing patronage. A waffle iron, a fountain pen, a set of breakfast dishes makes quite a dent in the quoted price; the dealer buys at wholesale, the customer appraises at retail, and the discount may appear to be greater than it really is. Whether real or fanciful the excuse comes, and eventually a smoldering animosity breaks into the open.¹ Some service dealers, impatient of "undercover" discounts by competitors, cut their posted prices outright.

A cut in price at one outlet is a threat to the whole structure. The larger stations may attempt for a time to maintain their prices, hoping for some "settlement," for a price war may mean the loss of months of profits. But if a truce cannot be arranged, they cannot hold for long in the face of dwindling gallonage, and they too cut to regain their customers. The war spreads rapidly along the highways, and the struggle becomes one of holding up the price at the outposts. Far out the prices totter—and perhaps collapse—under the bitter realization that the gallonage is moving into the price-war area.

At the end of a few days, weeks, or months the war spirit is spent. The passion for gallonage has found disastrous expression in an orgy of ruinous price cutting. The industry is once more forcibly reminded that secret discounting is profitable only if the discounts limited to privileged customers remain secret. It has, by the hard road of experience, learned all over again that in a price structure as sensitive as gasoline, secret price cutting becomes open and takes its devastating route down the highways. Still rebellious but chastened through financial losses, the dealers return to their previous informal relationship, and the price structure of the industry resumes once again its former state of perilous equilibrium.

The price war gives character to the modern petroleum industry. Once monopolistic in character and still maintaining some of the traditions of monopoly, it has gone competitive. The little gasoline seller in the alley, with a single pump, can cause tremors through the industry. With his invested capital of a few hundred dollars he can send chills through the \$100,000,000 company. Possessing but a pittance of the total gallonage, he can—and on occasion has—set the price for all the gasoline in the adjacent area. The price war is a recurrent symptom of a demoralizing competition which has its focus in the retail outlet. It is, in fact or in prospect, an expression of the excess of production over

¹ Retail outlets located near state boundaries often find price stabilization enormously difficult. The gasoline taxes enacted by the states vary from 2 to 7 cents; an attempt to add the full tax, where it is higher, to the gasoline price means loss of gallonage.

GASOLINE

market requirements which has resulted in an overbuilt retail structure. It is a quick and heavy turnover which creates profits for the service station; the tremendous growth in the number of retail outlets has "diluted" the gallonage and intensified the struggle. A persistent desire to possess the business of one's neighbors finds expression in an articulate price structure forever under the threat of disorganization.

A belated return to competition has not robbed the petroleum industry of its character of big business. The integrated or major oil company engages in production, refining, and marketing operations. It buys or leases lands, drills for oil, transports through its own pipe lines, processes at its refineries, and markets through its own outlets. Not all the oil used is supplied by the company's own wells; but its control of pipe lines and its power as a big purchaser give to it a potential advantage which distinctive conditions in an oil field may turn to account. Within recent years a move to separate retail outlets from the parent company has been stimulated by a desire to pass losses in marketing on to the service station dealers and has been further encouraged by the company's anxiety to escape the chain store and social security taxes. But whatever the nominal relation of major company and retail outlet—whether ownership, agency, lease, or some novel legal invention—it is unlikely that the large unit will surrender a control that stretches from oil well to service station.

The organization of the industry is an intricate network of usages and controls. All who produce oil must take its products to market and accept its prices and decrees. But the market, if left alone, would exercise a chaotic and devastating rule over the industry; and its members have in trade practices won some measure of security for themselves against a destructive competition. An informal series of arrangements born of painful experience have permitted major and independent company alike to survive. The industry has also been subject to the regulation of the government. For decades its activities have been appraised by the norms of competition in the federal antitrust acts. To curb a ruthless competition which wasted their resources, the states have engaged in legislation. Under the National Industrial Recovery Act, it was recognized that the oil industry presented distinctive problems, and a separate agency in the Department of Interior was created to administer its "code of fair competition." It was not long before the Supreme Court obtruded to leave the code technically intact, but to cut away its legal base; and an experiment in federal regulation was allowed to lapse. The industry, as an escape from industrial chaos, turned back to the states for aid. The story of control is a highly checkered one; but, whatever the fate of particular devices used, the problem of taming a turbulent into an orderly competition persists.

PRICE AND PRICE POLICIES

A COMMODITY IN REDEFINITION

The demand for motor fuel is the demand for movement in time and space. It arose out of the series of inventions called the automobile. It emerged with the horseless carriage, the search for a proper fuel, and the victory of the internal combustion engine. It may disappear with the discovery of a superior fueling system, the perfection of a competent electric storage battery, or some radical change in the construction of the engine. Gasoline might experience such a transformation in its qualities as to be a new fuel. The demand rests squarely upon the vehicular habits of society; as these are transformed, it will make its response.

As the engine determines the character of the fuel, so the demand for gasoline is a corollary of the demand for the automobile. The large initial outlay of funds is represented by the motor vehicle; the release of this investment can come about only with the expenditure of small sums for fuel. Consequently, the demand for gasoline remains relatively stable. During the depression the sales of motor fuel kept up even though the market for new automobiles was seriously curtailed. If the public could not purchase new models, it could, with a small outlay for gasoline, operate its old cars.

But the price of gasoline cannot rise indefinitely without a consumer reaction. The extent to which it may go without occasioning a noticeable check upon consumption depends upon the buyer's notion of a "fair price." This in general is the price to which he is accustomed. During the twenties, when the automobile was coming into general use, the price for gasoline was in the neighborhood of 20 cents. This set the standard. To a large section of the consuming public 15 to 20 cents constitutes a reasonable change and is paid with little thought. If it goes beyond 25 cents there is a distinct curtailment of consumption.¹ Even though it developed before the days of gasoline taxation, the consumer's standard of fair price is at a figure which now comprehends state and federal taxes. Such tax payments are accepted as an inevitable accompaniment of the purchase of gasoline and are figured as a part of the total price.²

A comparative insensitivity to price within a 5-cent price range contrasts markedly with a sensitivity to price differences between stations. A customary differential prevails between unadvertised and advertised

¹ An increase of prolonged duration would adjust some consumers to the new price. Others would find it beyond their means, and a permanent decrease in consumption would occur. Costs of fuel would have a more important place in the initial decision to purchase a car. In Italy the purchase and use of cars have been seriously curtailed by a 90-cent charge for a gallon of gasoline.

² Oil companies believe that the gasoline tax disguises the genuinely low price of their products; and some concerns have attempted to build up a consumer awareness by posting the amount of the tax conspicuously on the pump.

GASOLINE

brands; this is made possible by the popular belief that independents' gasoline is less reliable than the well-known brands. Even here, if the margins widen perceptibly, there is a diversion of business from the major stations to the independents. A 1- or 2-cent difference in price between stations selling nationally advertised products is in practice impossible. The trade has attempted to hedge in the demand for particular brands by building up "consumer preferences"; but many motorists have been unable to discover tangible evidence of differences and have persisted in shopping around.¹ Their extreme sensitivity accounts for the uniformity of prices within a territory. A drop in price at one station attracts gallonage so quickly that other dealers within a radius of several miles must cut to hold their customers.

This situation is due to the type of the commodity and the nature of its marketing arrangements. With drugs, groceries, and clothing price differences may persist through inconvenience in reaching the source of supply. With gasoline, the purchaser has easy access to even a relatively distant retail outlet. His vehicle is in motion; a few miles are of little significance; the pleasure trip is the justification of the longer ride; the few cents saved are accounted a net gain. Moreover, gasoline is too combustible to be kept at home in the garage; storage tanks, which must be constructed to avoid fire risks, are too expensive; and fire regulations generally require underground storage of the liquid. In the marketing practice of the reiterated visits of the motorist to the service station lies the compulsion toward a uniformity in gasoline prices.

The product which is used today was for centuries a mere unknown potentiality in oil.² In the world of nature there is no such thing as gasoline. Even "natural gasoline" was without name and properties until discovery was made of its uses. Indeed a natural resource may be said not even to exist until man has fathomed its utility. While knowledge is absent, there can be no technology; and an object of nature may be regarded as a mere curiosity or ignored entirely. In the pre-Christian era the mysterious flames from oil seepages were an effective stimulus to

¹ Unlike the automobile, style in gasoline is almost completely absent. Colors identify some brands but the public's reaction to this appeal seems to be negative. Frequently the attractiveness of the station is an inducement to purchase; but this too has little to do with particular brands. An advertiser, speaking before the 1935 annual meeting of the American Petroleum Institute, suggested that the character of the advertising is at fault. The companies stress "competitive advantages which are actually nonexistent." He recommended the elimination of such phrases as "more speed, greater power, faster pickup, extra mileage, quicker starting" and concentration on selling slogans for brands similar to "The Skin You Love to Touch," "Your Best Friend Won't Tell You," and "Get a Lift with a Camel." *Proceedings of the American Petroleum Institute*, Section II, Marketing, November, 1935, pp. 70-75.

² The exact chemical origin of petroleum is still unknown. Its constituents are believed to be plants, particularly algae of the lower order, and animals; the changes in composition occurred under pressure and heat over a long period of time.

PRICE AND PRICE POLICIES

worship of the divinity. Marco Polo suggested that oil might possibly be of some human use in anointing sick camels; and in this country its earliest use was as a patent medicine.

Petroleum gave the first notable demonstration of its chameleon qualities when a substitute for whale oil was sought in the illumination of houses. Earlier efforts were confined to the elimination of unpleasant odor and smoke; somewhat later its volatility was brought under control, lessening the fire hazards, and it was refined to give a steady glow in the wick lamp.¹ Petroleum had started on its distinguished history in the form of kerosene. The use of gas and later of electricity changed the course of the history of illumination; and a great potential market for kerosene was gone. By that time petroleum had found another use and its production had burst all bounds. The invention of the automobile and the conversion of petroleum into gasoline gave to oil a new commercial significance. It assumed a dominant role in the furnishing of motive power. In its easy amiability to change, this new fuel served a major function in technological development. As the automobile engine underwent constant improvement, gasoline was quick to do likewise; and the discovery of the adaptability of gasoline and lubricating oils hastened the engineering advance.

It is not surprising that a definition of gasoline must be an elastic formula. At a single instant it is fairly homogeneous; over a period of years it varies greatly. If the test is the accommodation of the fuel to its function, the gasolines of twenty years ago and today are different commodities. A modern automobile could not operate properly on the early gasoline; nor would a 1915 automobile require the niceties of the current product. In the changes that have occurred the motor and motor fuel have been inseparable; improvements in the construction of the engine have required constant changes in the character of the fuel.² Thus it is

¹ In 1833 a physician reported in the *American Journal of Science* that owing to petroleum's "great and extensive demand, a small vial of it would sell for 40 or 50 cents. It is at this time in general use among the inhabitants of the country for saddle bruises and that complaint called the 'scratches' in horses. It seems to be peculiarly adapted to the flesh of horses and cures many of their ailments with wonderful certainty and celerity. . . . In neighborhoods where it is abundant it is burned in lamps in place of spermaceti oil, affording a brilliant light, but filling the room with its own peculiar odor. By filtering it through charcoal much of this empyreumatic smell is destroyed and the oil greatly improved in quality and appearance. It is also well adapted to prevent friction in machinery, for, being free of gluten, so common to animal and vegetable oils, it preserves the parts to which it is applied for a long time in free motion." *Petroleum Investigation*, Hearings before Subcommittee of the Committee on Interstate and Foreign Commerce; House of Representatives, 73d Congress, House Resolution 441, 1934, vol. 2, p. 879; hereafter cited as *Petroleum Investigation*.

² According to the Automobile Survey Committee of the American Petroleum Institute there is only one recorded case in history where important changes in the automobile design were made to fit the gasoline. This was the development in carburetion which occurred around 1920 to adjust to the decrease in fuel volatility. All other important changes have

GASOLINE

less correct to speak of gasoline than of "gasoline as we know it." The identity of term cloaks the variety of chemical composition and functional behavior which has gone on over the years.

A major adjustment which gasoline has been called upon to make is in octane rating. In the effort for greater power and lighter weight the compression of the engine was raised. The heat became so intense that the fuel exploded prematurely and a "knock" resulted. To surmount this difficulty a gasoline was devised to withstand the higher temperature. The octane rating is a measurement of the antidetonating character of the fuel. Changes in the compression ratio have caused the octane rating to be "stepped up" from 40, through the 50's and 60's, and it has now reached and passed the 70's. The petroleum industry wishes to call "enough." An increase in octane to 80 or more may effect a noticeable increase in the price of gasoline without yielding commensurate benefits. Moreover, the customers of the oil industry constitute the users of both old and new automobiles. The interest of automobile manufacturers is primarily in new-car sales; and changes in the compression ratio have been a selling point in urging replacements. New cars now require an octane of 70 to operate satisfactorily; but many of the older models can operate on 65. For these latter the higher octane is superfluous. The continued stepping up of the octane may force higher prices for gasoline; but the drivers of older models will be unable to take full advantage of the new product.¹

Another important change has been in the volatility of gasoline. The value of a low boiling point lies in ease of starting and prompt acceleration. Between 1915 and 1920 the engine was adjusted to the low volatility of gasoline, but the petroleum industry hastened to improve its product. The positions of the two industries are now reversed; the oil refiners are impatiently awaiting the time when they can make more volatile gasoline. At the moment progress is arrested by the likelihood of developing "vapor lock" in the engine; the lighter fractions of the product change from liquid to gas bubbles and shut off the supply of gasoline in the fuel feed.

Although the automobile has been improved enormously, mileage per gallon has not undergone significant change. The engine is attuned to quick pickups for city traffic and passing on the road; a greater emphasis

been inspired by the engine. See "First Progress Report," *Proceedings of the American Petroleum Institute*, *op. cit.*, p. 24.

¹ The Automobile Survey Committee reported that the average car is about five years old. "The attention of the motor-car manufacturer is always concentrated upon his newest models. The petroleum refiner has to satisfy not only the owner of a new model but the much greater number of his customers who are owners of old models. This means a very distinct difference in the viewpoints of the two industries, and it is to be doubted whether the automobile industry realizes the difference." *Ibid.*, p. 24.

PRICE AND PRICE POLICIES

has been put upon a sensitive high speed rather than upon an economical use of fuel. In no case has the automobile engine ever exploited to the full the properties of gasoline. It is estimated that only 12 per cent to 14 per cent of the energy in the fuel is utilized. The guesses on the potential mileage, if all energy were effectively spent, are matters of sheer hypothesis; at the present time there is no known way of avoiding the internal engine and external road friction which accounts for most of the loss. Some increase might be possible at the cost of power, speed, and control—now all-important; or gasoline may in the future unfold another trick or two from its curious bundle of properties.

In fact the potentialities of both engine and motor fuel have only begun to be fathomed. To ease the industrial impact of new inventions, the automobile and oil companies work closely together in the development of their interacting products; and factors other than the potentialities of oil and motor engine may inspire an even greater cooperation in the future. The oil industry is already apprehensive of higher prices incident to the octane race. Increased costs for crude, through gradual exhaustion of supplies, may elicit a more efficient utilization of gasoline, and in consequence, modification of engine design. The developments in technology have been so swift in the last twenty-five years that prediction of future changes is impossible. For the present it appears that immediate improvements in the motor engine will be premised on gasoline as the fuel. Yet a transmission of electric power by radio rather than over wires would open a new field in engine design; changes would be rapid since, in cheapness of power and silence of operation, the electric engine would be superior to the oil engine. Another possibility is the Diesel engine—economical in its fuel consumption but at present cumbersome, complex, and expensive. The whole problem of change is complicated by the fact that gasoline is itself highly susceptible to improvement. Its superannuation may be delayed indefinitely through a more studied exploitation of its properties.

THE RETAIL OUTLET—AN INDUSTRIAL OUTPOST

About 85 per cent of the gasoline business is represented by the major company brands. The remaining 15 per cent is handled by independents who market under locally advertised brand names or who sell an unbranded product. The service station may offer for sale one, two, or even three grades. The only indication to the consumer of differences among these is the prices posted on the pump. The tendency at most service stations is to push the house brand or to stimulate sales of medium grade, though an occasional dealer proffers gasoline from the pump that bears the highest price.¹ It is generally known that the most costly fuel—

¹ An adjuration to service station attendants for the increase of premium gasoline sales is: "*Stand near the Ethyl pump*—Surveys show that people are more apt to drive up to the

GASOLINE

ethyl gasoline—has a high octane which can be fully utilized only by automobiles with high-compression engines. The bulk of the sales at the major station are regular gasoline. The public has learned from experience that the ordinary car operates satisfactorily on this grade of fuel. Third-grade gasoline is suited for old cars with low-compression engines, though a heavy deposit of carbon increases the compression ratio; and some older cars in this condition require a higher octane than the engine itself would call for. Moreover, this grade is not available in all markets, and many consumers are averse to buying the cheapest gasoline for their cars.¹

The large oil company has capitalized the popular preference for the familiar. By dint of repetition in newspapers and magazines, on billboards, and over the radio, the branded gasolines have become familiar household names.² The consumer by every trick of eye and ear is made to believe in the superiority of branded gasoline, if not *the* branded gasoline. And quietly but persistently it is equally borne in upon him that independents' gasoline is less reliable; that it contains kerosene, dirt, and water. In the matter of fuel for one's automobile, the ordinary buyer is an amateur, not an expert; by building up in his mind a preference for a well-advertised gasoline, a prejudice is fitted out with all the certainty of fact. As a result, the unbranded gasolines must fight their way to markets by selling at a lower price. The independent, under exceptional management or in favorable position, may win effective local publicity and market its brand at the price of the major's product. But the ordinary small adventurer, lacking good will and an established market, cannot compete without a price differential. According to section, local circumstances, or expediency made enduring, this may run from as little as $\frac{1}{2}$ cent to as much as 3 cents.

Another reason for the differential is that the gasoline of independents and majors is not exactly comparable in octane rating. The large companies can afford the latest technological improvements and through "cracking" and "reforming" have raised the octane rating of their gasolines into the 60's. The addition of tetraethyl lead shoots it to 70

pump where they see an attendant waiting to serve them. The moment you see a car coming up your driveway, step over to the nearest Ethyl pump and start taking down your hose. Create the impression that you expect car owners to buy your highest quality products." From *New Easy Ways to Increase Sales at Gasoline Service Stations*, published by Ethyl Gasoline Corporation, 1935. There is little evidence that dealers live up to such a commandment.

¹ A rough estimate of the division of sales among the three grades of gasoline sold is: premium gasoline, 10 per cent; regular, 80 per cent; third grade, 10 per cent.

² Or in the words of Hoffenstein:

Along the country roads there grow
Willow trees and Texaco,
Mobiloids and marigold,
And other fruits of men and mold.

PRICE AND PRICE POLICIES

and beyond. The independents are often unable to afford the expensive refinery equipment used by the majors, and they are further handicapped by their inability to secure the patented lead process. In consequence, many small refiners produce straight-run gasoline of a rather low octane or they "crack" gasoline to get it up in the 60's. Various grades, based upon octane rating, are now in the market, which makes for a singular complexity.

The situation rather generally is as follows:

MAJOR COMPANIES' GASOLINE	INDEPENDENTS' GASOLINE
Premium..... 76-80 octane	Regular..... 65-68 octane
Regular..... 70 (not above)	Unbranded, individually
Third-grade..... 59-64.9	branded, trackside, etc.... 61-63
	(sometimes lower..... 57-59)

Price: Premium sells 2 cents above regular gasoline.

Independents' regular may sell at same price as major's regular, usually ½ cent to 3 cents differential.

Independents' unbranded competes with major's third-grade, usually ½ cent to 3 cents differential.

When gasoline emerges from the refinery, it is fairly uniform in quality. The processes used by the major companies are rather standardized; and since a fuel must be fitted to the limitations of the engine, there is no great difference among the various brands. The gasoline processed by the small refiners is less standardized, since some refiners are able to secure a higher octane than others. However, the trade name under which gasoline is marketed gives an apparent uniformity to a very real chaos in source. In the attempt to save transportation costs and thus operate more efficiently, it is a common practice for the major companies to exchange gasoline in certain markets. Generally these purchases are based on contract specifications. The gasoline is rebranded and sold to the public as the company's own product. Most major companies do not supply their full requirements and are partially dependent upon the various assortments of gasoline sold by the smaller refining companies. This gasoline may be reformed before it is mixed with the company's product. The confusion is not confined solely to the branded-gasoline market. The independent dealer may purchase branded gasoline from one of the major companies and market it as unbranded gasoline. In this case the customs of the market allow him to sell his commodity—supposedly independents' gasoline—at a differential. Or an independent dealer may purchase an unbranded gasoline, give it his own trade name, and build up a consumer acceptance for his commodity. This he may sell at the regular branded-gasoline price.

Thus a Babylonian complexity underlies the market structure. The highly developed cracking plant of the major company does produce a gasoline with a higher octane than the straight-run gasoline from the independent's refinery. In a vague way this superiority, enhanced by

GASOLINE

the advantage of advertising, is reflected in the market, where it sells for a higher price than the unbranded. However, the practice of swapping and outside purchase is constantly carried on; it allows a quick adjustment of supplies to local market demands and provides an outlet for the miscellaneous products of the independent. The result is a tantalizing uncertainty of source for any brand but—through purchase by specification or through reform of the gasoline—a fairly identical product.

The octane is also stepped up by the use of tetraethyl lead. This proprietary compound, patented by the Ethyl Gasoline Corporation in 1926,¹ is now used by the majority of major companies as a substitute for severe cracking. It is an efficient way of increasing the octane number without the loss of the more volatile constituents which decompose under extreme refinery processing. The method of use is simple; the compound is simply mixed with the gasoline before it enters the market.

The process was first exploited by licensing the product to large companies, and the mixture of tetraethyl lead and gasoline sold as premium quality at a price differential. This gasoline is still marketed, and sells for 2 cents above regular gasoline, whatever the price of the latter. However, premium gasoline has come to have a decreasing sales importance. During the depression it constituted a problem to the large companies, who had engaged in a reckless installation of premium pumps, though sales made a partial comeback with prosperity. Within recent years ethyl has been put to a new use. Licensees of the Ethyl Gasoline Corporation are permitted to add the compound to their regular gasoline to increase its octane. The use of lead for this purpose has been an effective appeal in advertising; the public has rather generally come to accept the notion that only leaded gasoline can give the octane needed for smooth operation of their automobiles. This idea has persisted despite the fact that a few majors have either never used or have dispensed with lead, and have attempted to mitigate its importance in their sales pressures.

The situation has presented something of a problem to independent refiners. Prospective licensees must submit samples of their gasoline to the Ethyl corporation for laboratory tests. If the gasoline is acceptable, the refiner is advised of the amount of tetraethyl lead necessary to meet

¹ The early patent, No. 1,573,846, February 23, 1926, is rather comprehensive. The first claim reads: "A fuel for internal combustion engines comprising a low compression motor fuel, and a volatile compound of a metal adapted to increase the critical compression pressure of the motor fuel." Since patents have a duration of seventeen years this will not expire until 1943. Later patents have been taken out on substances with a "lead content and a chemical adapted to combine with the lead" and other "improvements." There is some belief that an attempt will be made to continue the monopoly after the period of the basic patent has elapsed. If tetraethyl lead or its equivalent holds the important position it now has, undoubtedly a number of court tests will ensue. An "umbrella patent" such as the original represents has the advantage of closing out all newcomers during its life; but it is sometimes difficult to prove that "improvements" are sufficiently different to warrant new patents.

PRICE AND PRICE POLICIES

the company's standards. This varies between 1 and the "maximum allowable" of 3 cubic centimeters per gallon. Retail stations are periodically visited by special inspectors of the company, who collect samples from the pumps and send them to the Ethyl laboratory. Though the system has been successful in maintaining a high octane number for regular and premium gasoline, some refiners feel the inspection is an unwarranted interference by an outside company. Even more serious in their minds is the company's right to inspect the refiner's list of purchasers of leaded gasoline. This has served as an indirect form of resale price maintenance. Professional price cutters—both wholesale and retail—must be banished from the refiner's list if he wishes to become or remain a licensee of Ethyl. Since the legality of such action has not been beyond question, refusal is usually framed in terms of the inability of the corporation to furnish adequate supplies.¹ Large numbers of independents have been unwilling to divorce themselves from so-called price chisellers; such outlets serve as the regular channels for disposal of their gasoline. In consequence, they have, for one reason or another, been refused ethyl. Although these refiners claim that they cannot secure the compound under any circumstances, it is probably true that all those who wish can have the product on the same terms; the hitch is that standard prices must in normal times be maintained all down the line. The access to ethyl becomes an instrument of police within the industry; the price-cutting independents have been less effective in their gallonage struggle with the majors.

The price charged does not appear to be excessive, and within recent years has gone progressively down. Prior to 1934 the compound was sold at a flat rate per cubic centimeter plus a royalty on the gallonage; in that year the gallonage charge was dropped.² The explanation for the

¹ During the period of the petroleum code the Ethyl Gasoline Corporation often explained its refusal to independents in terms of a limited supply of the compound. However, the Gulf Corporation, which up to that time had not used ethyl, was able to negotiate a contract.

² The price changes reported by the corporation are as follows:

Date	Gallonage charge, cents	Charge per cubic centimeter, lead, cents
October 1, 1928.....	0.7	0.5
August 15, 1929.....	0.6	0.4
January 1, 1930.....	0.6	0.35
July 1, 1930.....	0.5	0.35
March 1, 1932.....	0.425	0.35
July 1, 1933.....	0.2	0.35
January 1, 1934.....	0.0	0.35
December 1, 1934.....	0.0	0.3
December 1, 1935.....	0.0	0.28

GASOLINE

change in policy was, according to the company, that the tetraethyl lead requirement varied from one batch of gasoline to another; and that a gallonage fee could not be reconciled with a flat unit price for ethyl.¹ The rate of profitability on the patent is unknown. The compound is made by the Dupont Corporation for the Ethyl Gasoline Corporation, whose stock is held by the Standard Oil Company of New Jersey and General Motors Corporation. In the oil industry profits turn on fractions of a cent amassed over large volume; and its industrial importance puts ethyl in a strategic position for capitalizing on the protection afforded under the patent.

The service station as the focus of competition in the petroleum industry is of comparatively recent origin. Its development since 1910 has accompanied the expansion of business in gasoline and lubricants which has sprung up around the automobile. Once the service station was invented as an agency for retail sales, its growth was phenomenal. The orgy of construction did not follow the needs of the market; it was caught up and made an instrument in the competitive struggle for gallonage.

Now the retail structure is estimated to be from 40 to 60 per cent overbuilt. There are about 300,000 outlets for gasoline; since the total registration of cars numbers approximately 26,000,000, the average is about 85 automobiles per service station. In contrast, it has been calculated that one station per 400 cars, if properly distributed, would be adequate to handle the motor-fuel business. As the number of outlets has increased, the gallonage handled by the individual service station has lessened. In 1922 the daily gallonage per outlet averaged 400; in 1928 this amount was cut in half; at the present time the volume is 150 gallons or less. An average, however, does not reveal the particularities of the situation. Some stations, located on favorable sites along the highway, do several times this volume of business daily; others, with a single lonely pump or off the beaten track of automotive commerce, handle less than 5 or 10 gallons a day. A distinctive hindrance to some dealers, formerly regarded as possessing desirable spots, is severe congestion of traffic, which discourages drivers from leaving their places in line to fill up their tanks. But despite the wide diversity in volume of business shared among outlets, a comparison of the total number of service stations with the total number of cars on the road indicates a duplication and multiplication of facilities out of all proportion to current needs.

Nevertheless neither integrated nor independent company has shown any tendency to abandon the race for retail outlets. According to a report

¹ "There is no way by which this combination price for the material plus gallonage charge can be reconciled to a flat unit price, for the reason that the oil companies used anywhere from .9 cubic centimeters up to 3 cubic centimeters of tetraethyl lead per gallon treatment and this use varied not only with each company but practically in every mix that was made, to obtain the final result of a uniform anti-knock value in the gasoline that was so treated." Letter of Ethyl Gasoline Corporation, August 17, 1934.

PRICE AND PRICE POLICIES

of the Petroleum Administrative Board, construction continued even during the depression.¹ The bulk of the stations supplied by the major companies were 100 per cent accounts. Of these approximately 85 per cent were noncompany-owned; 10 per cent were company-owned and -operated; and 5 per cent were owned by the company but operated by others. Although contracts are honored in breach as well as in observance, less than 5 per cent of all the stations supplied by major companies were legally free to purchase where they wished. For the independent companies the ratio varied slightly. About 80 per cent of the stations supplied on a 100 per cent basis were noncompany-owned; 13 per cent were company-owned and -operated; and 7 per cent were owned by the company and leased to others. About 10 per cent of the total stations supplied were free of a contract to purchase all their supplies from a single company.²

These contractual relationships have, for a large segment of the industry, obscured retailing costs. Where the service station is owned and operated by the oil company, costs are in their very nature book transactions. The fully integrated unit is interested not so much in profits from particular branches of its operation as in total returns. And little has been accomplished in allocating costs to the various parts of the business. Profits at one point are used to carry losses at another; many of the large oil companies are frank to admit that in general their retail stations are subsidized by other branches of the industry. A similar situation exists for many stations not owned but fully supplied by the company. In the anxiety to secure assured outlets for the disposal of their products, the oil companies have entered into dealer arrangements which shift the burden of competition to themselves. Sites have been rented by the company, pumps and equipment installed at their expense, and informal or written agreements have guaranteed profits to dealers whatever the retail price. The result has been to insulate many retailers against the shock of the market.

¹ The figures represent the compilation of returns from a questionnaire which went to members of the industry. They cover 80 per cent of the industry, but include only a representative sampling from nonintegrated companies. The value of stations owned and operated by integrated companies increased from \$275,000,000 in 1930 to \$374,000,000 in 1934. For nonintegrated companies the increase for the same period was from \$3,000,000 to over \$4,000,000. Though the total investment increased, the average value per station declined slightly. In July, 1934, the average value of the integrated company station was \$15,000 as against \$16,000 in 1930. The small company station normally costs about a third less; in 1934 it was about \$6,000 as contrasted with \$3,000 in 1930. *Report on Marketing Facilities*, March 20, 1935.

² For the integrated companies responding to the questionnaire the figures for 1934 were: 5,932 noncompany-owned stations; 179,024 noncompany-owned but supplied on a 100 per cent basis; 9,480 company-owned but operated by others; 24,248 owned and operated by the company. For the nonintegrated companies the figures were: 1,113 noncompany-owned; 4,015 noncompany-owned but supplied on a 100 per cent basis; 263 company-owned but operated by others; 818 owned and operated by the company.

GASOLINE

The independent dealer is in a vulnerable position. The difference between the prices he pays and the prices at which he sells must cover his expenses and his profit. Most of the small independents have only the most haphazard system of accounts. And there are only two elements in their costs over which they have much control—volume of sales and wages. Overhead costs are fixed; but there is considerable variation for this item from one station to another. Unit costs are difficult to determine. They depend upon volume of gallonage; a single station may suffer wide fluctuation from week to week and from season to season. Even if approximate costs could be secured for a few independents, it would be difficult to prove they were representative.

A number of interacting factors have shaped the character of the competitive struggle. The breath of the old monopoly has been carried into the new industry. In the era of kerosene the Standard Oil Company dominated the business; it is estimated to have controlled 87 per cent of the exports and almost 90 per cent of the domestic trade.¹ Though the company did not engage directly in the production of oil, its ownership of pipe lines allowed it to set the price of crude; and in the refining and marketing fields it stood as a giant among the lesser companies. Thus the Standard, through its control of oil from well to retail store, was in modern parlance an integrated company. The independents existed by sufferance. The practice of discriminatory rebates, forced upon the railroads, subsidized the Standard company at the expense of its competitors. The power thus used had a significant effect upon the price structure; instead of being able to undercut the Standard through economies in organization, the independents were hardly able to meet the prices of the large company; and kerosene sold at a monopoly price in many areas. Moreover, the control exercised by the Standard Oil Company was not measured in its justice. The device of the price war for the deposing of small upstarts and the arrogant use of power to render independents impotent won for the company a cordial fear and hatred. Out of this ancient struggle has developed a state of mind which has been hardened into a tradition of eternal warfare between "majors" and "independents."

This tradition lives on even though the definitions of the words and the principals themselves have changed. Testimony of its vitality lies in the intense suspicion with which the two groups regard each other today. Every change in industrial practice wins violent protest from some breed of independent; he sees in it an intent of the large to crush the small. If the posted price for crude oil is raised, the independent refiners object;

¹ *Prices, Profits and Competition in the Petroleum Industry*, Federal Trade Commission, 1928, p. 63.

PRICE AND PRICE POLICIES

since retail prices may not be increased accordingly, it is seen as a plot to destroy them. If the price is reduced, another group in the industry is disaffected. Independent oil producers point out that where majors engage in the production of crude, posted prices for oil are meaningless; to them it is always patent that there is an ulterior purpose in price reduction; the independent producers are to be squeezed out of business. Similar accusations are invited by changes of pipe-line rates. Where they are reduced, small refiners located near the wells see their own positions jeopardized. Most of their gasoline shipped from the field is by rail or water; since pipe-line shipment is cheaper than any other form of transportation, reduced rates give to refiners close to the market a pecuniary advantage. Where pipe-line rates are increased, the objection comes from those independent refiners whose cost for transportation is increased. In the retail field the competitive struggle is waged with an equal bitterness. Independent retailers cut their price because they are deeply suspicious that the major station up the street is indulging in "under the canopy" chiseling. The open price cut may precipitate a price war; if it is prolonged, independents see in it a plot to force them into bankruptcy.

To the major company the independent is a demoralizing influence in the industry. He serves—sometimes justly, sometimes unjustly—as a perpetual alibi for an unstabilized market. The price cutter, it is argued, can recklessly break the price structure since he has little to lose; but for the major who is distributing widely, the loss may run into thousands of dollars. In his attitude to the industry the independent is viewed as a gambler who comes and goes, always seeking the highest return over a short period, and disregardful of the impact of destructive trade practices upon its structure. His product is subject to a constant attack, both direct and indirect, from the large company. The ostensible reason is that independents' gasoline is inferior and will awaken public distrust toward the industry's wares; the underlying cause for the widespread fear and dislike is that it sells at a lower price in a market sensitive to fractional price differences.

Thus a perpetual exchange of blast and counterblast takes place. The independents are faced with large integrated companies flanked by oil wells and retail outlets. Every shift in industrial practice, though it may go unnoticed by the major company, upsets the delicate equilibrium established between the independent and his market. Any change of consequence, over which he has little or no control, may jeopardize his business. In this respect he does not differ from small independents in other industries; but in suspicion of motive and in belligerence when attacked, the independent in the oil industry is probably unparalleled.¹

¹ The files of the Petroleum Administrative Board are filled with passionate protests and accusations by independents and associations of independents. Few neglect to charge "conspiracy" and "monopoly" and hint at the dark plots for their destruction.

GASOLINE

The large oil company is equally suspicious and resentful of the independent. Fortified in an integrated organization which stretches from well to service station, it has no immunity to the price fluctuations of the market. The price cutting of a single station is often the signal for all companies, large or small, to enter the fight for gallonage. The initial move in a price war is usually laid to independents; the vehemence of the accusation seems proof positive that their existence rests upon something more than "sufferance." In a market as sensitive as gasoline, small units can shake the equanimity of the large. The state of mind of both groups is in part to be attributed to the severity of competition; it also reflects the ancient prejudice which has been carried over into the new industry.

Another factor in the competitive struggle has been the great improvement in technology within the industry. From 1900 to 1914 the number of automobiles jumped from 8,000 to approximately 1,500,000; by 1921 registrations had increased to 10,500,000, and in another five years this figure had been doubled. To meet the revolution in transportation, oil became in truth a new industry. Kerosene, originally the primary commercial product, became a by-product; the processing of gasoline was accompanied by significant changes in method; now the only distinctive similarity between the new and old industry was the use of crude oil as the raw material. The earlier gasoline was secured by skimming and was called "straight run." As the demand for motor fuel increased, experiments were made at the refinery to increase the gasoline yield. This was not difficult since the chemical constituents of petroleum take on new identities through the action of heat; and it was quickly discovered that the heavier fractions of oil could be broken down and converted into gasoline. Now over 40 per cent of the gasoline that is produced comes from "cracking." Thus a new technical process has made it possible to secure a materially larger supply of gasoline from a given supply of crude oil.

Simultaneously there occurred a spurt in crude-oil production. Estimates of oil reserves during and immediately after the war startled the oil industry and the public with the threat of exhaustion.¹ Active search for new pools was pushed energetically; as these were discovered, oil drilling began. Between 1917 and 1923 oil production increased from 350,000,000 to 700,000,000 barrels annually; by 1929 a peak of over a billion barrels had been reached. The combination of new drilling and improved refining materially increased gasoline production. An excess of supplies threatened, and then was made acutely manifest in the large accumulation of stocks. From 1920 to 1925 crude-oil stocks increased from 150,000,000 to 430,000,000 barrels. The owners of crude, growing uneasy at this piling up of stocks, began to build refineries and service stations for disposal of their

¹ In 1917 the United States Geological Survey, Department of Interior, estimated the recoverable oil reserves to be 6,182,000,000 barrels.

PRICE AND PRICE POLICIES

large supplies. Such companies as Phillips, Texas, and Gulf pushed their vertical expansion; through mergers they moved from a purely producing business to include refining and marketing. Others which had concentrated their activities in the processing or selling branches of the business extended their control backward to pipe lines and the oil fields.

The trend toward integration was in the air. But what had happened in other industries was less obvious to the oil companies than the example which the old Standard had set.¹ Thus the tradition of the kerosene monopoly was again perpetuated in the new regime, and lent to the movement the halo of custom and the promise of profit. Yet the actions of marketing organizations to merge with producing and refining companies, and those of refiners and distributors to secure control of oil wells, were reasonable as well. The protection thus afforded served as a device for withstanding economic shock. The large integrated company flanked with oil fields at one end and thousands of retail outlets at the other felt ready for a battle with its neighbors along the market front or back of the line. In this manner, the old independents—once weak and powerless—extended their power forward and backward to become major companies.

A marked change also occurred among some of the Standard subsidiaries. That it followed so quickly after the dissolution decrees of 1911, when Standard was broken up by order of the United States Supreme Court, was at first regarded as a victory for the antitrust laws. In retrospect this is less clear. The subsequent changes in stock ownership and the personal animosities which developed were the surface incentive for the disruption of the monopoly. More fundamental were the economic changes taking place in the industry. Some of the Standard units were stimulated to a consciousness of their single identity; and they broke away to participate in the new business. Where they were, like the Standards of New York and Indiana, marketing branches under the old order, a merging with production and refining companies followed. Thus parts of an integrated organization broke off to become integers on their own.

At least fifteen of the present large companies, operating over several states, were either unintegrated or nonexistent in 1910.² The vacancies

¹ "In 1906 the Standard Oil Company of New Jersey controlled, through stock ownership, 10 refining companies, 4 lubricating oil and compounding companies, 3 crude-oil producing companies, 12 pipe-line companies, 1 tank-car company, 6 marketing companies, and 16 natural-gas companies in active operation in the United States and 15 companies in operation in foreign countries. In addition to these there were a number of other concerns so closely associated with the Standard by contract and otherwise as to be in large measure controlled by it." *Prices, Profits and Competition in the Petroleum Industry, op. cit.*, pp. 64-65.

² "For example, take a company that was unheard of in 1910. By 1921 this company was producing 8 million barrels of crude oil a year—which production by 1934 had risen to 26 million. This figure, incidentally, was the national total production of 1880. In 1925 this company refined 20 million barrels of crude oil and in 1934 about 50 million, a figure

GASOLINE

left by the old independents as they assumed their positions among the mighty did not go unfilled. Another group came into their inheritance and carried on the traditional warfare against the majors. As the turbulent period of expansion subsided, these new independents found increasing difficulties in the way of becoming integrated companies. Like their predecessors they were not insulated from the shocks of the market. If refiners, they were without wells or retail outlets or both; if retailers, they were dependent upon the independent jobbers for their gasoline supply. In this position they were ill-equipped to withstand the fierce competitive struggle within the industry.

The war profits enjoyed by the oil companies served as the financial sinews for economic combat. The large organizations developed in rivalry with each other. An invasion by one concern was met by counterattack from another which marched into the enemy's territory with flags flying, outlets to be opened at strategic corners, and a jingle of cash to finance the local dealer.¹ The entrance of one or two was the signal for others. One

that constituted the total national production of crude oil in 1895. In 1920 it had about 400 marketing outlets and by 1934 it owned and leased 11,000 and supplied about 30,000 others. This company started with assets valued at only a few thousand dollars just before the World War and now has assets valued at several hundred million.

"Another illustration is a company that now operates in 30 states. It is a consolidation of two companies; one started in a very small way in 1917 with a production of 2,000 barrels of crude oil per day and no refining or marketing facilities. Within 2 years it built a small refinery (2,500 barrels) and marketed through jobbers. By 1921 it had expanded to the point where it was one of the most active oil producers in the Mid-Continent field. The other company of this consolidation came into existence in 1916, but by 1929 owned six refineries with an annual capacity of about 10 million barrels. It also owned 1,000 bulk plants and 500 service stations and was, before consolidation, valued at almost 100 million dollars. The fusion of these companies created an organization with superior position with respect to crude-oil production and with refining capacity in 1934 exceeding 20 million barrels per year, with more than 1,500 wholesale outlets and almost 2,000 service stations. It seems hardly necessary to point out that to develop companies of the type referred to, not to mention some that are very much larger, must have required a great deal of driving power, with consequent resistance and competition." *Final Report of the Marketing Division, Petroleum Administrative Board, June, 1936, pp. 6-7.*

¹"When the dissolution decree separated the Standard Oil Company of New York from the trust in 1911, that company had about 90 per cent of the business in petroleum products in New York and New England. Since then there has been a steady ingress of other oil companies. At the time of the decree the Texas, Gulf, Cities Service, and Pure had entered New York and New England but were relatively unimportant. In 1913, Tide-water entered, followed in 1916 by Atlantic. The next year (1917) Sinclair entered and a year later (1918) Sun. In 1925 American, now a subsidiary of the Standard Oil Co. of Indiana, entered. There was a lapse of 2 years; then Continental entered in 1927 and in 2 more years (1929) Richfield of California, Shell, and Beacon, a subsidiary of the Standard of New Jersey. In addition to these large companies that operate widely, a number of smaller companies, more local in scope, also developed in the area. Quite clearly, although there was an increase in consumption the increase of new companies was not occasioned by a lack of facilities, for any one or several of them could have provided for the increased demand. Under the circumstances it was inevitable that not only Socony (Standard Oil Co. of New York) should have lost a share of the business to the newcomers but that each newcomer must have lost some of the business to other newcomers. Socony's proportion

PRICE AND PRICE POLICIES

company was especially organized to enter a territory already over-stationed. An exceptionally good contract was offered the station proprietor of a hated competitor; or a site was secured, regardless of price, on the same street just opposite the enemy.¹ Gasoline was offered at a cent less than the price prevailing at other stations. As the business drifted to the new station, others cut to meet the price; the invader cut again to keep his differential; his competitors met that, and the battle was on. Eventually the fever dissipated and the companies indicated a willingness to call a halt. An agreement—or at least exhaustion—was reached; and the new company had squeezed into an area already overpopulated with gasoline stations. In this battle of giants the independent marketer survived—or did not. Some of the more wary took stock of the situation and prepared for self-defense. One marketer scattered his forty stations strategically over the country; they were placed to protect his frontiers from price-war attack. If a large company started a war at a point which spelled disaster to his business, his small station in another area important to it could send the price structure tumbling.

So deeply did the element of civil war enter into the struggles among the large companies that profits were subordinated to industrial conquest. In the vernacular of the trade the "protection of position" came first; what was meant was that immediate returns became a necessary sacrifice in the cause of volume upon which profits ultimately depended. Since the service station is the point at which potential gallonage can be tapped, the protection of position had its focus in the control of retail outposts. Large sales of gasoline meant lower costs and consequently a competitive advantage; the company which wished to maintain—and expand—its hold had to make a desperate fight for the business. The difficulty was that everyone was playing an identical game. An excessive number of stations was built; and a major consequence of competition was to sink a heavy investment into service stations which had to be supported by gasoline consumers.

In their embattled fight for outlets the companies engaged in a manipulation of retailers' margins. All sorts of bargains brought all sorts of contracts. One station might be owned and operated by the company

of this regional business decreased progressively from about 90 per cent at the time of the decree to about 24 per cent in 1930. The sale of its principal product, gasoline, decreased from over 92 per cent in 1909 to between 55 per cent and 60 per cent in 1918, to 46 per cent in 1926, to less than 35 per cent in 1929 and, in New England alone, from 35.3 per cent for the first 4 months of 1929 to 32.7 for the first 4 months of 1930. What happened in New England happened to other companies in other parts of the country." *Ibid.*, pp. 7-8.

¹ The local real estate operators felt a boom and companies were bid against each other for choice sites. Under prohibition the opportunities for picking up sites were enlarged as a whole industry disappeared into the underbrush. This left available the saloon corner—in many cases the ideal spot for the gasoline station. And the bartender exchanged his apron for overalls and became a dispenser of gasoline.

GASOLINE

but the manager would enjoy a guaranteed margin ranging from 4 to 6 cents a gallon. Another might be owned by the company and leased to the operator on an exclusive contract basis. All gasoline and oil supplies were to be purchased from the company owning the station. The margin might or might not be guaranteed; and its size varied with the bargaining power of the lessee. Again the outlet might be owned by the individual who contracted to purchase all his supplies from the company. Or the station might be owned by the individual and leased to the company for perhaps $\frac{1}{2}$ cent a gallon; then the lessor would be installed as manager with a guaranteed or unguaranteed gallonage profit. To facilitate the bargaining process, the companies freely engaged in loans or outright gifts of service station equipment. Prospective station operators began to realize their power; it was not uncommon for them to play off one company against another.

With the great influx of new stations, gallonage was diluted though overhead remained stationary. The problem then became one of attracting business. Commercial consumers who purchased in large volume from the bulk plant could secure discounts which sometimes exceeded the service station margin. The operators of commercial vehicles, members of automobile associations, and "friends" of all descriptions enjoyed deductions from the posted price. The "courtesy card" was first granted as a special favor and then mailed to everyone in the telephone directory. In this traffic in discounts the nonintegrated companies were at a disadvantage; they could not offer inducements as favorable as the majors and they did not distribute over an area wide enough to make a general appeal to consumers. Another device was extensive offerings of "free goods." Premiums ranging from photographs of Hollywood stars to grand pianos were initiated by one station and then used by others. Lotteries and other gambling devices were invoked to ensure the continued return of customers. Finally one service station, disgusted or discouraged by these practices, would post a lower price to correspond with the size of the surreptitious discount. The cut had an immediate effect upon sales elsewhere. Dealers in his immediate vicinity cut to meet his price, others cut to meet theirs, and the price war was on.¹

The incidence of a turbulent industrial expansion, marked by such price wars, has been to create a retail structure which is an invitation to demoralization. Dealers with guaranteed margins have not had to worry about price stabilization, since their profits are unaffected by a price war. If anything, their security has made for direct encouragement to price cutting, for the larger their gallonage, the greater are their profits. Even where retailers have themselves been forced to carry a part or all of the costs of destructive competition, this condition has frequently persisted.

¹ The following table suggests the varying impact of a price war upon the dealers' and

PRICE AND PRICE POLICIES

Their strategic position in the bargaining process permitted them to wrest margins large enough to allow them to engage in judicious gambling with greater gallonage as the stake.

Competition has flourished even within a single company. The third grade of the majors is their "fighting brand" against the cut-rate product of the independents. In some companies the regular and third-grade gasolines are handled by separate sales departments, each of which is anxious to show high gallonage figures at the end of the month. The commercial, the wholesale, and the retail branches of the business may also represent separate functions whose activities are unrelated. In the retail field the major company supplies independent marketers as well as its owned or controlled stations. The policies for the two types of stations have not been coordinated; and the gasoline for one group may be used to underbid in price and divert business from the other. Although it may be argued that in this case the business still remains in the industrial family, the intercompany competition has been a factor making for unstabilized prices.

The economic depression provoked an influx of cut-rate marketers, many of whom have survived. These, together with the cut-raters in business prior to the economic collapse, are always a threat to the market, and frequently their activities have been the cause of price

the companies' margins:

	Before price war, cents	During price war, cents
Dealer's margin—4 cents guaranteed:		
Refinery price plus transportation.....	6.0	6.0
Company's margin.....	2.5	1.0 loss
Dealer's margin.....	4.0	4.0
<hr/>		
Retail price before tax.....	12.5	9.0
Dealer's margin—2 cents guaranteed and 2 cents unguaranteed:		
Refinery price plus transportation.....	6.0	6.0
Company's margin.....	2.5	1.0
Dealer's margin.....	4.0	2.0
<hr/>		
Retail price before tax.....	12.5	9.0
Dealer's margin—entirely unguaranteed:		
Refinery price plus transportation.....	6.0	6.0
Company's margin.....	3.5	3.5
Dealer's margin.....	3.0	.5 loss
<hr/>		
Retail price before tax.....	12.5	9.0

GASOLINE

wars. Usually their service stations are located on sites off the direct route of traffic; their gasoline is sold under an unfamiliar name; and they operate without burden of heavy advertising and "superservice" expense. The trackside station, named because of its position next to a railroad, escapes the costs of trucking to the point of sale, and passes a part of the saving on to consumers in the form of lower price. Some of the grain elevators have installed gasoline pumps as conveniences to their customers and sell at "cost plus handling charges." Since the costs for overhead are carried by the main business, their gasoline is sold below the regular posted price. The cooperative is another variation upon the miscellany of the price theme. Although it markets at the regular price, a discount in the form of patronage dividends is granted at the end of the fiscal period. Although all these cut-raters must resort to price concessions to cut in on the gasoline business, their activities are hazards to the price structure.

The oil industry is belatedly engaged in remedying a situation brought upon it by overcompetition. It is generally agreed that, in the interest of lower marketing costs and price stabilization, many service stations will have to be liquidated. Some oil companies are persuaded that dealer margins must be restricted and that dealers themselves must be given a stake in the maintenance of prices. To this end one company has experimented with putting its retailers on a percentage basis; margins rise or fall with the ups and downs in price. Another has paid a bonus to dealers if prices are maintained. This has had a perceptible influence on stabilization; local dealers have been led to exert pressure on their brethren against the temptation to slip back into undercover discounting and to touch off price wars.

Another development has been a movement away from the company-owned and -operated station. Oil companies are surrendering direct ownership and are substituting leasing arrangements. An attempt is thus made to shift the costs of retailing to dealers; and it is hoped that fixed margins will discourage the tendency to price cutting. For legal purposes such service stations are independent; small in size and investment, they seem to fit the norm of petty business. Less obvious is their economic independence. The dealer contracts to purchase all his supplies from the major company. In most cases his lease runs only for a year; and a failure on his part to satisfy the demands of the company may lead to a refusal to renew his lease or otherwise jeopardize his status as "owner." In such changes the company has given up none of its control over outlets for gasoline and has sacrificed none of its security.

The long-run effects are less clear. It may be that these dealers will eventually break away and attain the status of independents. In such an event retailing costs will actually be borne by retailers; and a gradual liquidation of stations may occur through the bankruptcy of the least

PRICE AND PRICE POLICIES

efficient. Some oil companies see in the new move a potential piling up of real estate on their hands. When a dealer is hard pressed, it may be necessary to help him over the rough places by taking his lease off his hands and charging him a nominal rental. It is not certain that oil companies will feel they can afford to let their dealers go under; it threatens a loss of gallonage to their competitors. A system of secret subsidy may develop which will even more closely cement the companies to their retail outlets. Though the inclination to surrender ownership may be sincere enough, its realization may be thwarted by the exigencies of competition.

THE REFINERY AND A RESTLESS TECHNOLOGY

The function of the refinery is to convert crude oil into industrial products. In number these extend almost to infinity. The major use is as transportation fuel. Gasoline for the automobile is only one, if the most important, motor fuel; with a few changes in specifications it becomes the going power for the airplane. Butane, lighter than gasoline, is used in fuel systems especially constructed for the purpose; the heavier fuel oils furnish motor energy for trucks, steamships, and locomotives. Another important use is lubrication. Although some plant and animal oils have lubricant properties, they cannot be produced in quantity so cheaply as petroleum. The modern machine age would have been hard put to it without petroleum lubricants; they are efficient, plentiful, and capable of an infinitude of variation to suit the different machines. Other petroleum products in their uses ramify through the industrial order. As the source of heat and power in many large plants, oil has been substituted for coal; and within recent years distillate fuel oil has entered the domestic heating field. As an illuminant, oil has been partially superseded but not entirely displaced. On distant farms the light of the kerosene lamp is still undimmed; and for lanterns and emergency illumination there is a large market. The petroleum gases are used for fuel, heat, and light; they are processed into a variety of commercial products which range from Bakelite to saccharin, a substitute for sugar. Paraffin wax, a petroleum residue, is used as coating in the making of moistureproof paper; it covers cheeses and other food products; it is the base for most of the waxes in industrial and domestic use. The asphalts are essential substances in road building and roof coatings. Petroleum coke, a by-product, competes with coal coke in the fuel market. Almost any commodity that is used has, at some time in its manufacture, been exposed to the intrusion of a petroleum ingredient.

Modern technology has just begun to penetrate the possibilities that lie in petroleum. The raw material itself sets few limitations to its use; its chemical components are so constituted as to be capable of an infinitude of change. The lighter hydrocarbons in gaseous form can be "built up"

GASOLINE

in their molecular construction to form the heavier oils. The more solid materials can be "broken down" and converted into the lighter fractions. In consequence, the possibilities before the refiner are far more variate than for the processor of a prosaic raw material. Oil in its absolute potentialities may enter the lubricant field, become a motor fuel, serve to light houses, or help to pave roads. An entire barrel of crude in all its chemical miscellany, if it were processed enough, could be completely converted into gasoline.¹

In practice petroleum knows no such extremes. Its enduring physical properties outrun its current economic feasibility in ease of heterogeneous conversion. The cost of turning the heavier residues into gasoline would at present exceed the market price. In the actual conduct of his business, the refiner uses the lighter stock for gasoline; the heavier fractions are converted into products which do not require, at high cost, a change in their molecular organization. Eventually the prices for gasoline and lubricants may rise high enough to make the more expensive processing practicable; or, more likely, the processes themselves will be improved to make feasible production at a lower cost. Until one or the other event occurs, the economics of cost set up barriers to the conversion of petroleum into its various products. Even within these productive limitations there is wide opportunity for diversity. The problem of the refiner is alike simple and complex. His products are only partially dictated by the character of his raw material. He has a wide opportunity of choice, and its exercise requires a sensitive adaptation of product to current market demands. The shrewd refiner so conducts his operations as to secure the greatest net return on a barrel of crude. In a sense he is a gambler who plays off the ends against the middle and keeps everything rolling at once. He must keep track of several oil markets; to the knowledge that he can gather he adds some shrewd guesses and perhaps even a blind hunch. The necessity for rapid action does not permit of the niceties of exhaustive research nor the luxury of long-considered judgment.

Amid this complex of forces the advantage is usually with the major company. It can pay munificent salaries for the captains and command the services of the corporals of industry. It can finance a research division to supply running accounts of markets, prices, and competition. It is bulwarked by a host of subsidiaries which help to break the shock of the market. The large concern, through its miscellany of activities, is in a posi-

¹ "If, for example, the meat-packing industry, after taking two hams from a hog, could make still another ham from remaining less desirable parts of the animal, or if a part of the wheat crop in some miraculous way could be transformed into corn at the harvest time, these situations would be comparable to the ability of the petroleum refiner to make gasoline from petroleum residues, alcohol from refinery gas, and lubricating oil from paraffin wax." A. J. Kraemer, "Effect of Technologic Factors on Supply of and Demand for Petroleum Products," *Petroleum Investigation*, Vol. 2, p. 1315.

PRICE AND PRICE POLICIES

tion to cancel off losses through errors or fortuitous changes in markets with profits in other branches of the business. All these are lacking to the small refiner. His survival depends upon his skill and shrewdness in a single branch of endeavor; and his weaker cash position makes him vulnerable to changes in the market. But with these limitations he frequently has one advantage over the major company. His small size makes for a greater flexibility in operations; his production can be more quickly accommodated to the needs of the market.

As one of a number of joint products, the specific costs of gasoline are not obtainable.¹ Ordinarily the refinery separates crude oil into the primary "cuts"—gasoline, lubricants, and whatnot—before cracking. In this process the costs for one product are not distinct from others. The greatest expense is the investment in plant and machinery making possible this initial separation. The factors—pressure and heat—which determine precisely what these products are to be are negligible items compared with initial investment.

If sheer logic could be invoked, costs might be distributed equally among the various rough products at the refinery according to the amount of crude used in their production. Because of differences in heating requirements and some special machinery, such a calculation would not be completely accurate, though meticulous exactness would be impossible under any circumstances. For lubricants and kerosene the finishing process is complex; and if reason were the test, these commodities would command a higher price. Since gasoline requires a minimum of processing—it is washed, blended, and usually colored before it goes to market—its costs would be lower than for kerosene and would be so reflected in the market price. In practice such an equitable allocation of costs does not occur. Accounting systems vary from company to company; costs which might be attributed to gasoline in one plant are charged to kerosene or lubricants in another. This diversity presented difficulties when the government sought to discover costs as a basis for a projected scheme of price fixing under the NRA. The totals were compounded of such different items that comparison was impossible. For many companies the costs calculated for particular products are put to no purposive use in price making. One department handles costs, another sets prices; and each goes its unrelated way.

But even if for a single commodity costs could be isolated, they would have little significance in the making of prices. The chief concern of the oil company is with a net gain from its numerous operations. In this drive each commodity plays its part; but it is so inextricably entangled in the

¹ A barrel of crude oil provides approximately the following: gasoline 44 per cent; fuel oil 36 per cent; kerosene 6 per cent; lubricants 3 per cent; coke, asphalt, wax, etc., 8 per cent; the inclusion of 3 per cent loss completes the total of 100 per cent.

GASOLINE

interlocking structure of the industry that particular costs are a historical irrelevance. The oil refiner, like any businessman, has to accommodate himself to the concrete realities of the markets in which he operates. Whatever are the presumed costs for paraffin wax or gasoline, the aggregate of market forces fixes the limits within which prices must be set. These vary with each product. In the fuel market separate technologies vie with each other to win the business for their rival products. Oil must face coal, water power, gas, and electricity; and price policy must be adapted accordingly. Competition is particularly virulent in the gasoline and lubricants business; here it is due not to the availability of substitutes but to the strength and multitude of rival sellers. Arbitrary cost allocations serve as a rough guide in business operations, but there is no straight line from hypothetical costs to market price.

Where a company sells a number of products in their several commodity markets, the costs allocated to one come to reflect the price at which it is sold. Under any logical distribution of expenses some commodities would consistently sell at a loss and others at an exorbitant profit. To give the cost structure coherence, it is customary to assess items of expense against joint products according to their several abilities to pay.¹ In the oil industry gasoline represents about 80 per cent of the refinery's return on its operations and has gradually come to bear the brunt of the costs of production. Some companies charge all expenses to the production of gasoline and set down receipts from other products as credits against this account. Thus the costs allocated to gasoline are total expenses minus receipts from the lesser products.

In any area the refinery price for gasoline is uniform; yet behind this are situations which make the costs of the several refiners very different. Crude oils vary in the types of their yields and in the cleansing which they require. Patent fees are dissimilar. Early in the twenties the confusion of litigation arising out of the new inventions was solved by pooling all patents and giving the owners free access to all processes. Outsiders—more concretely, the small refiners—are required to pay a royalty for the use of the patented processes. An interesting rivalry has grown out of this arrangement; refiners who are not on the privileged list are always on the lookout for patents which they can buy up to bargain their way into the inner circle.² A marked difference in equipment distinguishes the large and

¹ Under government regulation allocation of costs becomes important. The public protests if it has reason to believe that it is overcharged; and a simple way of avoiding antagonism is to allocate in such a way as to exhibit small profits. Competing units are sensitive to subsidization practices which their organizations do not allow; and allegations of sales below cost can frequently be dismissed with a showing of low costs. Often this is a matter of judicious allocation, and so far as the individual company is concerned the form is unimportant; it has no effect upon total costs and profits.

² There is no information on the size of the fees for the use of these processes. It is probable that the charge is not excessive, since the small refiners have made no public

PRICE AND PRICE POLICIES

small unit. Of the total refining capacity, eleven companies control 60 per cent and about twenty, 75 per cent. These large companies engage in extensive cracking operations; and they carry on, directly or through subsidiaries, all the processes of production. The remaining 25 per cent is distributed among a number of independents. About half of them have cracking plants; few realize anything like the potentialities from crude oil exploited by the big companies. For these two types of refiners the productive process and, in consequence, the cost situation are very different. But in the market place all are rated equal in the struggle for business.

Refinery prices are sensitive barometers of competitive conditions. Yet the actual volume of spot business is small. The bulk of the gasoline produced by majors moves within the orbit of the company from refinery to service station; most sales to jobbers and large commercial consumers occur on running contracts. Nevertheless the market is lively and the spot price governs almost all the sales on long-term arrangements. The method of giving publicity to prices is indirect. The refinery does not post quotations; but *Platt's Oilgram*, a private news service, and other trade journals publish representative prices on open-market transactions.¹ The charges at the large refinery are arrived at by an informal exchange among companies. The general uniformity is an indication of the keen competition that prevails. At one time refining centers served rather well-defined areas, which were practically self-sufficient. These lines have become increasingly blurred. If prices are high enough to cover the additional transportation costs, gasoline will readily move in from outside areas. The activities of independent refiners are also a strong factor in competition. Some of these companies follow the prices charged by the majors; usually a customary differential prevails between the gasoline sold by the two groups. Prices quoted by independents may not be incorporated in the figures of *Platt's Oilgram* and may for a time go unobserved.²

The importance of price variations among refiners depends upon the current state of the market. If the production of crude is limited to market demand and if gasoline stocks are normal, a lower price by one's competitors may be tolerated for a few days in the expectation of a return to normal. If the upward jump fails to occur, other companies will follow

protest; the chances are that it varies with the degree of the refiner's connection with the patent pool.

¹ "Refinery prices, except when otherwise noted, represent publisher's opinion of open market sales of products from legally produced crude for the day named for spot shipment from the district designated. They represent prices made only to domestic jobbers who resell to the consuming public, except when otherwise noted." Statement in *Oilgram*, 1936.

² In 1936 *Platt's Oilgram*, together with several oil companies, their officials, and two other trade journals, was indicted by a federal grand jury in Wisconsin for unlawful conspiracy to raise prices. It was alleged that the journals published as open-market prices those which had been agreed upon by major oil companies cooperating in a buying pool. In 1937 the suit, against the trade journals was dismissed.

GASOLINE

the lead and drop to the lower prices. But if stocks are high and are increasing, price differences exercise a psychological influence out of all proportion to their apparent importance. Some groups will see in the lower prices the beginning of a break in the market structure. Statistics will be quoted on stock accumulations; crude and refinery production will be analyzed; prediction, dire and disastrous, will run rife. The trade journals will revel in the approaching doom. In an industry which operates as publicly as oil, a price adjustment is unavoidable. The trade hysteria may have more effect than the temporary economic crisis; and it will take days before the market recovers.

Despite an active wholesale market, the importance of the jobber in this industry, as in many others, has declined. In the process of integration many wholesale establishments were absorbed. The expenses of a salaried manager were frequently less than jobber margins, and the danger of an independent's transferring his business to another supplier was eliminated. As competition stimulated new marketing practices, many jobbers felt they would have greater security in a large company than as independents. It is estimated that there are now about 8,000 to 12,000 jobbers in the country. Many of those who sell the branded products of majors are "protected" by their suppliers; either their margin is guaranteed or some arrangement exists for taking care of them during price wars. Independent jobbers, without such assistance, have been at a disadvantage. To hold their retail outlets, in the face of dazzling offers from large companies for exclusive contracts, they have had to cut into their own customary margin of 2 cents; in the course of price wars their margins frequently contract with the retailers', and they are forced to operate at a loss or to go out of business.

In theory it is a simple matter to calculate the retail price from the refinery quotation. It is the sum of the refinery price, freight and terminal charges, the margins for jobber and retailer, and the gasoline taxes. For example, the price of a gallon of regular gasoline in the District of Columbia is figured as follows: the refinery quotation at the Gulf Coast, 5.81 cents; ocean freight, 0.5 cent; terminal charge, 0.4 cent; railroad charge, 0.59 cent; jobber, 2 cents; and retailer, 4 cents. Adding the federal tax of 1 cent and the District of Columbia tax of 2 cents, the final retail price is 16.3 cents. But the norm is more exceptional than the exceptions. The refinery price may vary while the retail markets hold firm. The retail price may break and yet many of its elements may withstand the shock. Gasoline may be transported in ways as distinct as pipe line, tank car, and ocean tanker at varying costs. Margins fluctuate with the connections and bargaining power of jobbers and retailers. Moreover, approximately 80 per cent of the gallonage is controlled by integrated companies whose costs for the various operations are not distinctive and separate. And yet

PRICE AND PRICE POLICIES

a heterogeneity in items of expense is drawn together into a unity in price. Here is the element of order in the industry.

THE OFFICE OF THE PIPE LINE

An item of significance in the price of gasoline is the cost of transportation. The raw material must be shipped to the refinery for processing, and the finished products must be distributed to vast consuming areas. Some of the largest oil fields are located thousands of miles from the metropolitan markets. For long-distance land hauls, crude oil is best carried by underground pipe lines; and a few gasoline pipe lines have been constructed to populous inland areas. Water transportation is cheap and efficient where it is available; the tankers haul oil both in its crude and in its refined forms. High freight rates have discouraged shipments by rail, although it is still widely used for short hauls of refined products. Here the tank truck has become a competitor; it is most used for shipments of less than 150 miles.

The methods of transportation are determined by the location of the refinery. The plant of the independent company is usually established in the oil fields. This obviates the necessity for any elaborate arrangements for shipping crude oil to the processing plant. Oil from adjacent wells may be hauled to the refinery by rail or motortruck; or, more commonly, independent refineries have their own small systems of gathering pipe lines in the region. The disadvantage of the refinery located in the fields is remoteness from large markets. This is not invariably felt; in the Los Angeles Basin, refiners in the fields have their city markets close at hand. In interior Texas and Oklahoma, these refiners are far from their markets, and tend to process the products which they can dispose of locally. These represent a less efficient utilization of oil and bring the refiner a lower return. Fuel oil and gas are used in and adjacent to the fields; the sludge or heavy residue is often thrown away or burned. Gasoline may be disposed of locally; it may be carried by rail or motortruck to near-by markets; or it may be sold to large oil companies which mix and ship it with their own product.

Two types of location mark the refineries of the large oil companies. The plant may be located in the metropolitan area. There it is fed the raw material from the pipe line, which reaches back to the oil fields; and the processed products are within easy distance of their markets. Or it may be placed at a point near the seaboard along a water route to markets. Crude oil may be shipped by pipe line from the interior of Texas to a port on the Gulf of Mexico, loaded on a tanker, and sped by water to a refinery on the coast. It may be pipe-lined to a refinery on the gulf and thence in processed form be shipped by water to cities on the seaboard. Its sub-

GASOLINE

sequent distribution as gasoline, lubricants, or fuel oil takes the route which is cheapest and most practicable. In the transportation of oil, as in the refinery process, the industry has displayed ingenuity in devising and exploiting new methods. The compulsions of competition have thrust change upon change.

The large company is geared to capture the business of the great markets. By a strategic scattering of its refineries it has cut transportation costs; it has cut them further through a barricade of private tankers, private pipe lines, and a private fleet of trucks. For only one means of transportation has it gone outside itself—the railroads. Even these in the old Standard days were subservient to the “oil trust”; the collection of rebates on its own business—and even on the business of independent shippers—was one of the most successful means of crushing competition. Eventually this was stopped by the government; and rail shipments are now so expensive, compared with the use of other forms of transportation, that they are limited to the bare necessities.¹ To the independent refiner transportation expenses are direct assessments paid into the pockets of outside companies. He has as subsidiary no pipe line to collect profits on his own business—and return them to the parent company. Costs for rail and water shipments cannot be escaped. This strategic difference has been of tremendous advantage to the large company; slight savings in transportation costs through integration have offered a significant competitive advantage. The independent refiner has attempted to effect corresponding economies by locating his plants close to sources of supply. As this has eliminated large costs for hauling crude, oil it has also limited markets. Field location has also made the business of the independent refiner more hazardous; the exhaustion of supplies in the area is a serious threat to the continuance of his production at low costs.

The pipe line has played a significant role in the petroleum industry. In the days of kerosene the important pipe lines were subsidiaries of the Standard Oil Company. As avowed private carriers they shipped no oil except for Standard consumption. Thus they were strategic in the maintenance of a monopoly. For years the attempts of Congress to remedy this situation were rendered abortive. The Hepburn Act of 1906 made pipe lines engaged in commerce among the several states common carriers and placed them under the jurisdiction of the Interstate Commerce Commission. The litigation in consequence was prolonged, and unsettled issues had to await a decision of the Supreme Court in 1914. Through this and later judgments the power of the commission was affirmed but it was limited to those lines which ship for outsiders. The pipe line which trans-

¹ Though this situation has existed for many years, the railroads are just beginning to realize that their high rates have cost them a large share of the oil business. There is some evidence that rail charges in the future may be reduced to allow railroads to compete.

PRICE AND PRICE POLICIES

ports only its own oil—whether produced or purchased—is still outside the jurisdiction of the Interstate Commerce Commission.

The shift of the industry from kerosene to gasoline stimulated an enormous expansion in pipe-line facilities. The first thought of the new companies was to escape domination by the Standard through construction of their own lines; and the move was in keeping with the widespread tendency toward integration. In some cases partnerships were entered into for the common use of lines but companies soon became as distrustful of each other as of their ancient enemy. Pipe-line charges were vexatious causes of misunderstanding; competition was too severe to allow profits made from carriage charges to be used to finance other companies. However, a few cooperative ventures are still functioning. The oil of two or three companies flows in perfect harmony through the pipe line; it is only after the last tank has been quitted that the savage struggle is renewed.

The expansion in private lines has narrowed the field of public regulation. Lines which define themselves as private carriers file no tariffs with the federal or state commissions. Only those common carriers which engage in interstate commerce file with the Interstate Commerce Commission; intrastate lines are subject to the supervision of their respective states. The term "interstate commerce" has here been given its narrowest interpretation. Federal control extends only to shipment from one state to another—this despite the fact that almost all the oil produced flows, in finished if not in crude form, in the current of interstate business. Even when its physical movement remains intrastate, it affects and is affected by the total flow of oil. Here the legal concepts have failed to come to terms with the economic realities.¹

¹ Doubts have been raised as to the legal status of pipe lines as private carriers. Many oil companies were empowered in their state charters to condemn lands over which they wished to construct lines. The charters and the practices of individual companies have been so variable that it is possible here merely to cite some characteristic examples. The charter of the Humble Pipe Line Company, a subsidiary of Standard of New Jersey, did not specifically empower it to condemn lands for right-of-way purposes; its lands were "usually purchased by contract and in a few instances by condemnation." A pipe-line company owned by Shell was given power to "engage in and carry on business of construction, purchasing, leasing or otherwise acquiring and holding" pipe lines as a "common carrier or as a private carrier." The company reported that rights of way had been acquired by purchase and condemnation. A Texas charter gave to a subsidiary of Sun Oil the right to "enter upon, condemn and appropriate land, rights of way, easements and property" and "to lay its pipe and pipe line across and under any public road." It was reported that all lands had been acquired by purchase. Where a company's certificate of organization did not specifically mention the right to condemn lands, the company reports indicate that they were usually purchased, but in several instances condemnation proceedings were also invoked. The practice raises some interesting questions of the status of corporations which have made use of the right of eminent domain. Under our legal system an industrial practice may go unchallenged until a case is brought to the courts and, up to the present, no suit has been brought. See Walter M. W. Splawn, *Report on Pipe Lines*, for Committee on Interstate and Foreign Commerce, House Report 2192, 1933. The common-carrier status of pipe lines is summarized in individual reports on oil companies, pp. 9 ff.

GASOLINE

The regulation of freight rates for common carriers is beset with difficulties. Pipe lines have not been subjected to the careful scrutiny accorded the railroads; nor has the regulation been so complete. The costs to be used in calculating the rate base are determined by the pipe-line company. According to one company, charges are based upon a "fair return on investment"; another taxes for "service based on mileage, quantity, return on investment, and probable life of producing field." One pipe line charges according to "mileage, custom, competition, hazards, depletion of oil fields." For another the rates are determined "with due regard to the mileage, the necessary investment, the hazards of the producing business on which the pipe line is obviously dependent, the vicissitudes of the traffic, which is heavy at times, due to flush fields and/or good market demand, and light or negligible at other times, due to decline or exhaustion of fields and/or decline or lack of market demand." The regulatory commissions have tended to steer clear of the rate morass. Funds are lacking for a continuous inquiry into the justification of rates; the powers of the Interstate Commerce Commission can be invoked only if complaints are made. Integrated companies who own or control their pipe lines are antagonistic to the intrusion of the government into their affairs. The independent refiners in and outside the oil fields cannot unite on a policy to be pursued, since their interests are directly opposed. The commissions, lacking the sustained pressure from interested outsiders, tend to be perfunctory in their examination of pipe-line charges. Usually all companies operating in one area file in unison; if there appears to be no discrimination, the rates are allowed to go into effect.

The common-carrier lines have exercised broad powers in imposing terms upon their outside shippers. Many companies have set minimum tenders which they will accept. As early as 1922 buyers at two points in Pennsylvania complained to the Interstate Commerce Commission of the 100,000-barrel minimum requirement. Eventually a reduction to 10,000 barrels was forced upon the pipe line; but subsequent interpretations limited the volume reduction to those two points. Interstate lines now filing with the commission indicate their minimum tender requirements vary anywhere between 25,000 and 100,000 barrels. And few state commissions have seriously attacked this problem. The Texas Railroad Commission has set 500 barrels as the minimum requirement; in many of the other producing states, tenders run as high as 100,000 barrels. As a result, small shippers are in most states legally excluded from use of the common-carrier lines.

The ownership of pipe lines is concentrated in a few companies. Of an approximate mileage of 120,000, half constitutes gathering lines to tap various sections of the fields; another half are trunk lines which transport over long distances to the refineries. It is estimated that twenty

PRICE AND PRICE POLICIES

large companies own about 79 per cent of this mileage; another 3 per cent is scattered among eleven small integrated or partially integrated companies; and the remaining 18 per cent constitutes the independent pipe lines. Calculations in terms of gross investment make the twenty large companies even more important. Of a total investment of approximately a billion dollars, these companies represent more than 90 per cent. The independent lines aside, the amount of "outside" oil shipped by a pipe-line company is very small. Over 60 per cent of the large integrated companies reported that in 1931 there was no outside use of their gathering lines; 50 per cent reported no outside use of their trunk lines. In most instances the outside use, where it existed, was limited to a mere handful of customers. For ten companies trunk-line users did not exceed two; for another fifteen, they ranged from three to ten. Usually this outside oil did not constitute more than a fraction of the total transported.¹ Thus it is evident that the concentration in ownership occurs before the oil has even been tendered for shipment. The pipe line has become the point at which thousands of small holdings are merged into a few of great size held by the large companies.

The lack of small shippers has come to be regarded as an inevitable accompaniment of pipe-line transportation. Some companies operating in Texas state that, although they post the 500-barrel minimum requirement under the law, no shipments are proffered. The fact is that the industry is not attuned to the shipment of small quantities by independents. Its pipe-line organization developed with almost no public regulation, and from the first outsiders were systematically excluded from its use. Few of the pipe-line companies have erected terminal facilities to handle outside oil and their absence bars the way to shipment. As the pattern of usages has emerged, the pipe line has become an intercompany artery and the independent has made his own accommodation to the handicap. Now a drastic separation of pipe lines from oil companies would probably have very little immediate effect in stimulating small shipments. The oil would still continue to be piped for the use of larger refineries located near metropolitan markets. However, a genuine common-carrier status might—in time—effect a change in the location of independent refineries; instead of being faced with the periodic necessity of costly moves from

¹ The Magnolia Pipe Line Company, a subsidiary of Socony-Vacuum, carried oil in its trunk lines in 1931 for two parties with, and nine parties without, an interest in its stock. The oil for the latter group constituted 16.21 per cent of the total. A subsidiary of Shell had one outside customer on its gathering lines who shipped 0.17 per cent of the oil for that year. Two trunk-line customers moved 1.68 per cent of all the trunk-line oil. One subsidiary of Texas reported that its six outside customers accounted for 42.3 per cent of the oil shipped by trunk line; another reported one outside customer whose shipments amounted to 8.7 per cent of the total oil transported. A pipe-line company owned by Pure Oil reported one outside customer in 1931 who shipped 11.1 per cent; a subsidiary of Sun had two customers on its gathering and trunk lines who shipped 3.9 per cent of the total oil moved.

GASOLINE

field to field as supplies are exhausted, these units might, like the major companies, establish their operations at terminal sites. Eventually this might multiply the number of purchasers of crude oil and give to the independent producer a greater bargaining power in the sale of his oil.

It is unlikely that the producer will ever become a significant factor in oil shipments. Strong compulsions prevail to force the disposal of his raw material before it enters the pipe line. The variations in crude require a careful selection by the refiner; the kind purchased depends upon his plant facilities, the character of other oils handled, and the products which he wishes to process. Consequently, it has become customary for purchases to be made in the field rather than at the refinery. Producers are unwilling and unable to carry the financial responsibilities of transportation. Since the ordinary pipe line offers only those storage facilities which are "incidental" to transportation, a heavy burden is placed upon customers; an investment in equipment is feasible only if shippers regularly handle a large volume. Thus the refinery purchaser becomes the logical user of pipe lines; since he is a frequent customer with large shipments, he can drive a more advantageous bargain than the multitude of petty producers.

The operation of transportation facilities by subsidiaries of oil companies has made a confusing morass of costs and profits. The presumption in respect to a carrier is that equivalent service at uniform rates is rendered all shippers. But the fact of ownership of facilities by an interested party puts shippers in very unequal positions. Even though the full tariffs are collected by the pipe line from an affiliated company, rebates are paid in the little-veiled form of dividends to the parent company. The business of the independent shipper also becomes a source of profit to its competitor. The actual costs of the operation of a pipe line—and, incidentally, the actual charges assessed against the company—can be found only by subtracting from total expenses the sums collected from outside shippers. As a result quoted tariffs very imperfectly reflect the transportation charges of the oil companies.

In the past many pipe-line companies have shown excessive profits. In large part these represent returns on the business of the parent company. The high tariff quotations have been used to discourage the location of independent refineries in consuming areas, and thus have been a powerful weapon in the incessant warfare of the large company with the independent. The refineries located in the field have themselves played into the hands of the large companies; every proposed reduction in rates has been fought bitterly, since it means a competitive advantage for those located outside the fields. The high tariff has also been an instrument in reducing the taxes collected by the government. While corporations could file consolidated returns, profits in the pipe-line business could

PRICE AND PRICE POLICIES

be offset by losses in marketing; and in this manner net income appeared low and a relatively small tax was paid.

Here is an expression of the peculiar function of cost accounting in integrated organizations. In its economic activities the company operates as a single unit; the pipe line is an indispensable link in the conversion of crude oil into refined products. Profits are the residue from all its operations. Nevertheless, by an arbitrary allocation, particular parts of the total operation are made to bear unusually large shares of expenses; and cost accounting serves the exigencies of corporation finance in accommodating its entries to the end of low tax payments. The correction in the tax law forcing companies to file separate returns on subsidiaries has resulted in some rapid shifts in accounting procedure. The trend is now toward lower pipe-line profits to ease the impact of the law.¹ Thus the corporation adapts itself as quickly to changes in legislation as to the exigencies of the business game. A new tax law, like a virulent price war, occasions a flurry of conferences among officials; the intent is to ward off the shock upon the corporate body. A choice among alternatives must be made; and a fighting tactic used against small competitors is sacrificed in the worthy cause of a legal reduction of corporate taxes.

BACK TO THE OIL WELL

The sale of crude oil occurs at the posted price. The purchasing companies publish daily at their field offices the prices which they will pay. These vary with quality. The physical properties of crude give little hint as to the refining yield; and there is considerable variation from one field to another. The price level for a particular area reflects the practical tests made at the refinery. Experiments are made of gasoline content, susceptibility to cracking, lubricant potentialities, sediment content, and other properties; these characteristics are then roughly compared with those of other oils for the determination of price. Such a pricing method for so complex a raw material is at best approximate; and, once established, custom tends to perpetuate price differences. But as a developing

¹ Ernest O. Thompson, a member of the Texas Railroad Commission, which regulated intrastate pipe lines, testified: "Well, you see, the pipe lines are always owned by separate corporations. That is notoriously the highly profitable end of the business. They make splendid returns, so much so that they are presently asking us to cut rates 33 $\frac{1}{3}$ %. We have requests on file now and hearings called; they are considering cutting rates one-third. The reason for that is Congress passed the bill at the last session preventing consolidated returns, so each corporation is going to be caught in its own bracket; a very wise provision. So now they are rushing in to reduce the rates on pipe lines to evade that tax. . . . Whereas, a year ago they were saying the cuts we were trying to make by a 20 % reduction were unconscionable and unreasonable, and we did reduce the rates 20 % last year, now they come along, after the rates were reduced 20 % by the commission, and voluntarily ask a 33 $\frac{1}{3}$ % reduction." *Petroleum Investigation*, Vol. 3, p. 1807.

GASOLINE

technology endows particular oils with new potentialities, price adjustments gradually—even if belatedly—follow. Within a single field oil is differentiated according to its specific gravity. Price quotations vary 2 cents with each change of a degree of gravity. Some experts believe that this test is irrelevant, and that it persists largely as an inherited trade practice. In the industry its prestige has been shaken; but there is a general tradition that, other properties being equal, lighter oils mean a higher gasoline content. Under normal conditions the lighter crudes command a better price than the heavier oils; but in a demoralized market there are occasionally “upside down” quotations.

Few industries can rival petroleum in the machinery for the dissemination of trade information. The newspapers and trade journals carry the current price quotations. The big oil companies maintain scouts in the fields who ply their territories from morning to night; like newspaper men this corps of retainers “swap” their routine stories but compete ruthlessly for “scoops.” Many local periodicals in the fields are trade journals for the industry; they take sides and in boisterous, vehement language argue the case for their constituencies. Representatives of large buyers grant interviews to columnists who faithfully repeat with sources deleted. The opinions of producers are disseminated through journal, newspaper, and interminable conversation; everywhere in the industry the price of crude is of absorbing moment. Consequently, no price change occurs without a preliminary fanfare of gossip and a squadron of rumors to herald its advance. In ordinary times this informal machinery for the exchange of market news operates with noise and dispatch. “Dollar crude” is a mystic symbol of health and prosperity to oil producers. As long as crude sells near this price, they enjoy a “fair price” and a “reasonable return.” Since the days of the petroleum code this condition has prevailed; crude prices have remained firm and the market has been steady. But in early 1933, when the market broke and prices dropped to 10 cents a barrel, a resounding roar came up from the oil fields. Interviews, speeches, resolutions, petitions, conferences, wild rumors, and even sermons intensified the panic of disaster to a garrulous industry.

In general the prices offered by purchasers are identical. This does not invariably happen; occasionally a purchaser quotes a higher or a lower price than other buyers. However, price differences persist for only short periods; the initial instigator of a price change either retires to his former quotation or he forces others to come up to the new line. The factors which make for this unanimity of price offer vary among the different fields. Where a large buyer or clique of large buyers dominate the field, their prices are followed by the small purchasers. In such cases private conversations among the interested parties are an informal prelude to changes in price. The large flush fields which produce the bulk

PRICE AND PRICE POLICIES

of oil are tapped by several pipe lines. In some parts of East Texas a dozen or more reach a single area. The uniform price is then a consequence of competition. Even here conversations are common to establish in the minds of posters a "right price" which reflects the current economic conditions. But, to secure their oil, all buyers must come up to the mark, since the company which offers a more favorable price gradually diverts producers from other buyers. Yet this is a slow process since producers hesitate to break existent pipe-line connections; they do not have assurances of a permanent outlet for sales through the new company; and if as lost sheep they want to return, they may not be joyfully received back into the fold. Day after day market reports are scanned; rumors and prophecies abound. If the increased price appears justified, producers selling to other pipe lines grow restless. One buyer after another falls into position to hold his producers, and a new set of prices governs the field. Consequently, although the reactions are far from automatic, general knowledge of market conditions tends to push prices to the same level.

Thus the complex price structure of crude reflects a miscellany of situations. The field which is difficult to reach may be tapped by only one pipe line; this will constitute a monopoly, and relatively low prices are enough to elicit the business. Yet if there is a plentiful supply of oil and the price is low, another company will attempt to construct a competing line and effect connections with producers. The price that bears the stamp of monopoly is more often found in the stripper field, where the supply of oil is so small as to discourage the construction of more than a single line. The flush field, not easily accessible by pipe line, may suffer lower prices through limited competition. But where the field is a large producer and can easily be reached, the single price reveals the keenness of the competition.

Yet the oil producer has no direct voice in the making of price. No mechanism exists for a face-to-face meeting with the buyer and a higgling over the terms of the bargain. The posted price is the last word upon the subject of what his oil will bring in the market. But in more subtle ways the producer is able to exercise influence. Grievances are aired through gossip and journal; associations are formed for propaganda and pressure purposes; campaign contributions are made to candidates who promise support of remedial legislation. Nevertheless the compulsions to sell are so insistent that price becomes secondary. Once the oil is removed from the well, it deteriorates quickly. Most producers have only limited tank facilities for holding oil. Under the system of competitive drilling which prevails almost everywhere, producers engage in a chaotic race for the exploitation of oil pools. Even though the interests of all may lie in cooperation, there is a recalcitrant minority which will attempt to profit at the expense of others. And a single field—or even a select few—cannot

GASOLINE

withhold its oil for better market conditions; other producers elsewhere would scramble to put more oil on the market. Thus though price may be formally set down in a rough equation of demand with market supply, producers themselves are powerless to limit the volume of production, the impact of which their prices cannot escape.

The production of oil is attended by practices which subsidize the industry at the expense of its members. Before it can be exploited, oil must first be discovered; and the location of new deposits is a highly speculative enterprise. The geologic conditions which occasion the chemical changes necessary for its occurrence are something of a mystery. Oil deposits are scattered widely over the country; but they exist in quantities feasible for commercial exploitation in relatively few places. Some oil is located deep underground. At one time it could be secured only a few hundred feet from the surface; now some wells in California tap pools 9,000 to 10,000 feet below the surface. Discovery is all the more hazardous since the formations which signify the likelihood of oil may be hidden under heavy layers of rock and topsoil.

Until quite recently the search for oil embodied a wealth of folklore and superstition. Surface clues, such as oil seepages and asphalt deposits, indicate the presence of petroleum; but they are not proof that the pools are large enough to warrant drillings. Further to confuse popular notions, large supplies have been discovered without benefit of surface indications. In consequence, dreams, "hunches," wands, and "doodlebugs" were long a part of the regular paraphernalia of the oil explorer. The science of geology has gone far to banish such popular beliefs to the realms of mythology. Rock stratifications have become the focus of the newer methods of search. The earth's surface is studied for the structural formations which usually accompany the presence of oil. Aerial photography is widely employed; some strata cover such wide surfaces that they can be thrown in relief only on panoramic backgrounds. A large number of geophysical instruments are used to identify formations hidden under trees and soil. The measurement of the attraction of gravity gives some clue as to their density; they are tested for their conductivity; instruments are used for recording vibrations produced by explosions. Such investigations cannot guarantee the presence of oil; they can indicate only the probability of deposits. Some rock formations are so hidden under accretions of earth that they fail to register; and the geologic conditions surrounding the presence of oil are so complex that any exactitude is impossible. It is significant that the East Texas field, now one of the greatest producers, was passed over by the geologists. The oil lay fallow until a speculator, who refused to accept geological decrees, obstinately drilled and struck the rich deposits.

PRICE AND PRICE POLICIES

And until research develops a more prophetic eye, the wildcatter will remain an indispensable adjunct to the oil industry. Convinced of the presence of oil by magic or some crude tests of his own, he defies the scientists and goes out to drill. For every five hundred or more that have sunk their savings in oil-less ground, one has "struck it rich." But the stakes are potentially high enough to make the gamble a ceaseless temptation. The wildcatter is on the fringe of the industry. In some instances he drills and becomes a producer; usually he specializes in the speculative risks of discovery. The policies of the large companies are more conservative; and errors in selection are charged up to the general cost of production. But the independent, with his own funds and those of his investors, must be successful in order to win back profits or even the capital which has been laid out. In consequence the heavy losses in dry holes—one out of every four drilled—are carried by the savings of individuals who never have an opportunity to enter the industry. Costs which should be borne socially as an integral part of doing business are voluntarily assumed by a speculative minority.

The producer is also enlisted to subsidize the exploitation of crude. Reduced to its simplest terms, the recovery of oil requires drilling machinery to pierce the rock, pumping apparatus for removal of the oil after the pool has passed the "flush" stage, and tanks for temporary storage after the mineral has been removed from the ground. Nevertheless the particularities of the process are miscellaneous; and the expense varies with the depth of the well, the character of the rock formations, the water in the well, and other difficulties that are encountered. In some cases the partly finished drilling is abandoned through sheer lack of funds and the entire investment is lost. Or the site and equipment may be picked up at bargain prices; and the new operator is at an advantage through subsidization of his costs by an earlier bankruptcy. Losses in abandoning locations are so great that operators try to push forward their construction whatever the cost.

Production costs vary with the method of removal from the well. In the early period the gas pressure is often sufficient to force up the oil. As the pressure in the pool is released, the gases expand and push the oil toward the drill opening; both oil and gas make their way to the surface. During the "flush" stage, when the producer incurs no costs for pumping, it has been estimated that such oil costs as little as 10 to 20 cents a barrel. Eventually there comes a time when the gusher "flows by heads" or ceases its production. Then the pumping stage has arrived. Various types of mechanical pumps are used, depending upon the type of well and the finances of the operator. Costs may then vary between 20 cents and \$1 or even more. As pumping proceeds, expenses may materially increase; a shrinkage in production raises barrel costs. No precision in unit calculations is possible; costs depend upon the effort required and the total

GASOLINE

volume recovered. And nature is rather erratic in its generosity. Over a long period a short-lived gusher may have less economic value than a well which is pumped; the higher costs for the latter may be offset by a longer period of production.

In the past the recovery of oil has been inefficient and wasteful. Usually a well, abandoned as exhausted, has had only 20 to 40 per cent of its oil removed. As the discovery of new fields becomes more difficult, the old ground is reworked. In some cases drilling has been pushed below the bottoms of old wells and new supplies have been found. "Secondary" methods are being developed to retrieve oil from abandoned wells. Attempts are made to restore pressure by injections of air and gas; vacuum pumping, the gas drive, and water flooding have been introduced. The costs are so great that the devices are practical only if the first drawing off has removed negligible quantities of the oil. Moreover, the process of reclaiming is still in its infancy; and the methods now available are not applicable to all oil deposits. While crude oil prices remain around \$1, the use of these ancillary processes will probably be limited. As a potential means of increasing our oil supplies they are important; but unless the costs are greatly lessened, their wide exploitation will herald a day of high crude prices.

"Strippers," sometimes called the backbone of the crude-oil industry, constitute the vast majority of operations. About 70 per cent of the 350,000 producing wells yield $\frac{1}{2}$ barrel or less daily. The phrase "stripper well" originated from the notion that the last bit of oil was being "stripped" from the sand; but as a method of classification it is indefinite; since the amount of recoverable oil is unknown. However, as a term for the thousands of wells producing a pittance of the supply, it has a useful place in the language of the trade. So long as flush wells are—as now—producing the bulk of oil, the life of the stripper operator is hazardous and uncertain. His meager production is expensive, but the cost is mitigated by the character of his methods. Often his machinery is secondhand; used parts are casually picked up for well repairs; and the cost of his own labor is not counted. When a well enters the shadowy boundaries of stripperhood, its continued operation by a large producer would, according to his calculations, be at a loss; and it is turned over to the stripper operator. Slight changes in price are here of enormous consequence; unless the producers are recovering a lubricant oil, somewhat sheltered against competition with flush fields, they are the first to feel the pinch of changing circumstance. And whatever their returns, a cost accounting system such as the large companies employ would show them operating at a deficit.

In this miscellany of industrial usage and costing practice, all producers must enter a market whose uniform price accords no favors to offset productive disadvantage. The oil from the stripper and the pumping

PRICE AND PRICE POLICIES

wells must compete directly with flush production. In this struggle costs become irrelevant. The initial investment is so large that wells cannot be closed because the price of the product is unsatisfactory. If anything, a low price stimulates further production; the biggest charges are fixed; costs vary only negligibly with volume produced. Moreover, the oil well is so unpredictable a productive unit that costs and returns are a perennial mystery. Profits depend upon costs distributed over aggregate yield; but during the operation of the well, the total volume which can be recovered is unknown. As a consequence, in their rationale producers have substituted the concept of a "fair price" for the "recovery of costs." Nevertheless there are real distinctions in cost among the various types of well; whether the price of crude is 60 cents, \$1 or \$1.75, some operators receive high returns and others get nothing.

The large companies have left the bulk of production to independents. The fully integrated organization produces a part of its supply; few produce as much as half of the oil they process. The average is perhaps 40 per cent or less. The units they operate are, for the most part, flush wells; and this cheap production has given them a competitive advantage over the nonintegrated companies. As soon as the wells enter the secondary stage of lower production at higher cost, they are sold to independent operators. The large concern is unwilling to venture too deeply into the uncertainties of production; and the current practices of competitive drilling have assured a plentitude of oil at low prices. Here again the operator, through a tangle of complex causes, has been forced to underwrite a heavy production regardless of market price.

The nature of the oil pool does not lend itself to orderly exploitation by individuals. Oil congregates irrespective of political boundaries and in disregard of property rights. It emerges into a stream—whether "squeezed" by the pressure of rocks above or in some still unknown way—and migrates until it reaches impenetrable strata, where it gathers into a pool. In a single field underground connections may interlock several deposits into a single pool. A well drilled to tap one of these has immediate repercussions upon the others; the gases expand with the release of pressure and drive the oil toward and up the well. A prolonged flush production depends upon the maintenance of reservoir energy in the pool. This requires a careful spacing of wells and a frugal use of the natural gases; as a result, the total recovery of oil is greater and costs are reduced to a minimum. Thus, by the very structure of the pool, an intelligent exploitation of our oil resources calls for cooperative effort. Yet most of the oil in this country is produced in competition and waste. In a few fields where the ownership of properties is concentrated, experiments have been made to prove the superiority of collective over competitive exploitation. For years engineers have preached the truism that an oil pool is not a miscel-

GASOLINE

lany of private equities but a physical unity and the corollary that private interests can best be served by unit operation. Nevertheless a system of multiple ownership has grown up which has evoked an individualistic exploitation.

The losses through competitive drilling are enormous. The fugitive character of oil stimulates feverish attempts at recovery by all producers. The arrival of the first derrick is the signal to others that their holdings are in jeopardy. A pool may extend over several properties; unless all operators quickly engage in drilling operations, their oil may be drained away. Even if pools appear to be physically distinct, underground connections may cause drainage to neighbors' wells. In consequence, fields are opened with a wild abandon as drillers engage in a desperate struggle to tap the reservoirs. An excessive number of wells is drilled. The cost is not merely that of unnecessary construction; the reservoir energy is dissipated without rendering its maximum of service, and all producers are prematurely faced with secondary—and more costly—stages of mechanical pumping. The hurried race to reach the oil often means wells of inferior construction. The actions of a careless producer may cause water to flood the whole pool and force all neighboring interests to suffer a lower production. Wasteful and inefficient methods are common. In the long run less oil is recovered than under unit operation and the costs are higher.¹

The producers themselves are only partly responsible. Certainly many operators prefer destructive competition; they think of themselves as a little better than their neighbors and believe they can get a larger share of oil through their own efforts. They fail to see that a belief so generally held mitigates against any single individual's success. The multiplicity of producers makes organization very difficult. Unit operation of pools violates established custom; it goes against the grain of industrial pioneers soaked in an ancient individualism. Although fields compete with each other, they are physically isolated; and a general community of interest

¹ "Derrick materials are rushed into newly discovered oil fields where ownerships are diversified—sometimes before suitable roads have been built, and the derricks are erected as fast as men and material can be brought to the well sites; water and fuel lines are laid hastily to the nearest supply which may be many miles away; drilling machinery is hauled to the field and quickly assembled, drilling is started at the earliest possible moment and continued at a 'neck-breaking' speed until the productive sands are reached; wells are completed hurriedly and not always in accordance with best practices. Completed wells are permitted to produce to capacity regardless of the amount of gas wastefully blown to the air or the magnitude of underground losses of oil due to dissipation of reservoir energy and premature encroachment of water; large quantities of oil are stored in tanks on the surface instead of being held in the underground reservoir where oil is not subject to evaporation losses, deterioration, fire hazards, and heavy carrying charges. All of these uneconomic practices and wasteful methods obtain because the American petroleum industry operated on the theory that 'to the winner belong the spoils.'" Ben E. Miller and H. C. Lindsly, "A Report on Petroleum Developments and Production," *Petroleum Investigation*, Vol. 2, p. 1250.

PRICE AND PRICE POLICIES

among producers has been impossible. It is likewise to the immediate profit of the handful of buyers that their suppliers remain unorganized. Even if the majority were interested in group operation of the pool, a recalcitrant minority can plunge all into a demoralizing competition. Thus the individual producer is at the mercy of factors over which he has no control. He cannot wait for better prices. In a competitive field the pressure is to produce; and the compulsions are so persuasive that costs, price, market demand, and accumulated stocks—all that speaks to the contrary—are each irrelevant.

The courts have also helped to perpetuate the evils of competitive drilling. The "rule of capture" was first enunciated in the days of kerosene, when little was known of the nature of oil deposits. The courts were asked to give some practical solution to controversies over the ownership of a migratory mineral. The questions were new; and in accordance with venerable legal practice, the judges sought for analogy to give protective coloring to innovation. Oil was likened to roving animals and percolating waters; in this manner the ancient common law was given novel application. It was declared that oil is the property of the owner of the surface. But like *ferae naturae* which have "the power and the tendency to escape without the volition of the owner," oil supplies belong to the landowner only while "subject to his control." When they "escape and go into other land, or come under another's control, the title of the former owner is gone."¹ An analogy and a decision or two were enough; upon such a modest beginning the courts built up an imposing series of precedents to make the capture of oil synonymous with ownership. The question of theft also came under the purview of the courts. It was conceded that an oil producer, drilling at any point on his land, might drain adjoining properties. "What, then, can the neighbor do? Nothing; only go and do likewise."² Thus thousands of producers were sent out, with the blessings of the judiciary, to drill offset wells. Implicit in the recommendation was the notion that estimates of pool supplies and their location underground are so unreliable as to be useless for the distribution of equities in a pool; and that the only practical test of ownership is the amount recovered. This policy has been perpetuated despite a better knowledge of oil deposits and despite the great losses which have accompanied competitive drilling. The courts have been more interested in preserving the ritual of precedents than in suiting decisions to their economic consequences.

The practices of landowners have also had a contributory effect. Some oil lands are held in fee; ordinarily mineral rights are leased while the

¹ *Westmoreland and Cambria Natural Gas Company v. DeWitt*, 130 Pa. 235 (1889).

² *Barnard v. Monongahela Gas Co.*, 216 Pa. 362 (1907). "This may not be the best rule; but neither the legislature nor our highest court has given us any better." See J. Howard Marshall and Norman L. Meyers, "Legal Planning of Petroleum Production," *Yale Law Journal*, Vol. 41, p. 33, for a comprehensive discussion of the subject.

GASOLINE

owner continues to enjoy the surface privileges. Many landowners are anxious to realize immediate profits from the fortuitous occurrence of oil on their properties. A down payment usually accompanies the signing of the lease; and a rental is charged to ensure "diligence" in drilling operations. In some leases the landowner can terminate relations at the expiration of the contract if drilling has not begun. Rentals cease with royalty payments, which usually are one-eighth of gross receipts. This fraction is a carry-over from salt-mining days, when early bargaining established one-eighth as the customary royalty return for these mines. For oil there is some variation from this accepted norm; royalties are sometimes one-sixth or one-tenth; and many contracts provide for payments in kind if gas in commercial quantities is discovered. The lessee escapes rent and uncertainty of yield by immediately engaging in production. If the landlord has contracted with other producers, there may be no alternative to drilling; each must hurriedly engage in operations to secure his share of oil. Again the courts, when called upon to interpret contracts between surface owner and oil operator, have insisted upon diligence in the cultivation of leased property—thus once more giving judicial sanction to the mad exploitation of a limited natural resource. The oil producer, caught up in this web of circumstance, has no alternative but to push production.

Thus a mechanical adjustment of supply and demand fails to function in oil production. The compulsions to produce are insistent; supplies accumulate and prices decline without influencing the more fundamental factors determining production. A fall in price due to overproduction stimulates further production; operators are anxious to maintain their total returns. Costs are variable and indefinite. Even if prices drop one-half, there are some producers who can continue operations of their flush wells at a profit. The shutting down of wells has distinct engineering disadvantages, and producers hesitate to break their connections with pipe-line purchasers. Where fields are held under a system of multiple ownership, a halt is virtually impossible. Because of the heavy costs already incurred in competitive drilling, no one can afford to step out of the race. Thus production proceeds oblivious to market conditions; and operators bear the brunt of the burden in the form of low prices.

An overproduction of crude has disquieting effects upon the whole industry. It explains the fierce competition in the disposal of refined products. It is the dominant cause of an overbuilt retail structure and a host of destructive marketing practices. The offsetting wells are paralleled by offsetting retail outlets; the insistent pressure of supplies is felt all along the line from field to service station. Yet in the midst of contemporary surfeit the industry is faced with a potential famine. It is an anomaly that wasteful exploitation continues despite the alarming depletion of the nation's oil reserves. A major threat to the security of the industry is a

PRICE AND PRICE POLICIES

premature and unnecessary exhaustion of supplies. The public too is a vitally interested party. A national dependence upon the automobile presumes, for the present at least, a steady supply of gasoline and oil lubricants. The federal government has estimated that proved oil reserves total approximately 13,360,000,000 barrels. At present consumption figures the supply will last about fifteen years.¹ Undoubtedly some new pools will be discovered; and it is probable that more efficient recovery methods and an improved refining technique will increase the available resources. Oil can be distilled from other materials, notably coal and shales, but at a greatly increased cost.² Gasoline has been blended with alcohol produced from farm products; but the resulting product impairs the efficiency of the engine and makes for higher fuel prices.³ Unless revolutionary changes ensue in the motor-fuel market, the consumers of oil products may look forward to a time, not far distant, of higher prices.

It was these distinctive problems which evoked attempts at control by the state and federal governments. Long before the NRA it was recognized that oil did not fall into the category of the "representative" industry. An insecurity arising out of disorganization through actual or potential overproduction could not be solved by the industry. Even if the threatening shadow of the antitrust laws could have been lifted, a central authority within the industry competent to impose order upon such a wide-flung organization did not exist. And the issue was more than one of industrial stabilization. The public held a stake in the venture; a hasty and reckless exploitation of oil reserves threatened high prices and an unnecessary depletion of an irreplaceable natural resource. The state stepped in as arbiter in industrial order and as spokesman for the public interest. Now the question is less whether there shall be a formal control than whether the control shall be exercised by the states or by the federal government. In the public regulation of the oil industry enough has happened to point the way to the answer.

A CHAPTER IN PUBLIC REGULATION

At first the producing states attempted separately to cope with the problem of overproduction. In 1915 Oklahoma experimented with setting

¹ Estimates of United States Geological Survey, 1934. It would be impossible to recover the full amount of oil in fifteen years; in the declining years of a well only a small amount can be pumped from day to day. Total recovery might take fifty years.

² W. S. Farish, Standard Oil Company of New Jersey, has estimated that refinery costs for the conversion of coal into gasoline "on a large scale" would be in the neighborhood of 12 cents a gallon as against a refinery price of 5 to 6 cents for gasoline made from oil. He stated that he could not speak with assurance because the factors in the technical process cannot be set down as definite costs.

³ It has been estimated that the refinery cost would be around 9 or 10 cents a gallon. See *Economical and Technical Aspects of Alcohol-Gasoline Mixtures*, Petroleum Industries Committee, 1935.

GASOLINE

quotas for its operators. The control was short-lived. The need lapsed with the decline in productivity of the larger pools, and the high price for oil during the World War made the statute a dead letter. Interest was revived in 1926 with the decline in crude prices. Oklahoma producers entered a voluntary agreement to restrict production and set up a private umpire to make allocations. Eventually the plan was taken over by the Oklahoma Corporation Commission; and under the 1915 statute the umpire's recommendations became state orders. The development in Oklahoma set the standard for other states. Until 1931 no statute in Texas authorized proration, but a voluntary curtailment was practiced in some of the flush fields. In California, producers entered agreements for voluntary cooperation; in Kansas the industry first experimented with voluntary restriction and then managed to secure the enactment of a proration law. But it was soon evident that individual action by the states was inadequate. There was no common policy of restriction; the states used their own rough estimates in calculating demand and making allocations. Enforcement varied from a complete nullity to a rather effective control. Yet despite the miscellany of practice the oil states were, in their productive capacity, an integral unit; with the conspicuous exception of isolated California, the policies of one state in respect to restriction had direct and immediate price repercussions upon the others.

By 1931 the petroleum industry was in a state of economic demoralization. Production was rising rapidly in the face of increasingly lower prices. Crude and refined stocks were mounting, The threat of potential overproduction was intensified by the continuous discovery of new fields and the progress in refining technology. Speculation about an interstate agreement for oil restriction was rife; the proposal evoked wide approval in the Mid-Continent area where overproduction was most seriously felt. In the fall of 1931 three states—Texas, Oklahoma, and Kansas—entered a production accord. Other large producing states—California, New Mexico, Colorado, and Wyoming—indicated an informal adherence. The avowed purpose of the agreement, framed in the name of conservation, was to limit production to market requirements. From statistics furnished by the United States Bureau of Mines, the Federal Oil Conservation Board, and the American Petroleum Institute, the Oil States' Committee made an estimate of total demand. By an intricate method, vulgarly known as "horse trading," production quotas were agreed upon by the states. These in turn prorated production among intrastate pools.

The accord lasted about two years.¹ From 1931 to 1932 production fell almost 70,000,000 barrels; and the decrease of 30,000,000 barrels in

¹ For an account of the earlier phases of public regulation see Marshall and Meyers, "Legal Planning of Petroleum Production: Two Years of Proration," *Yale Law Journal*, Vol. 42, p. 702.

PRICE AND PRICE POLICIES

crude stocks indicated the heavy withdrawals from storage. The average crude price, which had dropped from \$1.19 in 1930 to \$.65 in 1931, was raised to \$.87 in 1932. In the Mid-Continent fields the price of crude soared from a few cents to around a dollar. The recovery cannot be measured alone by statistical calculations; the expectation of profits revived the drooping spirits of the industry. Then a sharp reversal occurred. For some producers the "allowables" were so low that they could not meet fixed charges and they resorted to the production of bootleg or "hot oil." By the very nature of the undercover operations the volume of illicit oil could not be calculated. Investigations disclosed that large amounts of this oil were coming to market at discounts ranging up to 50 per cent of posted prices. Other dissatisfied producers resorted to litigation, and the enforcement of proration was crippled with injunctions in the federal courts. In a final desperate effort at maintaining restriction, the device of martial law, previously used in Oklahoma, was invoked in the East Texas field. Troops were sent in by order of the governor and production was held down by military force. The legality of this method of maintaining proration was also challenged; and ultimately the Supreme Court dealt a resounding rebuke to the proponents of martial law.¹

The collapse of interstate control had an immediate effect upon production and price. Though producers had won the fight to operate without restrictions, their victory merely gave them the privilege to sell in a demoralized market. First several of the Standard companies refused to meet a rise in price posted by their competitors; then the competitors slipped back to the old level. The price structure tottered and collapsed. In the early spring of 1933 oil was selling at 10 cents a barrel. In the panic that gripped the country not the least among the alarmed was the petroleum industry.

The industry then turned to the federal government. Its representatives called upon the new administration for a temporary shutdown of oil fields to provide time for the formulation of a federal program of control. The passage of the NRA was hailed as an industrial deliverance from the bondage of imminent bankruptcy. Like other groups in severe economic distress, the petroleum industrialists did not stop to ask embarrassing constitutional questions. A helping hand had been extended; that was enough.

The particular type of control inaugurated for oil grew out of the drive for national recovery initiated by the new administration. The industry was to write an industrial constitution called a "code of fair competition"; equitable toward labor and consumers, it was also intended to restore profits for the divergent groups in the industry. In this high endeavor the traditional enmity between major and independent became,

¹ *Sterling v. Constantin*, 287 United States 378 (1932).

GASOLINE

for the moment, less acute. The trade organization for the large companies—the American Petroleum Institute—had met several times in secret session and decided to initiate an all-producers conference in Chicago in June, 1933. A majority there favored limitation of production through a federal licensing of producers; and, although individually opposed to price fixing, requested the President, in the interest of preventing the “sale of crude petroleum below the actual cost of production,” to establish “from time to time minimum and maximum prices.” About a week later, after a bitter and protracted fight, the refiners and the marketers came to an understanding. Gasoline production was to be restricted; minimum and maximum prices were to be set for “motor fuel and other products” when desirable; and the President was to be ready to “establish such margins between delivered cargo or tank-car prices on the one hand and tank-wagon and consumer prices on the other hand as may seem just and equitable.”¹

Thus a large part of the industry contemplated a control extending far beyond mere regulation of production. Crude, refinery, and retail prices were to be fixed. Competitive trade practices were to be subdued to the general welfare of the industry. To effect an amalgamation of the producers' with the refiners' and marketers' codes, and to hit upon terms acceptable to the National Recovery Administration, a National Emergency Committee was appointed. The committee was small enough to speed the process of code writing; and it provided an opportunity for the majors, outnumbered at the conferences by the independents, to equalize their position. Fifty-four members composed the committee, half representing majors and half independents.

The scene shifted to Washington, and the task of polishing off a code began. A form of words for the reconciliation of the conflict of interests was difficult to hit upon. The majors were by tradition antagonistic to any form of government intervention; such a control might in the future have effects restrictive of corporate management and adverse to profits. Their attorneys, ready with meticulous argument and verbal precision to do battle for their clients, were much in evidence. However, there was no complete unity of front; some of the large integrated companies, badly hit by the depression, favored not only production regulation but price fixing. The independents reflected every conceivable shade of opinion. Stubborn opponents of price fixing were balanced against equally stubborn defenders, and all varieties of compromise had their vociferous exponents. The scene was further confused by the East Texas group, which was not in evidence in Chicago but in Washington formed a strong fighting clique against production control. With the exception of this bloc, the independ-

¹ See reports of meetings and drafts of industry codes in the *Oil and Gas Journal*, 1933 and 1934.

PRICE AND PRICE POLICIES

ents—since they had more to gain than to lose—were more receptive than the majors to the fire of recovery enthusiasm which swept the land. In the summer of 1933 all things seemed possible to the votaries of the new faith.

The groups divided into committees, subcommittees, and subsubcommittees. All sought the same end—a return of profits; but the means to be used won no unified sentiment. The fight over the code indicated the divergent interests in the industry and the battles that were to follow. The government had to take a hand. Since the petroleum industry—and in fact the whole country—was attuned to immediate salvation, it was injudicious to permit a family squabble to prolong indefinitely the reaching of agreement. Finally on August 19, 1933, a code admittedly expedient in character was pressed upon the industry. Like many other documents, it paid lip service to conflicting theories of salvation. The Secretary of the Interior was made Oil Administrator; a code authority—called the Planning and Coordination Committee—was eventually composed of twenty-three members of the industry and three representatives of the government. The Petroleum Administrative Board was organized to assist the Oil Administrator.

The final code, after a series of definitions and a polite bow to labor, struck boldly at the problem of overproduction. The legal justification for action was the power of the federal government to regulate the flow of interstate commerce. Importation was limited to an amount not exceeding the average daily imports of petroleum and petroleum products during the last six months of 1932; withdrawals of crude oil from storage were prohibited except with the approval of the Oil Administrator. With these leaks halted, the way was clear for a drastic and far-reaching limitation upon production.¹

The task of allocating crude-oil production to the states was begun promptly in September, 1933. The Oil Administrator made announcements of monthly average quotas of crude-oil requirements for each producing state. The allocations took into account probable withdrawals from crude storage and expected imports; they represented the quantity needed to meet the demand for the ensuing month. Estimates were made by the Federal Bureau of Mines and the Petroleum Administrative Board. Their accuracy and impartiality were generally unquestioned by the industry. Subdivisions of quotas among pools were left to the producing states. The possibility of negligence, however, was forestalled; the President was granted the power to subdivide the state quota among the intrastate pools.² Though this power was never used, it provided an incentive to action by the states. New agencies were set up to administer allocation; in some states the political machinery used under the inter-

¹ Section 3 of Article III.

² Section 4 of Article III.

GASOLINE

state compact was refurbished for new use. The experience gained from state proration was invaluable in giving actuality to the new control. †

A grand splurge is a necessary preliminary to swearing off; and the tremendous spurt in production in May, June, July, and August of 1933 is eloquent of the great expectations with which the industry prepared for its code. In the early period of regulation a rough correspondence of production with federal allocations was the most that was to be expected. For a time some states permitted production in excess of their quotas, and these irregularities had to be ironed out. But even after a year under the code, the discrepancy between allowable and actual production remained marked. As under state control, the big difficulty lay in the production of "hot oil." The speculative excitement in the industry with the appearance of the code sent prices rising. The large companies, with the tacit approval of the government, joined together in the maintenance of "dollar crude" despite an excessive accumulation of stocks and low refinery and retail prices. It was inevitable that a minority of producers, technically known as the "Ten Per Cent," should find it profitable to run hot oil. Evasion was accompanied by open attacks of the law in the courts. In this warfare along the judicial front the government was at a serious disadvantage; the delays wrought by the ponderous machinery of justice operated to the benefit of the lawbreakers. As suits and injunctions piled up, enforcement became more and more difficult. The law-abiding elements in the industry became discontented and critical; and the energies of the enforcement agencies flagged as new technicalities for evasion were discovered.

A number of ancillary devices were used by the federal government to catch the hot-oil producer. One resort lay in a law passed by Congress providing heavy penalties for false statements in reports to government agencies. Essentially a taxing device, it was as an afterthought conscripted into service of the oil code. A tax of $\frac{1}{10}$ cent was placed on every barrel of crude oil produced; to collect the tax a very exacting accounting was required. To prevent the tax from being burdensome to the small producer, the well averaging five barrels a day or less was exempt. So detailed were the report forms that it was believed that it would be almost impossible for the hot oil to slip into the market unnoticed, and conviction would simply require proof of evasion of the tax. Yet the very abundance of the data, had they ever become available, would have proved a handicap to the accomplishment of the task for which they were intended.

Another enforcement device was an order of the Oil Administrator requiring detailed information for all movements of oil in interstate commerce. Every shipment was to be encircled with testimony regarding source and destination attested by notaries' signatures. This was in the course of time superseded by the creation of a Federal Tender Board for East Texas, where the bulk of the hot oil originated. The board did not

PRICE AND PRICE POLICIES

permit the shipment in interstate commerce of any oil out of that region until evidence was presented that it had been produced in accordance with federal regulations. Nor was any interstate movement of gasoline allowed until the refiner demonstrated that it had been processed from legally produced oil. For the first time the burden of proof that oil was legal rested squarely with the producer and refiner. This shift in presumption and the vigorous action of the Tender Board arrested the shipment of hot oil. But hardly was success won before it was snatched away. A few months later the Supreme Court handed down two famous decisions—one in the “hot-oil” and another in the “dead-chicken” case—which brought to an end the federal regulation of oil production under the NRA.

Throughout the life of the code a bitter fight was waged between the “price fixers” and the “antiprice fixers.” The industry differentiated sharply between the outright fixing of prices and such indirections as controlled production and fair trade practices. Actually this difference was less distinct than superficial since all the devices had price control as their end. Restricted production was intended to reduce the supply of the commodity and thus evoke higher prices. The insertion of this trade practice or that—price posting, a cost provision, a system of discounts, a prohibition of premiums, and a regulation of terms of credit—was approved as an indirect pricing device. The “price fixers” were only price fixers with an uncompromising creed and a thirst for direct action. They wished to have the total price as explicit as the elements which entered into its making. A section of the code relating to production provided a complex formula for the determination of crude prices;¹ and authority to fix refinery and retail prices for an experimental period of ninety days was given the President.² These provisions were not a striking innovation in the petroleum code; in the summer of 1933 many industries visualized economic security in terms of price fixing. The request had

¹ “. . . it shall be an unfair practice within that State to buy, sell, receive in exchange, or otherwise acquire Mid-Continent crude petroleum of 36–36.9 degrees A.P.I. gravity during any calendar month at a price per barrel (to the nearest cent) less than that which will be determined by multiplying the average Group 3 tank-car price per gallon of U. S. Motor gasoline 60–64 octane rating during the preceding calendar month as ascertained and declared by the Federal agency designated by the President, by the constant 18.5. The constant 18.5 represents the relationship, during the period 1928–1932, between the average price per barrel of Mid-Continent crude petroleum . . . and the average Group 3 price per gallon. . . .” Section 6 of Article III.

² “For a test period not to exceed 90 days pending the determination of the cost of crude petroleum and/or products thereof . . . the President may establish price schedules for petroleum and such products thereof as he may designate and for any or all modes of delivery thereof; it shall be an act of unfair competition to sell or otherwise dispose of or to buy or otherwise acquire petroleum or the products thereof at a lower price than the applicable price established by the President for the test period. . . .” Section 6 (a) of Article III.

GASOLINE

come out of the industry's conferences in Chicago and had been fought into the government code. However, the administration accepted price fixing only in principle; no specific schedule of prices was written into the document.

The code authority, representing a miscellany of divergent interests, proceeded at once to make the abstract commitment a reality. By a process of mutual bargaining in committee, minimum prices for oil at the field, refinery, and service station were agreed upon and presented to the Oil Administrator. The basic minimum price for Mid-Continent 36° gravity crude was fixed at \$1.11 with corresponding differentials for grades in other fields. The prices were averages for varying base periods which seemed to have been selected carefully and rather purposively. Minimum prices were established at the refinery; and by a nation-wide scale of differentials added to the refinery base, prices to be imposed at filling stations were determined. Accompanying the schedule was an urgent plea to the administrator that they be immediately put into effect for a trial period. To show their disapproval of the scheme, several of the representatives of the majors, when decisively outvoted, packed their bags and left Washington.

The schedules were referred to the Petroleum Administrative Board, which asked for a conference with the President. A meeting was accordingly held at the White House late in September. The President, according to report, stated that he was not opposed to a price-control program but could consider it only after the Oil Administrator and the board had satisfied themselves of its actual necessity, its feasibility, and its economic and legal defensibility. The Oil Administrator refused to act prematurely and demanded the submission of cost data. In reply a batch of telegrams were submitted in support of the price schedules. Members of the industry known to be favorably disposed toward price fixing had been wired; the telegrams in response were hastily prepared and only partially represented adequate data. The Petroleum Administrative Board called for opinions of the schedules by all members of the trade and was rewarded with an avalanche of replies.

The majors and cut-rate marketers opposed, for very different reasons, the projected scheme of price fixing. The large companies subscribed to the ancient and honorable theory of supply and demand; in the words of one, "Prices fluctuate only because of variation in supply and demand; there can be no other reason." More apposite was the argument against the wider margins which would ensue as an incentive to discounting and price cutting. If minimum prices were set for oil, the majors saw the necessity for fixing prices of competing products such as coal, gas, and electricity. The price of fuel and heating oils, according to one, is "definitely fixed by what consumers can afford to pay with due consideration

PRICE AND PRICE POLICIES

to competition of other fuels, particularly coal." Another company saw a new competition for gallonage in other directions than price—"a more extravagant and expensive free service," "a high pressure selling and a battle royal among competitive suppliers for the available business." The cut-rate marketers, supported by many independent refiners, saw in the price-fixing schedules a plot of the large companies to put them out of business. This was due to the omission of the customary differential for unbranded gasoline. The independent refiners protested they were unable to secure licenses from the Ethyl Gasoline Corporation for the use of tetraethyl lead, and consequently their octane number could not reach the high level of the majors. To force them to sell their gasoline at the same prices was, in effect, to deprive them of their business. A similar complaint was made by the cut-rate retailers; the absence of a price differential for their unbranded gasoline would cause an instantaneous loss in gallonage.

In general, the price fixers constituted the smaller integrated and nonintegrated companies and the independent marketers who sold at the regular price. Their position was dictated by the desire to win back profits which had faded in the depression. They were less well fortified than the majors; and had been hard hit by the economic collapse. Many had taken losses even after the code; the rise in crude prices was not everywhere paralleled with increases in refinery and retail prices. The independent marketers were confronted with high fixed costs and an unstabilized market. The drain of recurrent price wars was costly; and price fixing appeared to be the safest road to industrial security. However, the negative response to the September price schedules was so overwhelming that a temporary halt was called by the code authority. On November 20—the date the hearings were to begin—the Planning and Coordination Committee asked for their postponement. They also proposed that the date at which the schedules should become effective should be delayed until certain alternative proposals submitted by certain interests within the industry had been incorporated. Accordingly, the administrator postponed the hearings until December 5, and stayed the order until January 1, 1934. Later they were postponed again, and in January the plan was abandoned.

In December, 1933, a substitute for the price-fixing schedules was presented by the code authority. A buying pool was to be organized; its function was to hold surplus gasoline from the market to establish a "proper" relationship between crude and refined gasoline prices. A *minimum* margin for gasoline of 60 octane or above was 6 cents; $2\frac{1}{2}$ cents were to go to the jobber and $3\frac{1}{2}$ cents to the retailer. For "undivided resale accounts" the retailer was to receive 4 cents and the jobber $2\frac{1}{2}$ cents. A *maximum* margin of $4\frac{1}{2}$ cents was established for gasoline of

GASOLINE

59.9 octane or below. The service station was to receive $2\frac{1}{2}$ cents and the jobber 2 cents; for undivided accounts the division was to be 3 cents and $1\frac{1}{2}$ cents. The effect of the plan was to expose the refiner to the shock of changes in price. The crude price was informally pegged at a dollar; and the fixed margins were to perform a similar function in marketing. It was proposed that failure to comply with the agreement should be punished by a boycott in crude supplies.

Again a host of objections was raised by the independents. It was argued that a free market for the purchase of crude would be closed and that the boycott provision was aimed at the independent refiners. Such an instrument could not be invoked against the integrated company, which produces a part of its own crude supply. The establishment of minimum and maximum marketing margins based on octane ratings aroused wide suspicion; to many independents it seemed a deliberate attempt of the code authority to remove third-grade gasoline from the market. The plan, with some modifications, was accepted by the Oil Administrator as an experiment and was referred to the Department of Justice. Several months later the Attorney General informed the administrator that the arrangement was defective in that it did not conform to regulations governing "notice and hearing." By that time four of the large companies had withdrawn from the agreement.

Gradually it was becoming clear to the code authority that a schedule of prices, no matter how carefully worked out, could not win general support. The problem was complicated by the miscellaneous character of the independents who had found footing in the industry. Their adaptation to the current structure was precarious; the removal of the customary differential or a slight change in marketing margins would imperil their existence. And the unified sentiment which was to be found among companies of the same size was lacking. The weathering of the depression had been accomplished with a varying success; and the oil industrialists had their own notions, not untouched by personal prejudice and belief, as to how order should be attained. The revival of profits through the indirection of production restrictions and fair trade practices slackened interest in direct price control.

Elsewhere in the NRA price fixing was falling into disrepute. The government was becoming more wary of price schedules proposed by industries. A little experimentation made it clear that price regulation demanded a cautious approach—not merely from the point of view of enforcement but also in its effect upon the units composing the industry. And the NRA presented its own problems of paradox. Price regulation gave the stamp of government approval to the current industrial structure. A protection of the public necessitated an efficient organization of the industry; the consumer could not be asked to subsidize wastes and

PRICE AND PRICE POLICIES

inefficiencies under an administered price. But a major purpose of the NRA was to give aid to the "little fellows" in the industry. In petroleum as elsewhere the protection of all business units under the guise of the promotion of the public interest was a contradiction in terms. A schedule of prices which covered the "costs" of stripper well, inefficient refinery, and an overbuilt retail structure would perpetuate wastes and high prices. Behind such a subsidy to the most costly units, other members of the industry would make exorbitant profits. It was a moot question whether an industry with a swiftly changing technology should be compressed within a rigid price structure. The fixing of price, no matter how wisely administered, could not keep abreast of industrial advance. It was feared that a government guaranty of profits would have an adverse effect upon invention; without the incentive of competition a static technology might result.

The petroleum code provided other mechanisms for the imposition of order and the evocation of profits. In retrospect they are less important for what they did than for what the industry wished them to do. Regulations relating to the development of new pools and their scientific operation were drafted by the Petroleum Administrative Board after conference with the Planning and Coordination Committee. A principal objective was wider well spacing. This would not only eliminate the waste due to excessive numbers of wells but would allow a better utilization of reservoir energy. It would cut down competitive drilling, thus combating at the source overproduction of oil.

In the original code the Oil Administrator was empowered to divide the country into eight refining districts and to suggest a proper relationship between inventories of gasoline and sales for each district. Some of the districts gave no more than polite recognition to the arrangements and allowed an increase in production to compensate for the more effective control elsewhere. As a remedy, the powers of the code authority in respect to gasoline proration were stiffened, and a plan was formulated for the purchase of distress gasoline. The major companies were to buy the products of the independent refiners who could not find an immediate market. The purchase was premised on an agreement not to buy hot oil, not to exceed refinery quotas, and in general to comply with the provisions of the code. The gasoline was to be held in storage so long as it threatened the established price structure; its disposal was to be effectuated by an orderly and unobtrusive flow into the market. After a short experiment the plan was discontinued.¹ In the words of one oil executive, the buying pool

¹ The plan was revived and used in the Mid-Continent area after the NRA collapse, and it was for this action that a number of oil companies and their officials were, in January, 1938, found guilty of violation of the Sherman Act by a Madison, Wisconsin, jury. The case is on appeal.

GASOLINE

"might as well have tried to mop up the Niagara River with the falls still running."

Another form of regulation was addressed to patterns of industrial behavior. The trade practices of the industry had grown up in response to the immediate exigencies of competition; their industrial and public implications had gone unheeded. The need was for a domestication of these usages to long-time industrial purposes and to considerations of public policy. Standards for some thirty trade practices were incorporated in the petroleum agreement and were ceaselessly tinkered with by the code authority. In the process the original "rules" were almost lost in the medley of interpretations, modifications, and exceptions. Prices in all branches of the industry were to be posted conspicuously and were to remain unchanged for at least twenty-four hours after they became effective. Deviations in price by means of "rebates, allowances, concessions, benefits, scrip books, or any other device" were outlawed. A host of wasteful competitive practices relating to the sale, loan, lease, or repair of dispensing equipment to retailers were barred. A rule prohibiting the use of premiums was supported by a miscellaneous gloss of interpretation. The definition of a premium changed with almost every meeting of the code authority. At one time the giving away of any article, however insignificant, was a violation of the code; at another, anything with a cost above 2 cents constituted a premium; then services were differentiated in terms of their premium or nonpremium characteristics. A sharp line was drawn between "furnishing of water, air for tires, wiping of windshields and windows, dusting off hoods" and such things as tire covers or free parking at service stations. Later, advertising specialties were allowed if they were "not given on condition that petroleum products be purchased" and if they were not distributed at places retailing petroleum products.¹

The framing of fair trade practices constituted a difficult problem. One group in the industry wished for a complete codification of rules of behavior; every detail was to be included and every exception stated. They feared that anything short of this would permit easy evasion through ambiguity and generality. The attitude of another group was less legalistic. They did not believe that any recitation of particulars, no matter how fully stated or how minutely phrased, could cover every industrial situation; and they feared that a weighty body of rules could not be changed quickly enough to give them current relevance. Moreover, the provisions respecting fair trade practice constituted a mechanism for self-regulation by the industry, and success depended upon the willingness of industry to abide by them. Many of the rules were ineffective. Competitive practices had become too firmly established to be eradicated; a general abandonment would have required fundamental changes in the

¹ Needless to say, one of the most interested parties in this categorical dispute was the code authority for the advertising specialties industry.

PRICE AND PRICE POLICIES

order of the industry. The intensity of the game did not encourage the indulgence of industrial philanthropy. Where the industry could come to agreement upon the voluntary outlawing of particular usages, certain reforms were made. The dispensing of free equipment to retailers had long been regarded as a paramount problem by the major oil companies; and the code offered the first opportunity for united effort to end the costly practice.

Between June, 1933, and June, 1935, the petroleum industry accomplished a complete reversal in attitude. When the code was written, it was the general belief in the industry that survival depended upon a thoroughgoing federal control. There were doubts here and there, particularly among the major companies; but the voice of unfriendly skepticism could hardly be heard. State proration did not even obtrude as an issue; the real fight was whether the federal government should go so far as to fix prices from oil well to filling station. The narrow escape from price fixing was due not to the industry but to the efforts of public-minded officials within the federal government.

In early 1934, with demoralization so recent an experience, a large part of the industry favored federal control of production. But this too was soon thrown overboard. Under the code the industry was enjoying real gains; production which had started upward in early 1933 had been halted; reductions had been made in the accumulations of crude and refined stocks. The balance of supply with demand was further facilitated by an increased demand for oil products as general recovery got under way. A renewed vigor and optimism found explicit expression in the maintenance of the crude price structure. In an industry which operates openly the psychological attitudes of buyers and sellers are of paramount importance. As higher prices and industrial stabilization made prosperity once more a reality, it also evoked the traditional antagonism against government interference. By the time of the Schecter decision in May, 1935, the large companies and many independents were calling for the complete removal of the federal government from its affairs.

None the less the collapse of the code aroused fearful anticipations. The immediate demoralization of the California market started tremors elsewhere, but the industry's condition was sound enough to hold a panic in check. And, luckily, the Schecter decision came in the spring when the demand for gasoline normally increased. Before its adjournment in 1935 Congress passed a resolution approving in principle the interstate compact. Six of the producing states—Texas, Oklahoma, Illinois, Kansas, New Mexico, and Colorado—quickly joined in a voluntary agreement to regulate production. The Federal Bureau of Mines was asked to make suggested allocations to the states; and the compact committee, though it

- GASOLINE

did not follow them precisely, took its statistics into account in prorating production. The Connolly Act, prohibiting interstate shipments of hot oil, employed the federal government to bolster the agreement among the states.

The stabilization effected under code regulation was instrumental in getting the interstate compact off to a start. Louisiana and California remained outside the agreement and their excessive production caused wide concern. A growing pessimism was lightened in the spring of 1936 when the industry found itself blessed with an unprecedented demand for gasoline. Though as a device of restriction the interstate compact was only partially successful, the return of prosperity resulted in an absorption of excess production with resulting profit to the industry. Thus a general improvement in economic conditions, provoked by the earlier efforts of the federal government, redounded to the success of the interstate agreement. Had the situation been the reverse—with profits receding—it is reasonable to conclude that the industry would again have appealed frantically for federal control. And here, for the moment, the matter rests.

THE COURTS V. PETROLEUM

The regulation of oil production has been incidental to the state's exercise of the police power. Laws have governed drilling within specified distances from public highways and railroad tracks; town drilling has been subjected to various restrictions for the protection of the public. In almost all states abandoned wells must be plugged and new wells must be properly encased to prevent water intrusion and consequent losses in oil. It was inevitable that state restriction of production should be effected under the guise of conservation. The courts make free competition their norm of judgment and the burden of proof for regulation rests squarely upon the innovators. It was necessary to circumvent the "due process" clause converted by industry and the courts into a bulwark of protection for property; this could be accomplished only by drawing a distinction between "private industry" and petroleum production. Further hazards to state control lay in the interstate character of the oil business. The need of the state was for an argument which could stand legal attack at both these points. Conservation seemed to offer the easiest sanction with which to win judicial approval for regulation.

Moreover, as a conservation measure the proration of production had in it a large element of veracity. The compulsions of competitive drilling had made for a wasteful exploitation of oil reserves. The incentive upon each producer to secure his share of oil made physical recovery more important than marketing and sale. Accordingly, waste became the enemy against which the state statutes were directed. The legal right of the state to conserve its oil supplies was recognized by the Supreme Court

PRICE AND PRICE POLICIES

as early as 1900.¹ Indiana had passed a law prohibiting the blowing of natural gas into the air; the Ohio Oil Company argued it could not secure oil without blowing gas, for which there was no profitable market. The law was upheld by the Indiana Supreme Court and the United States Supreme Court.

The issues in the case were novel. The law had no standards chiseled into neat propositions whereby the statute could be judged. In this case of first instance, Mr. Justice White did not add clarity to the decision of an undivided court. The common-law rule of land ownership carried with it the "right to the minerals beneath, and the consequent privilege of mining to extract them." A large amount of legislation had been passed governing mining "so as to prevent the infringement by one miner of the right of others." The question before the Court was whether oil drilling constituted mining. "True it is that oil and gas, like other minerals, are situated beneath the surface of the earth, but except for this one point of similarity," they greatly differ. After discussing such differences Mr. Justice White moves on to a comparison of *ferae naturae* and oil deposits. They have "analogy" but not "identity." As for the former everyone has the right to reduce to possession, and in the public interest everyone may be "absolutely prohibited." But the ownership of oil is vested in the surface proprietors; they could not be "absolutely deprived" of the right of exploitation "without a taking of private property." However, "from the peculiar nature of the right and the objects upon which it is to be exerted," the legislative power can be used to protect all the owners of a pool. This is accomplished by "securing a just distribution . . . of their privilege to reduce to possession, and to reach the like end by preventing waste." The real issue of conservation in the public interest remained unsettled. Mr. Justice White's approach was that of a case in private law. He was concerned with the rights of property and was intent upon a more equitable scheme of arrangements for the collective owners of a pool. The affectation of waste with a public interest was not mentioned by the Court. Nevertheless the decision was favorable to the cause of regulation of oil production and opened the way to experimentation by the states.

In the twenties state proration went forward unchallenged in the courts. The restrictions promoted profits and were obediently accepted by the industry. At the end of the decade an Oklahoma wildcatter contested the proration orders but lost his suit in the Oklahoma Supreme Court.² The varying attitudes of the judges presaged the kind of battle which was to follow. A bare majority viewed the regulation as a waste-prevention measure. One of these foresaw a possible effect upon price but this was "merely incidental and not the primary purpose" of such regulation. Two

¹ *Ohio Oil Company v. Indiana*, 177 U. S. 190 (1900).

² *Julian v. Capshaw*, 145 Okla. 237 (1930).

GASOLINE

dissenting judges saw proration as nothing more than a price-fixing device; it was regarded as a "mere subterfuge by which control of prices is sought." Another case brought this same issue before the United States Supreme Court.¹ The Oklahoma law included in the meaning of the word "waste" those losses "incident to the production of crude oil or petroleum in excess of transportation or marketing facilities or reasonable market demands." The Champlin Refining Company, owning wells, pipe lines, refineries, and retail outlets, fought the allocations; it argued it had a right to produce so long as it did so without physical waste and devoted its supply to commercial use. It declared the regulation was an indirect form of price fixing and was a burden upon interstate commerce. In the lower federal court state proration was upheld, but again there had arisen a conflict over its effect on price. Two of the three judges saw at most only an "indirect effect" while the dissenter called proration "a legislative scheme to fix prices for crude oil."

The Supreme Court, through Mr. Justice Butler, unanimously sustained the act and the commission's orders. Every person has the right to drill wells and take from the pool all the oil that he may "reduce to possession, including that coming from land belonging to others." But the right is "subject to the reasonable exertion of the power of the State to prevent unnecessary loss, destruction or waste." Complete freedom in the recovery of oil by the Champlin company would have an immediate effect upon other producers. All would be compelled to draw from the common pool and "so to add to the wasteful use of lifting pressure." And because of the "lack, especially on the part of the non-integrated operators, of means of transportation or appropriate storage and of market demand," the contest would "result in surface waste of large quantities of crude oil." The Court further stated, in an aside which brushed other possible issues away, that an "arbitrary interference with private business" was not shown; nor was it demonstrated that "such statutory rule is not reasonably calculated to prevent the wastes specified."

The contention that the regulation contemplated the fixing of prices was set aside. The Court found that none of the proration orders were made, either directly or indirectly, for the purpose of fixing prices. "The fact that the commission never limited production below market demand, and the great and long continued downward trend of prices contemporaneously with the enforcement of proration, strongly supports the finding that the orders assailed have not had that effect." It was irrelevant that proration officials were paid from voluntary subscriptions of producers; the plaintiff "failed to show that orders were not based upon just and

¹ *Champlin Refining Company v. Corporation Commission of Oklahoma*, 286 U. S. 210 (1932).

PRICE AND PRICE POLICIES

reasonable determination of the governing facts." And as to the burdening of interstate commerce, proration applied only to production and not to sales or transportation. "Such production is essentially a mining operation and therefore is not a part of interstate commerce even though the product obtained is intended to be and in fact is immediately shipped in such commerce."

Implicit in this decision was the right of the state to conserve in the public interest. Underground waste was caused by an "improvident use of natural gas pressure" which diminished the amount of oil ultimately to be recovered. Surface waste was produced by unrestrained drilling; the supplies exceeded both the transportation facilities and the market demand. But the Court based its justification on more than an exercise of the state's police power; oil production was mining and *ipso facto* an intrastate matter. The legal category into which oil was thrown seemed to doom federal control of production. The decision of the Supreme Court also effected a legal separation between activities directed at conservation and at the control of price. The economic distinction is less clear. Overproduction in any industry has always had serious consequences upon price. In an open market such as oil, production and price are not separable since stock accumulations have an immediate effect upon price. The producers' interest in proration was not in the higher cause of conservation; it rested upon the more mundane consideration that overproduction had broken the price structure and sent the price of crude to a few cents a barrel. The connection between restriction and price was obvious to the legislators in the producing states. It was given distinct expression in Oklahoma when martial law was invoked to effectuate the restrictive policy of the state. The rhetoric officially employed by Governor Murray for shutting down the fields was conservation; but he made a public pronouncement that the fields would stay closed until producers enjoyed "dollar oil."

The Court found no price-fixing intent because the commission "never limited production below market demand." Market demand, however, is not a completely rigid term. The demand for gasoline is relatively inelastic to price but this is not true of fuel oil and other petroleum products. Even the use of gasoline is affected if the price rises into the vicinity of 25 cents a gallon. In consequence, price is an essential element in calculations of demand. The legal severance effected by the Court cannot be translated into economic realities. To stiffen his argument, Mr. Justice Butler pointed to the "long continued downward trend of prices contemporaneously with the enforcement of proration." The statistics offered by the Oklahoma commission were accepted but these did not go beyond the time of the initial trial. At the date of the Supreme Court decision—April, 1932—proration had become so effective that

GASOLINE

prices had risen from the 1931 low of a few cents to around 90 cents. And just prior to collapse of state control they reached a dollar.¹

In Texas the issue of proration was being fought out in the state and lower federal courts. To the decision of such cases the courts invoked a simple formula from the common law. If the conscious intent of proration was conservation and its adventitious result price fixing, the legislation was valid. But if a structure of higher prices was the ultimate objective of the restriction orders and conservation only an incidence, state regulation was illegal. The state and federal courts divided sharply on the issue. The former found price fixing incidental to the prohibition of waste;² the federal court was unanimous in denouncing proration as a price-fixing measure.³ The turmoil arising out of this judicial conflict resulted in the declaration of martial law in East Texas. The legal issue then concerned the right of the governor to use military power as an instrument of enforcement. The state was doomed to defeat since troops had been sent in to enforce the orders though the Railroad Commission had been enjoined by the federal court. Mr. Chief Justice Hughes, speaking for a unanimous court, condemned the actions of Governor Sterling.⁴ "In the place of judicial procedure, available in the courts which were open and functioning, he set up his executive commands which brooked neither delay nor appeal." Despite the fact that a federal court was "actually and properly engaged in examining and protecting an asserted federal right, the Governor interposed the obstruction of his will, subverting the federal authority."

Thus state proration both won and lost in the courts. The Supreme Court gave its approval to restriction measures for the prohibition of waste. It even went out of its way to set aside the allegation of price fixing despite the obvious effect upon crude prices. But where the lower federal courts were less persuaded of the absence of price effects and issued injunctions against state proration, the Supreme Court came to their support. In Texas it was clear that the federal injunctions demanded drastic action to keep oil production under control. The decision of the

¹ The *Oil and Gas Journal* quoted as the average posted price for 36° gravity oil in the Mid-Continent field for the following weeks:

May 21, 1931.....	\$0.59	November 5, 1931.....	\$0.77
July 9, 1931.....	0.33	April 7, 1932.....	0.92
July 23, 1931.....	0.13	November 3, 1932.....	1.04
July 20, 1931.....	0.38	January 5, 1933.....	0.69
September 3, 1931.....	0.62	May 11, 1933.....	0.15-0.25

² *Danciger Oil and Refining Co. v. Railroad Commission of Texas*, 49 S. W. (2d) 837 (1932).

³ *MacMillan v. Railroad Commission of Texas*, 51 F. (2d) 400 (1931).

⁴ *Sterling v. Constantin*, 237 U. S. 378 (1932).

PRICE AND PRICE POLICIES

Court in *Sterling v. Constantin* said in effect that if the lower federal courts threw injunctions in the way of enforcement, the state was powerless effectively to intervene. It did not seem to occur to Mr. Chief Justice Hughes that in the oil industry events march at a double-quick step and that delay is itself an effective judgment against control. The judicial pattern of behavior he envisaged for the state's executive would have, in fact, amounted to a temporary abandonment of proration. The decision served to impress upon the oil-producing states the limitations upon their power. By almost any verbal device the lower federal courts, in the high cause of constitutional rights of man, could interfere. Effective control could not wait upon an endless judicial ordeal but a summary setting aside of the law by martial law would call down the stern rebuke of the Supreme Court. In its august remoteness the Court did not see the insistent economic problem; its concern was with a maintenance of the niceties of judicial procedure.

Federal proration of production started a fresh crop of suits and injunctions. The little East Texas group which had come to Washington to fight production restrictions in the petroleum code returned home defeated but not disheartened. They could still resort to the federal courts. Suits were experimentally begun; and it was discovered that, by a change in argument, the judiciary could find as compelling reasons for outlawing federal regulation as, in the past, it had found for ruling against state proration. The reasons were soon apparent. Some judges appointed by the previous administration were devoid of enthusiasm for the New Deal and, perhaps unconsciously, used their judicial prerogatives to voice their personal beliefs. Others laid the statute against the Constitution to ascertain the precision of the fit; and the failure of the Fathers to make specific mention of oil was enough to invalidate federal regulation. Still others used the familiar norm of classical competition; the fact that oil production defied the conventional categories was irrelevant. The judicial truism that oil production was mining and that mining was intrastate commerce also helped the argument along. And undoubtedly many were concerned over a proper "balance" between national and state action within the federal system. Under state control it had been clear that the consequences ramified beyond the confines of a single commonwealth; now, under federal regulation, there was invasion of the state's prerogatives. It is not surprising that injunctions piled up and that in its attempts at regulation the federal government was seriously crippled by the judiciary.

In Washington a conflict raged for many months around the course of action to be followed. Oil control was a part of the New Deal program and was caught up in the struggle over its proper legal defenses. One group wished to bring actions at once, to hurry the cases along to the

GASOLINE

Supreme Court, to turn the "emergency" of the depression to account, and to capitalize on the national spirit which evoked the enactment of the laws. Another wished to delay until the acts had become so interwoven in the body politic that severance was impossible. The victory went to the latter group of advisers; but as enforcement was rendered more and more a nullity by federal injunctions, the plan was modified. It was this juxtaposition of events which landed the cases in the Supreme Court when industrial recovery was on the rebound and business wished to revert to the old order.

A second conflict ranged around the preparation and argument of the New Deal cases. The responsibility for the enforcement of the oil code rested squarely upon the Petroleum Administrative Board but access to the courts was under the command of the Department of Justice. At the time the New Deal cases were being prepared, the institution over which the Attorney General presided remained almost untouched by the new spirit in the administration. Its personnel, hard-working and self-effacing, had been trained in the prosecution of antitrust cases. Accustomed to careful and thorough work, the department was fearful of rash ventures into the unknown; it believed in the use of decorous, if slow, processes to secure sound results.

It was inevitable that suits involving New Deal legislation were strange phenomena to the Department of Justice. Its lawyers were familiar with handling individual causes rather than making litigation a device in an industrial program. They knew the judicial reports far better than the oil business; they were more at home with the techniques of procedure and court pleading than with the industrial nuisance of hot oil. Accordingly, when cases came along, as professionals versed in the established law, they turned away from the compelling necessities of petroleum with which they had casual acquaintance to the minutiae of indictments and the subtleties of procedure with which they were familiar. Accustomed to handle legal matters on the verbal level, they were more concerned to test the validity of the contentions of the Petroleum Administrative Board by reference to what the courts had said in the past than to what they might say in the future. The legislation was, it must be admitted, full of novelties; and the way of the department involved no rash turning aside from the beaten path of the law to follow the vagaries of newfangled arguments.

The result was that the Petroleum Administrative Board produced its cases and the Department of Justice decreed that they could not be made to "stick" in court. A conflict, which at bottom rested upon differences in the climate of opinion, came to a head in the case of *United States v. Smith*. A number of operators had been indicted in the federal court for the Eastern District of Texas for exceeding their quotas. A demurrer to

PRICE AND PRICE POLICIES

the indictment had been sustained by the district judge on the ground that the provisions of the act were unconstitutional. In accordance with the judicial code an appeal had been taken direct to the United States Supreme Court. Two weeks before the case was to be argued the Chief Justice announced that the government had petitioned for a postponement. The clash lay again in the contrasting views of the Petroleum Administrative Board and the Department of Justice. For the board the case was the focal point of a drive upon enforcement and the eyes of the whole industry were upon the course of the litigation. The necessities of regulation demanded a verdict upon the constitutionality of the code. The Department of Justice was concerned with the legal problems of the case; it saw hazards in using a criminal case in a constitutional drive, the possibility of technical flaws in the indictment, and the loss of a major battle in skirmishes over procedure.

In the fall of 1934 the Department of Justice announced that all cases pending in the courts relating to the control of oil production were to be dropped. The decision rested upon a technicality. In September, 1933, a month after the President's signature had been attached to the code, a series of amendments were made. It was discovered a year later that the paragraph making the production of hot oil an unfair trade practice and a violation of the code had inadvertently been omitted from the copy signed by the Chief Executive, though it was included in all the copies given circulation within the industry. The Petroleum Administrative Board regarded the admission as a technical flaw; in the face of such a compelling demand for enforcement, a halt in prosecution appeared to be a display of legal myopia. The Department of Justice regarded procedure in the face of such a legal shortcoming as unethical. This failure to drive forward seriously impaired the work of the board. The conviction grew that the oil code could not be enforced and a new crop of violations followed.

The first of the New Deal decisions was handed down by the Supreme Court on January 7, 1935,¹ more than a year and a half after the legislation had been passed. It concerned federal regulation of interstate shipments of oil. Since the government announced that it had dropped all prosecutions for violations of quotas prior to September, 1934, the Court dismissed the attack upon the petroleum code. Mr. Chief Justice Hughes, speaking for the majority, stated that they expressed "no opinion as to the interpretation or validity of the provisions of the Petroleum Code." The issue then centered around Section 9(e) of the National Industrial Recovery Act. The President was authorized to prohibit interstate transportation of oil produced in excess of pool quotas

¹ *Panama Refining Co. v. Ryan*, 293 U. S. 388 (1935).

GASOLINE

prescribed by the states.¹ The case was not concerned with federal allocation of production. The states had issued the quotas as their own; and the federal government had implemented the regulation by prohibiting the movement of hot oil in interstate commerce. In its purpose Section 9(c) closely resembled the Connolly Act, which was later used to give aid to the interstate compact.

The Court proceeded to examine the charge that such a provision was an "unconstitutional delegation of legislative power." It carefully hedged by "assuming for the present purpose, without deciding" that Congress has the power to "interdict" the interstate transportation of excess oil and declared that such a prohibition was one of "legislative policy." Accordingly the Court looked "to see whether the Congress has declared a policy with respect to that subject; whether the Congress has set up a standard for the President's action; whether the Congress has required any finding by the President in the exercise of the authority to enact the prohibition." Eight members of the Court could find nothing. Section 9(c) itself was not specific. It did not state "whether, or in what circumstances or under what conditions" the President was to prohibit; it established no "criterion to govern the President's course"; it required no "finding by the President as a condition of his action." The broad declaration of policy in the act² could not be regarded because it contained "nothing as to the circumstances or conditions in which transportation of petroleum or petroleum products should be prohibited." The conclusion of the Court was that such a "breadth of authorized action" was "essentially to commit to the President the functions of a legislature rather than those of an executive or administrative officer executing a declared legislative policy." But the Court was in something

¹ The relevant part of the section reads: "The President is authorized to prohibit transportation in interstate and foreign commerce of petroleum and the products thereof produced or withdrawn from storage in excess of the amount permitted to be produced or withdrawn from storage by any state law or valid regulation or order prescribed thereunder, by any board, commission, office or other duly authorized agency of a State." Violations were punishable by fines not to exceed \$1,000 or imprisonment not to exceed six months, or both.

² "Section 1. A national emergency productive of wide-spread unemployment and disorganization of industry, which burdens interstate and foreign commerce, affects the public welfare, and undermines the standard of living of the American people, is hereby declared to exist. It is hereby declared to be the policy of Congress to remove obstructions to the free flow of interstate and foreign commerce which tend to diminish the amount thereof; and to provide for the general welfare by promoting the organization of industry for the purpose of cooperative action among trade groups, to induce and maintain united action of labor and management under adequate governmental sanctions and supervision, to eliminate unfair competitive practices, to promote the fullest possible utilization of the present productive capacity of industries, to avoid undue restriction of production (except as may be temporarily required), to increase the consumption of industrial and agricultural products by increasing purchasing power, to reduce and relieve unemployment, to improve standards of labor, and otherwise to rehabilitate industry and to conserve natural resources."

PRICE AND PRICE POLICIES

of a dilemma. In the past, particularly in times of war, the President had been invested with wide authority. Despite the great miscellany of powers employed by the Chief Executive at various times, the Court thought there were definite—but unspecified—limits; and “we think that Section 9(c) goes beyond these limits.”

Mr. Justice Cardozo in his isolated dissent agreed there must be a “standard reasonably clear whereby discretion must be governed.” He found such discretion “when the act with all its reasonable implications is considered as a whole.” Congress could be expected to do no more than state the purposes of the legislation; the details of the task were “too intricate and special to be performed by Congress itself through a general enactment in advance of the event.” All it could do was “to declare the act to be done and the policies to be promoted”; to the delegate of its power had to be left the “ascertainment of the shifting facts that would determine the relation between the doing of the act and the attainment of the stated ends.” Obviously the purpose of the act was “industrial recovery” and the ends were given specific statement in the declaration of policy. “I am persuaded that a reference, expressed or implied, to the policy of Congress as declared in Section 1 is a sufficient definition of a standard to make the statute valid.”

Thus the first of the New Deal cases was thrown out of court on the basis of an unconstitutional delegation of power. The question of when Congress “abdicated” and when it “delegated” presented certain niceties of distinction. The Court could not escape a history of sweeping delegations of power by the legislature to the executive but it felt that in this case Congress exceeded the “limits.” The boundaries which must not be transgressed are mentioned neither in the Constitution nor in the Court’s decision. In his dissent Mr. Justice Cardozo pointed out the irresponsibility of a decision which considered only a particular section of an act. If the Court remained consistent in the position taken, a new high in the length of legislative statutes would have to be reached. Congress would be forced not merely to include the general purpose of particular sections in its enactments; it would be required to give explicit directions even though it could not envisage the particular problems to which they must be applied.

Between the Panama and Schechter decisions, less than five months elapsed. On the eve of a Congressional enactment continuing the NRA came the “dead chicken” decision and its scope indicated the Court’s disapproval of the codes for industry.¹ Mr. Chief Justice Hughes, speaking for a court unanimous as to result, amplified further the unconstitutional delegation of power. It was true that “extraordinary conditions may call for extraordinary remedies” but such conditions did not “create

¹ *Schechter Poultry Corporation v. U. S.*, 295 U. S. 495 (1935).

GASOLINE

or enlarge constitutional power." The powers of the federal government were "limited by the constitutional grants." No one was at liberty "to transcend the imposed limits" whatever the character of the emergency. Such an event was explicitly precluded by the Tenth Amendment; the powers not delegated to the federal government were reserved to the states or to the people. Turning to the codes, the Chief Justice inquired the meaning of "fair competition." The term was not defined in the act. Nor was the purpose of the codes "merely to deal with 'unfair competitive practices,'" a limited concept in the law. They were clearly designed to "authorize new and controlling prohibitions . . . which would embrace what the formulators would propose, and what the President would approve, or prescribe, as wise and beneficent measures for the government of trades and industries." Even if the aim was the rehabilitation of industry, was it "seriously contended that Congress could delegate such legislative authority?" Could "trade or industrial associations or groups" be constituted "legislative bodies" for that purpose? To the Court the answer was "obvious"; such a delegation is "unknown to our law and is utterly inconsistent with the constitutional prerogatives and duties of Congress." Nor could Congress delegate legislative power to the President to "exercise an unfettered discretion" in the making of laws which he deemed necessary for industrial recovery. The act supplied no "standards" for any trade; it did not "undertake to prescribe rules of conduct to be applied to particular states of fact determined by appropriate administrative procedure."

The Court went further. The "mere fact" that there was a "constant flow of commodities into a state" did not constitute interstate commerce. Once a commodity had arrived within a state to be disposed of there, it came to a "permanent rest." If it were not destined for further shipment outside the state, the "flow in interstate commerce" had "ceased." It is only "where goods come to rest within a State temporarily" and are "later to go forward in interstate commerce" that control can be exercised. But was interstate commerce "affected"? In previous cases the Court had admitted the power of Congress to regulate interstate commerce and to "protect" that commerce from injury. The latter could be accomplished even if it meant the regulation of intrastate commerce. But "in determining how far the Federal government may go" in controlling intrastate transactions on the ground that they "affect" interstate commerce, there was a "necessary and well-established distinction between direct and indirect effects." If a "precise line" could be drawn only "as individual cases arise," the distinction "in principle" was clear. Where the effect was "direct," the federal government could regulate; where it was "merely indirect," such transactions remained "within the domain of state power." Such a distinction was a

PRICE AND PRICE POLICIES

“fundamental one, essential to the maintenance of our constitutional system.”

The issue in the Schechter case related to hours and wages. The federal court for the Eastern District of New York had convicted the Schechter brothers on eighteen counts for violation of the code; the Circuit Court of Appeal had sustained the judgment on sixteen of these counts but reversed it on two which charged violation of the minimum wages and maximum hours provisions. It was upon these latter counts that the federal government had appealed; it believed that here, where the public welfare was so distinctly served, the case was strongest. The Court ruled otherwise. It declared that the employees in question were engaged in a local occupation and that their hours and wages had “no direct relation” to interstate commerce. Even if 95 per cent of the chickens sold in New York City were imported from outside the state, the trade was essentially a “local business.” The plea of the government that states were powerless to regulate hours and wages, so long as similar action was not taken by all others, was set down as irrelevant. “It is not the province of the Court to consider the economic advantages or disadvantages of such a centralized system. It is sufficient to say that the Federal Constitution does not provide for it.” Nor could the economic demoralization of the industry be a sufficient motive for regulation. “Without in any way disparaging this motive, it is enough to say that the recuperative efforts of the Federal Government must be made in a manner consistent with the authority granted by the Constitution.”

Mr. Justice Cardozo changed his dissent in the hot-oil case to a concurring opinion in which Mr. Justice Stone joined. If the codes merely eliminated unfair methods of competition “ascertained upon inquiry to prevail in one industry or another,” there was no unlawful delegation of power. But if codes include “whatever ordinances may be desirable or helpful for the well-being or prosperity of the industry,” that is another matter. “The extension becomes as wide as the field of industrial regulation.” Anything that Congress might do within the limits of the commerce clause could be done by the President in promulgating a code. “This is delegation running riot. . . . No such plentitude of power is susceptible of transfer.” And even if the code had been adopted by Congress itself, the law would have been void. There was no authority for the “regulation of wages and hours of labor in the intrastate transactions that make up to the defendants’ business.” Every action in our society has wide-reaching effects but “activities local in their immediacy do not become interstate and national because of distant repercussions.”

In this decision the Supreme Court went far beyond the confines of its previous decision. The authority conferred by Congress was an uncon-

GASOLINE

stitutional delegation of power. Even more important, the effect of the Court's decree was to narrow further the definition of interstate commerce. The mere flow of commodities into a state did not mean that the flow "continues" after they have arrived and become "commingled" with other goods. In this case the poultry had come to a "permanent rest" and the "flow" had ceased. The Court was meticulous in confining its remarks to the case in hand; it was only by implication and the general tenor of the decision that wider consequences were seen. A single sentence seemed to widen the intent of the verdict and appeared to confine the concept of interstate commerce merely to goods in motion.¹ The dictum was lightened by the Court's acknowledgment that federal regulation could cover transactions which "affect" interstate commerce. But the distinction between "direct" and "indirect" effects was vague; the Court itself admitted that the line could be drawn only as individual cases arise.

In the Guffey coal case,² the Court in a decision by a bare majority was more specific. "One who produces or manufactures a commodity, subsequently sold and shipped by him in interstate commerce, whether such sale and shipment were originally intended or not, has engaged in two distinct and separate activities. . . . So far as he produces or manufactures," his business is "purely local; . . . so far as he sells or ships" outside the state, he "engages in interstate commerce." Although the case related only to the coal industry, the Court went beyond the immediate issue to say that the "same rule applies to the production of oil." The extraction of coal was the "aim and the completed result of local activities"; and Mr. Justice Sutherland quoted with approval a statement in an earlier case that oil production is "essentially a mining operation and therefore is not a part of interstate commerce."³

Then suddenly in an opinion which turned its back upon the series of New Deal decisions, the Court, by a majority of one, upheld federal regulation with respect to labor in the steel industry.⁴ In striking contrast to immediate precedent, Mr. Chief Justice Hughes returned to the older judicial doctrine that the "cardinal principle of statutory construction is to save and not to destroy." In a choice between alternative interpretations of a statute, by which in the one case it would be unconstitutional and in the other valid, the "plain duty" of the Court was

¹ "Hence, decisions which deal with a stream of interstate commerce—where goods come to rest within a state temporarily and are later to go forward in interstate commerce—and with the regulations of transactions involved in that practical continuity of movement, are not applicable here." *Ibid.*, p. 543.

² *Carter v. Carter Coal Co.*, 298 U. S. 238 (1936).

³ *Champlin Refining Co. v. Corporation Commission of Oklahoma*, 236 U. S. 210 (1932).

⁴ *National Labor Relations Board v. Jones and Laughlin Steel Corporation*, 301 U. S. 1 (1937).

PRICE AND PRICE POLICIES

“to adopt that which will save the act.” The steel company argued that its manufacturing activities fell within the domain of production and thus were intrastate commerce. The Court, by distinguishing the Schechter and Carter decisions,¹ and citing a number of older cases in which the regulatory powers of the federal government had been expanded, found otherwise. The Congressional authority to “protect interstate commerce from burdens and obstructions” was not limited solely to transactions which can be regarded as an “essential part of a ‘flow’ of interstate or foreign commerce.” Although activities may be intrastate when “separately considered,” if they have “such a close and substantial relation to interstate commerce that their control is essential or appropriate to protect that commerce,” Congress cannot be “denied” the power to exercise that control. The question is “necessarily one of degree”; and the fact that the employees of the steel industry are engaged in production is not “determinative.” When industries “organize themselves on a national scale, making their relations to interstate commerce the dominant factor in their activities, how can it be maintained that their industrial labor relations constitute a forbidden field into which Congress may not enter?”

These decisions leave the questions of the powers which the federal government can exercise to regulate oil production in doubt and confusion. In the first instance the Court used a procedural device to outlaw the legislation; as time went on it turned to more substantive issues to invalidate control. A great Congressional struggle over the right of a judicial body, with no direct responsibility to the electorate and with no check upon its powers, to overthrow “liberal legislation” did not leave the attitudes of the Supreme Court members untouched. In recent years the balance of power in the Court has been a delicate one, and the shift of two votes—often of only one—has been enough to reverse the course of decisions. Whether the government victory in the Wagner Labor Relations Act was a matter of political expediency for a body concerned for its perquisites and anxious to avoid the shearing of its powers, or whether it represented a fundamental change in attitude, only time can determine. The arsenal of cases upon which judges draw holds many weapons which can be used either to widen the powers of the federal government or to narrow them to their most literal meaning.

¹ “In the Schechter case, *supra*, we found that the effect there was so remote as to be beyond the Federal power. To find ‘immediacy or directness’ there was to find it ‘almost everywhere,’ a result inconsistent with the maintenance of our Federal system. In the Carter case, *supra*, the Court was of the opinion that the provisions of the statute relating to production were invalid upon several grounds—that there was improper delegation of legislative power, and that the requirements not only went beyond any sustainable measure of protection of interstate commerce but were also inconsistent with due process. These cases are not controlling here.” *Ibid.*, p. 41.

GASOLINE

But in the long run it is unlikely that the Court can maintain an opposition to a course adverse alike to sound precedent and economic reality. The inadequacy of the industry or of the states to handle in isolation problems which are integral to our national life makes federal regulation inevitable. But these current decisions point, in the immediate future, to a regulation filled with chaos and doubt. To the complex industrial activities which are regulated by the federal government, a group of nine men must, as one after another they are passed in review, affix the label of "direct" or "indirect" to their effects upon interstate commerce. An adequate control must have its basis firmly fixed in the recognition by the judiciary that the functions of the federal government must be suited to the needs of a changing economic order.

THE PROPER AGENCY OF CONTROL

For the moment all is relatively quiet along the oil front. An experiment in federal control has come to an abrupt end, and just now there is little disposition in the industry to renew it. A number of factors contributed to the attitude. The problems of administration and police continued to be perplexing; there was neither a competent personnel nor an established procedure adequate to the task of enforcement. The courts set up judicial and constitutional standards which a novelty in public regulation failed to meet. The control stilled an industrial panic, and in its partial success of stabilization freed the industry from an immediate need for government aid. But even if the code did not hit upon a final answer to regulation, it furnished experience and knowledge useful in the quest for order. Accordingly, with a view to a judgment upon an agency of control adequate to the industrial economy, it is well to pass the state and federal experience in analytical review.

Most of this experience has been gained in the last ten years. In that short time control has been continually on the move, but its forms have followed no sequence and have fallen into no order. The open market has given way to voluntary restriction of production; control by the states severally has been eclipsed by the interstate compact only to be superseded in turn by federal regulation; and now once again there is a return to the interstate compact. The attitude of the industry has determined the control used. Regulation has been turned on and off at the behest of the producers of oil. This is clearly evident in the demand for federal control. As the market became disorganized and prices of crude tumbled, a hue and cry went up for the national government to lend aid against economic disorder. The "bitter experience of the past few years" was reviewed; its cause was the states' "failure to enforce equitable proration." Then as production was brought under control, and the

PRICE AND PRICE POLICIES

threat of entries in red disappeared, the industry asserted its own capacity for self-government. The "skepticism" of a minority of the "value of the interstate compact" was condemned; if an agreement among states "cannot handle this situation, democracy fails." The interstate compact regularized the industry "without regimenting it"; it assured conservation "without destroying competition"; it protected "initiative and enterprise."¹

The market, as an instrument of control, has long held a respectable place in economic thought. Price is expected to adjust oil production to demand, promote efficiencies all along the line of the technical process, and conserve the supplies in the ground. But the obstacles which beset its path have triumphed over the mechanical operation of supply and demand. New fields have opened, as they have been discovered, a flood of production; the laws of property have made physical recovery synonymous with ownership; and a miscellany of holdings in a single pool has resulted in orgies of competitive drilling. The pressure of excess crude runs its intense course from oil field to retail outlet. Against this pressure a price that is supposed neatly to adjust production to demand fails of its office. The compulsions to produce are themselves a scheme of control—if one of demoralization and chaos. As a substitute for the inability of the market, a conscious control of output is essential.

The method first to be invoked was voluntary restriction. The practical difficulties were enormous. Operators could not easily come to an agree-

¹ Compare two presidential addresses of Axtell J. Byles, one delivered May 23, 1934, and the other November 12, 1935, before the American Petroleum Institute. Contrasting excerpts follow:

"There are understandable misgivings and apprehensions on the part of the industry toward placing in the hands of the federal government so great a power as that given by the control of raw material. Inherent in this power is control over prices of both raw material and finished products. As heretofore stated, there is every confidence that the present Secretary of the Interior will exercise this power intelligently, fairly and courageously in what he conceives to be in the interest of both the industry and the public. The bitter experience of the past few years, resulting from the failure to enforce equitable proration, has convinced a vast majority of the industry that such control is essential not only in the protection of the public interest, from the standpoint of conservation, but to prevent complete chaos and bankruptcy in the industry itself."

"In some quarters skepticism is expressed as to the value of the interstate compact to conserve oil and gas—this, upon the theory that it is a cooperative and not a mandatory movement. The answer seems to be, first, that there is no power under the federal constitution for the federal government to control the production of oil, which is mining, any more than the refining of oil, which is manufacturing. That power is reserved to the states. The compact is the democratic, as distinguished from bureaucratic—the economic, as distinguished from the political—way of solving our problems. If conference between the petroleum-producing states—which are in close touch with their local conditions and advised as to the national requirements—cannot handle this situation, democracy fails. Inherent in the plan are the potentialities for regularizing the industry without regimenting it; for assuring conservation without destroying competition; for protecting initiative and enterprise; for ending the demoralizing alternation of flood and drought; and for insuring the fullest possible recovery from our reserve of petroleum."

GASOLINE

ment on the quotas to be assigned. The refusal of one producer, large or small, to "cooperate" was a condemnation of the plan to failure. Restriction affected merely a fraction of the oil-producing territories. Enforcement was difficult, if not impossible. Moreover, the legality of a "gentlemen's agreement" to restrict production caused wide concern and hindered positive efforts at enforcement. It is little wonder that producers, after a trial with voluntary cooperation, turned to the state governments for support. This too proved inadequate. The state could restrict only within its own boundaries. But, whatever the destination of the particular barrel, oil flows into a national market. The supply, wherever it is, is affected by production in Pennsylvania, Texas, and California; and, with the exception of oils having peculiar properties and distinct uses, the response in price is national. The state is powerless to direct all the conditions which bring economy and order—or inefficiency and waste—to the operations within its territory. The large problem of accommodating production to total market demand cannot be effected by the isolated actions of particular states. In fact, the stage is set for the contrary. If Oklahoma and Texas restrict, it is to the advantage of California to exploit the more favorable market which has been created.

The failure of individual control by the states led to a demand for cooperative action. The task involved endless delay; all states were not equally persuaded of the advantages of the undertaking. In the end, though proration by interstate agreement covered a wider area, it did not include all the producing states. Neither in 1931 nor in 1935 was there unanimous support. And, as under the former arrangement, states unwilling to restrict have made capital out of the limitations imposed by other states. Moreover, the interstate compact is a political instrument and the necessities of oil are an industrial problem. The adaptation calls for neat and delicate adjustment and presents a number of very difficult questions. The control of production is the crux of negotiation. It can be effected only by a formula allocating quotas to the separate states. In this allocation the gains of one state are the losses of another. As a result an important problem in industrial planning is complicated by a conflict of local interests. States, conscious of their strategic positions, threaten to abstain from the compact and to run wide open as a means of enlarging their quotas. "Horse trading" characterizes the conferences and issues tend to be resolved in terms of political pressures and the personal skill of the bargainers. No state secures all the production to which it feels entitled; and the conference breaks up in an atmosphere of mutual suspicion and distrust.

There is no common police. The sanctions are provided by the parties to the interstate agreement and law enforcement becomes a matter

PRICE AND PRICE POLICIES

of mutual good faith. A state in which potential production is large may be unable to adhere to its quota in spite of the most honorable of intentions. The terms of the interstate compact are vulnerable at three distinct points. First, they may be modified or overridden by the legislature. Oil is a dominant industry; the oil companies are not so negligent as to leave their legislative interests unguarded. Inevitably production control becomes an issue of party politics. Next, it may be compromised in enforcement. Not all laws on the statute books are enforced with equal vigilance. Administrative officials may perform their duty with a negligent oversight or a studied indifference. And, last, there is for even the most conscientious and efficient of state enforcement agencies the persistent problem of hot oil. The efforts of the states must be confined within their own domains; and the running of illicit production across state lines becomes an organized business. A further hazard to enforcement is an easy resort to the courts. The operator who is ordered to decrease his production can appeal from the state commission to the judiciary. He can insist that the circumstances of his business have not been fully taken into account and that he is being discriminated against. He can claim that his production is destined for interstate commerce and is beyond the state's jurisdiction. And he can, in the name of the higher law, deny the validity of the legislative control of production. State courts can be played off against federal courts in a campaign of delay fatal to effective control.

The sanctions of the interstate compact are purely voluntary. A few states become signatories to the agreement; some give an informal adherence; others stand aloof. It is evident that the moral sanctions—upon which the efficacy of the agreement rests—are less compelling for some than for others. If, for any reason, a single state fails to restrict production to its allotted quota, no enforcement agency in or outside the state can compel obedience. Again, as with independent state action, an advantage goes to the state which flagrantly violates its quota. An excessive production in Louisiana or California must be taken into account in fixing quotas; the production of states abiding by the agreement must be lowered. Though crude prices may be maintained, it is at the cost of inequitable production among states. Eventually the unwillingness or the inability of a state to observe its quota may mean a disruption of the whole scheme of production control; no state can afford a restriction which seems an indulgence of its neighbors in overproduction. The arrangement has little stability if restrictive policies of some states provide markets and profits to others who ignore it.

Nor does the interstate compact furnish adequate safeguards to the public. It is a device of the oil-producing states; its concern with produc-

GASOLINE

tion and consequent effects upon price is in the interest of producers. It grants to the groups who will profit from restriction the sole voice in its making. Other states, vitally concerned as consumers of oil products, remain outside the agreement; they are unrepresented in the making of policy. In the law, in the arrangements of competition, and in common sense, the consumer is recognized as a party to the industrial bargain. He cannot afford to surrender the protection accorded him by the open market without receiving its equivalent in return. Here then is a dilemma. An interstate compact which includes all states is too unwieldy to be efficient; one which excludes the oil-consuming states is against public policy.

The plain truth is that an attempt to regulate the oil industry by the states—either seriatim or in concert—is an anachronism. All that can be done can be more easily and effectively accomplished by the federal government. The likelihood of inequitable proration among states is lessened, if not entirely removed. The federal agency is removed from the scene of battle; it is free of the local pressures which characterize state control. The authority for regulation is undivided and enforcement can be given uniformity. The state and federal courts cannot be played off against each other. The structure of control can be worked out to allow a consideration of the interests of the consumer in matters of production, conservation, and price. Thus a federal regulation can best serve all interests within the industry and the public.

The control of the oil industry is a national, not a local, problem. An efficient exploitation of oil reserves does not merely promote the wealth and prosperity of producing states; it is of major consequence to the nation. The entire population is concerned to receive an adequate supply of oil products at low prices. The consuming, as well as the producing, states should be represented in a program of industrial control. The organization of the large oil companies is unhindered by state boundaries; it is national or even international in scope. Where authority is anything less than federal, a single private interest may stretch across a larger territory and exceed in power the political organization of the state. And a national market cannot by edict be broken up into a series of petty and isolated units. The flow of oil, whether its physical movement is intrastate or interstate, swells and has consequences upon the total supply. Production and prices in one field have reverberations upon others. The ingenuity of the industry in devising an efficient transportation system has intensified the integral nature of the market. With some slight exceptions, oil moves freely over the continent. In the face of this economic and industrial organization, an adequate control of oil rests squarely upon the federal government.

PRICE AND PRICE POLICIES

PRICES AND PUBLIC POLICY

A formal control of petroleum production does not constitute an organization of the industry. Government proration, whether state or federal, merely sets the stage for its orderly functioning. An intricate network of trade usage governs the operation of the oil business. These industrial practices determine the manner of production, refining, and marketing; they control the organization of the price structure; they canalize the movement of oil from pool to gasoline tank. Some represent vestiges of an earlier scheme of arrangements, some are the product of the current competition with which the industry is called upon to deal. It is not easy to crowd the emergent pattern of behavior into crystallized notions of competition. Such standards are an intellectualized version in simple and orderly terms of industrial processes which are multiple and chaotic. It is generally assumed that a seller underbids his competitors in price because he has surpassed them in efficiencies and economies; unless other sellers can effect similar savings and make the same low price, they are eventually forced out of business. In its simplest terms the theory assumes a multitude of rival sellers, a commodity for all practical purposes identical, and a set of conditions equitable enough to allow the prize of patronage to go to the swiftest. The change is effected all along the line through the mechanism of petty adaptations, an infinitude of moves among the parties, and slow and gradual adjustments. Thus it is that the push for private gain operates to yield a public benefit.

In oil, industrial structure and competitive practice are far removed from these norms of conduct. In their terms the industry appears in many respects to be monopoly. The large companies have borrowed devices of the old Standard trust. Their organization extends across the industry and the continent; they own pipe line and tanker; their authority covers all but a tiny fraction of the gasoline business. In contrast, the independents operate in the crevices of the industrial structure. Their hold is at best uncertain; they are exposed to all the shifts of the market; they are keenly susceptible to the ups and downs of price. Thus an assumed equality among sellers cannot be found in the oil industry. Nor do price changes either in their character or in their effects go the appointed way. They are not instigated by a seller who, through increased efficiency, has established a lower plane of costs than his competitors; nor does their extension wait upon the attainment of similar or equivalent savings by other units in the business. In a single area a price change operates so quickly that it is practically instantaneous.

But to term this a manifestation of monopoly is to miss the character of the industrial process. From the very nature of the oil business, the price of one company must be the price for all. The protection of gallonage

GASOLINE

is fundamental to economic survival, since profits are all-dependent upon volume. If price changes operated with any mechanical exactitude, one company might cut its expenses and its prices, and the consequent diversion in gallonage would still further lower unit costs through the increase in volume. Others, in their lessened business, would find their costs automatically increased and thus would be placed at a greater competitive disadvantage. The sensitive reaction of consumers to price differentials among stations makes price diversity impossible; in practice, the protection of gallonage takes precedence over any meticulous ritual of cost allocations and even over immediate considerations of profit and loss. In this situation the independents possess a power out of all proportion to their size and the volume of business handled. In many markets they have the key control over price. The lack of an advertised brand and the modesty of their station facilities are compensated by a price differential. This is a trade usage which reflects the truce that had to be struck between major and independent; without a differential there would be little business for the independent, but an attempt at its abolition would occasion a violent internecine war and consequent price demoralization. Fixed by custom and unblest by agreement, it virtually has the force of law. A slight widening by one independent—whether through discounting or through outright price cutting—is a challenge to the established structure and disturbs the perilous equilibrium of gallonage distribution among stations. A price war is of serious financial consequence to all dealers but they must meet the lowered price to hold their gallonage. Thus in oil it is not the number or the financial strength of independents which gives to competition its character; it is the power which they are able to exert over a highly sensitive price structure.

But competition is more than a struggle between majors and independents, between firms which control the bulk of the business and firms with a pittance exercising a powerful influence over price. The giants war among themselves. The very protections enlisted—apparently monopolistic in character—are indicative of the intensity of the competitive spirit. The integration of oil production, refining, and marketing has been made an instrument of warfare; the companies have sought to effect economies and secure a competitive advantage as well as to erect a barricade against the shocks of the market. The “undivided dealer” relationship cements retail outlets to oil company; it serves as a way to keep the lines open for spectacular military maneuvers. The national sale of branded products is a symbol of the dominance of large units but it also epitomizes a vicious struggle in which territorial markets vanished and corporate domains became entangled. Though the ways of competition for big business are not those of petty trade, the fight is not the less severe. If anything, in oil it is far more intense. The greater power and

PRICE AND PRICE POLICIES

financial resources of the large companies allow a more extended struggle; competition is not limited by the restraints of bankruptcy which plague the small concern.

The customary checks upon declines in price fail in their corrective influence. Costs do not provide a "price floor" for each oil product. The industry could not, even if it would, make a strict separation of the expenses for gasoline. A barrel of crude oil is a chameleon bundle of potentialities; and the productive yield is a matter of manipulation of heat and pressure. Thus in its early stages the processing costs for one commodity are inextricably tangled with those of others. In their finished form, other factors intervene to check an erection of price upon costs. Fuel oil and other products sell in markets which call for a price adapted to the prices of substitutes if oil is to compete. In consequence, the costs for gasoline are a series of arbitraries—they are neither direct, fixed, nor unchangeable. The system of accounts has been caught up and made a part of an industrial strategy aimed at volume and profits.

Nor does price effect a neat adjustment between supply and demand in oil. The economic pressures on the producer to continue operations are relentless. Competitive drilling makes for a wild scramble among operators to exploit hurriedly and wastefully, and the flow of oil proceeds whether the price is 10 cents or \$1 a barrel. The facilities for withholding the excess from the market are lacking; storage is difficult and costly, and oil deteriorates in long holding. Moreover, the market price takes cognizance of stock accumulations; the mere knowledge they exist has a depressing and unstabilizing effect. A temporary overproduction might be expected to be remedied by an increased demand for the product. In theory, a lower price stimulates sales; the larger call for the commodity absorbs the surplus and sends price upward. The demand for gasoline, dependent as it is upon the use of the automobile, knows no such orthodoxy. Once the initial large investment is made in the vehicle, the payments for motor fuel represent small—and necessary—outlays to realize its use. As a result, variations in price within relatively wide limits have little effect upon volume of sales.

In a free market price is expected to regulate the operations of the industry. But in gasoline, where supply and demand are governed by other factors more powerful than price, this mechanism becomes ineffective. The impact is further dissipated by a market organization which is a perpetual invitation to price demoralization. An overbuilt retail structure has created a vast excess capacity and has "diluted" the gallonage; the desire to spread fixed costs over a larger volume of potential business can be satisfied only by "attracting gallonage" from competitors. A yielding to the temptations which lurk in special discounts, secret rebates, and under-the-canopy deals precipitates the price war. Once touched off, it

GASOLINE

spreads quickly and has no definite span of life; prices decline from one low to another until the industry is rendered prostrate. A belated return to the "sanity" which invites profits has no guaranty of stability, for in a few months another epidemic of price cutting may jeopardize industrial security. Under such conditions price as an instrument of delicate industrial adjustment cannot be relied upon to perform its office. Uncontrolled, it is too dangerous to be employed.

In consequence, usages have been built up to canalize a competition which may quickly turn into an industrial rout. Some of these are embedded in the law of the land, some are formal trade practices, some are customs never made articulate in words yet are universally respected. The purpose of production control is to counteract the demoralizing effect of such older usages as the law of capture and competitive drilling; the state, in legislating for the public welfare, sets limits to wasteful production. In an indirect way the antitrust laws serve the same purpose; certain groups are not to win such bargaining positions that established channels of competitive practice are destroyed.

Within its own domains industry has constructed informal rules for ordering competition. In the oil fields price posting is an efficient substitute for direct bargaining between buyer and seller. It obliterates the necessity of producers' shopping around for better prices, it removes the suspicion and fear of driving a poor bargain. Price posting also makes for stability. Quotations are a matter of public information; rumors, if they abound as to what prices may be in the future, do not exist as to what they are. Changes occur uniformly and there can be no doubt of their direction. Since prices are identical, there is little incentive for producers of crude to shift from one purchaser to another; and oil flows out from the fields in a regular and systematic manner. A similar mechanism exists at the refinery. Trade journals select representative quotations for refined products and speed them over the territory. The prices for gasoline converge at a single point or within a narrow range and control the current movements of sale. Volume discounts are standardized. In the retail market a customary differential governs the prices at which branded and unbranded gasolines are sold. This rests not so much upon a gentlemen's agreement as upon a mutual respect among gentlemen. It may be set down as a violation of the antitrust laws but it may also be justified as an instrument necessary to survival and the avoidance of bankruptcy in an overcompetitive situation.

The role of gasoline in the oil industry is distinctive. The market is highly competitive; yet the commodity is not pressed by efficient substitutes. In physical and dollar volume it is the most important product of crude oil. As a result the industry has attuned itself to a dominant reliance upon gasoline in the quest of profits. Certain rough boundaries limit the

PRICE AND PRICE POLICIES

range of the prices that can be charged. At one end is a consumer resistance to a "high price"—a concept unrelated to the costs incurred by the industry and based upon the customary charge; at the other is the necessity to insure a recovery of expenses. To a large degree they are a residuum of total costs in the business which cannot be met by other products. It is significant that gasoline, subject to keenest competition among all oil products, must play the good Samaritan and help to bear the pecuniary burdens of others. Thus gasoline is made an integral part of the price structure for the whole industry.

In its totality the price feels the impact of competition but many of its individual components are immune to its effects. In the oil fields land rents are determined by agreement; after the well is drilled, the royalties paid are at a fixed rate. In some contracts between dealer and oil company margins are given explicit statement, and these are paid irrespective of the retail price. Wages and overhead are set down on the books as a fixed cost. Here usage has subdued the industrial structure to the necessities of a distinctive competition. It has set down rigid lines and inflexible patterns in the very center of economic turmoil. In this category also falls the gasoline tax. The state has taken a direct hand and uses gasoline as a device for collecting revenue. In several states the funds have been diverted to the support of schools and other public enterprises; but where they are used to construct and maintain highways, the imposition is rather a toll for use of the road than a tax. It might be directly collected at a series of gates along the highway, though payment with the purchase of gasoline has the advantage of expediency and economy. The size of the tax has been roughly adjusted to technological advance; as invention has cheapened the cost of gasoline, a part of its gains have been appropriated by the state. It is an anomaly that the gasoline tax, protected from the impact of competition, is a frequent cause of price demoralization. The federal tax is uniformly 1 cent but state taxes vary considerably; the consequent difference in the retail price, occasioned by addition of the tax, has occasioned bootlegging across state lines and price wars among border stations. In some areas state lines have been erased in the cause of industrial peace; agreements provide for a gradual increase—1 cent at a time—from the border until the full price is reached. But such arrangements are subject to lapse when dealers feel their gallonage is being raided by lower priced stations.

The commodity that flows through this price structure is the product of technology. Within recent years a series of improvements have been rung on quantity as well as quality. The volume of gasoline secured from a barrel of crude has been doubled, and the refined fuel has undergone constant adaptation to the engine to ensure superior performance. The advance that has been made modifies the relevance of physical measure-

GASOLINE

ments in the oil industry. With each gain in yield from crude the nation's oil reserves are in fact increased; the physical unit, viewed in terms of what is actually extracted from oil, is an ever-changing measure. And price too is misleading as a basis for comparison since the commodities, though sold under the same generic name, are not identical. In gasoline as in other products value is value in use; where the technology is swift and unhampered, the physical unit and the use unit grow wider apart.

A dominant question is whether the price is low enough and the quantity produced large enough to give gasoline a real place in the standard of living. In this regard the industry has served the public far better than an observer of the 1900's could have expected. But there is still wide room for improvement. The potentialities of the raw material can be given a fuller realization in a more efficient motor fuel. There is need for a drastic overhauling of a clumsy and overbuilt retail structure. The progressive depletion of a great natural resource should be more adequately safeguarded against unnecessary wastes. In the industry a greater stability is essential to keep down a destructive competition among majors, to give to independents some measure of security from fortuitous collapse of the market, and to provide for a regular and orderly flow of oil from the field to the consumer. A federal control of oil production can best effectuate a set of conditions basic to that stability. It cannot be a substitute for the aggregate of trade practices which give direction and order to competition. Such private controls are at work everywhere within the industry; they are everywhere making their adaptation to the shifting necessities of the ever-moving present. The task is to subdue these usages to the welfare of the operators, the laborers, the consumers, and the going industry. All along the oil front there is overcompetition—a competition which operates in a free, open, and national market. Yet this unpatterned competition still wants shaping to the larger necessities of the oil industry.

SECTION V
COTTONSEED—JOINT PRODUCTS AND PYRAMIDAL
CONTROL

BY GEORGE MARSHALL

THE SIGNIFICANCE OF THE COMMODITY

IN SELECTING an industry for the purpose of studying price or industrial organization, size and national importance are not necessarily the determining factors. One must consider the general interest and importance of its problems, the relative ease with which they may be analyzed, the possibility of giving a picture of a functioning industry as a whole, and the chances of obtaining necessary basic data. Thus a relatively insignificant industry like cottonseed has the possibility of opening wider vistas of understanding than many a larger one.¹

There are four things in particular which make the cottonseed industry significant for an understanding of price. First, it is an industry characterized at almost every turn by problems of by-products or joint products and joint costs. The importance of these problems is clear if one realizes that from one-fifth to one-quarter of the value added by manufacture in the United States is accounted for by such commodities. The production of these goods does not depend so much on their prices as on the prices and the conditions surrounding the production of the commodities of which they are by-products or joint products. Likewise, although the prices of a commodity and its joint products together must net an income sufficient to cover certain expenses if a private concern is to remain solvent—or to cover certain costs if a state enterprise is not to be subsidized—any one joint product need not necessarily cover its share of the whole. That is to say, one joint product may be sold at a price less than

¹ The basic data for this study were gathered from a number of different sources. First there are a few lengthy reports and hearings concerning the cottonseed industries, of which the most useful are the Federal Trade Commission's thirteen-volume *Investigation of Cottonseed Industry* and *Report on Cottonseed Industry, 1930-1933*, and the hearings held in 1933 and 1934 by the Agricultural Adjustment Administration on proposed codes or marketing agreements for cottonseed crushers, cottonseed oil refiners and cotton ginners. Second, a number of miscellaneous periodicals, publications, and books from both governmental and private sources have been found useful, and certain invaluable information has been garnered from government files and unpublished memoranda. And third, many individuals, both inside and outside of the government service, have been interviewed and engaged in correspondence. Although, unfortunately, they are too numerous to be listed here, I should like especially to acknowledge their assistance.

PRICE AND PRICE POLICIES

the sum which would be necessary for it to bring in enough income to cover its proportionate share of total expenses or costs, if the other joint products are priced sufficiently high to bring in enough income to make up for this loss. Problems of this nature are familiar in connection with railroad rates and with "loss leaders" of retail stores. However, their significance is far wider than these fields. In fact as "free competition" continues to disappear, as supply and demand become diminishingly important in determining price, and as joint products become more typical of industrial commodities, this relative freedom that joint costs give to pricing will become of primary importance.

Second, the cottonseed industries are honeycombed with a variety of group clashes: between tenants and landlords, workers and employers, farmers and processors, cottonseed crushers and cottonseed-oil refiners. In addition there are two conflicts which for some years have been the most dynamic forces within the industry: those between crushers and refiners over the control of the sources of raw materials, and those between "giants" and independents. In all these struggles price has taken on a significance far beyond that of a mere measure of value. Just as money has become more than a medium of exchange, price has become an outstanding tool of business strategy in the vigorous rivalries of conflicting concerns and groups. Similar primary clashes and the subordinate place that price plays in connection with them are becoming increasingly typical of modern industry.

Third, the cottonseed industries are also characterized by two ingenious trade associations at different levels which have tried to minimize the rivalries within the industry for the benefit of special interests. These associations have, among other things, used such devices as standard terms of sale, grading, and price reporting to define and give publicity to their prices. It will be seen that, like price itself, such devices may be used primarily as tools in the business conflict rather than to fulfill any innocent desire for standardization and publicity. Similar trade associations have exerted an increasing influence over industrial organization and price since the World War, and many of their methods to promote special interests have likewise been hidden under avowedly altruistic devices.

Fourth, the cottonseed industries are also characterized by pyramidal control. That is to say, there is a direct relationship between the distance of business enterprises from the source of raw materials and their control over the industry. This is not so simple as vertical integration of industry, although that also occurs. It is a control that permeates the industry from the top down, through far more subtle means than mere outright ownership.

COTTONSEED

One more word before we introduce the cottonseed industries. It should be clearly understood that a going industry is by no means static. Changes of more or less importance take place over a period of time. Especially is this true of an industry in which trade associations play a leading role, as they do in cottonseed. Economic change and legal necessity cause them to vary their form from time to time, and their degree of effectiveness is not always the same. Therefore this study of the cottonseed industries may not be up to date in every detail. However, this is a picture of what has actually existed in these industries in the recent past, and to the best of our knowledge it is essentially true today. Some trade association practices may not be as effective at the moment as they were previously, but the desire for such effectiveness is apparently as strong as ever. It is hoped that this study will be read for whatever significance it may have as an analysis of the relation of price to industrial processes rather than as a bulletin of the latest shifts in the world of cottonseed.

A Day of Cottonseed. Surplus cottonseed, not required for planting purposes, has become the basis of a widely ramified industry. It is the fifth most valuable cash crop of the South and accounts for about an eighth of the cotton farmer's income. The annual value of its crushing-mill products has ranged from \$87,000,000 to \$265,000,000 during the past seventeen years. Its oil is used mainly for shortening and salad dressing and accounts for almost a quarter of all fats consumed in the United States. Its cake and meal are used primarily for feeding protein to livestock and for fertilizing fields, its hulls as roughage for animals, and its linters for upholstering and for a myriad of cellulose products.¹ It influences the quality of hot cakes, the effectiveness of cosmetics, the heft of steers, the batting average of baseball players, and the comfort of beds.

Its full possibilities can only be grasped by imagining a day of cottonseed. Awaking bright and early, you make a mighty effort to forsake the comfort of your luxuriant linter-stuffed mattress. Arising, you wash with soap made from refined cottonseed oil and mop up your razor cut with absorbent linter cotton. The suit you put on is made of linters mixed with shoddy and your socks of rayon from linters. The cotton of which your shirt is woven once tightly housed some cottonseed. You eat a splendid breakfast of sausages cased in linter-derived cellophane and drop into your coffee a saccharine concentrate made from hulls. You put on your linter felt hat and drive to work in an automobile upholstered with linters. At the office your fountain pen and the paper on which you write are

¹ Linters are the short fibers adhering to the outside of the seed after ginning; hulls are the outside covering of the seed; cake is what remains of the seed after the linters and hulls have been removed and after the oil has been pressed out of the kernel; and meal is cake which has been ground.

PRICE AND PRICE POLICIES

derived from linters and your blotting paper from hulls. At lunch you eat cottonseed-meal-fed beef, meal-fertilized corn, hot cakes baked with cottonseed shortening, salad dressing mixed with a cottonseed-oil base, and cake made of cottonseed meal. Coming home you are conscious that the roof is waterproofed with cottonseed-oil pitch, that the coal in the furnace has been mined by the light of cottonseed oil, that the books on the shelf are bound with a linter fabric and artificial leather containing crude-oil foots, that the bakelite panels of the radio are derived from linters, and that the movie you had planned to see later in the evening was taken on linter-derived film. Desperately you sup on a sardine packed in cottonseed oil which you quickly follow with a medical emulsion derived from the same old oil. You somberly play a phonograph record made from linters, wistfully look at the linter-made imitation-ivory ornament on the mantle, contemplate swallowing a stick of linter-derived dynamite, and jump into your bed of linters awaiting a further division of cottonseed products.

Many years of slow development were required to make possible such a day. Progressive technological discoveries transformed surplus cottonseed from an inconvenient waste product into a many-sided raw material. Before the Civil War it was the usual practice to leave the seed, which was separated from the cotton and was not needed for planting the next year's crop, in heaps around the cotton gin and either to burn it or dump it into the stream that flowed by the gin. Some of the more thrifty farmers and plantation owners steamed the seed, so that it would not germinate, and plowed it under as a fertilizer. A few fed it directly to their cattle. The disposal of the excess seed, however, became a public health problem because when rotting it had the peculiar property of "stinking to high heaven" and when dumped into streams polluted the water and spoiled the fishing. As a result, several states passed laws governing the disposal of seed at gins located near centers of population and prohibiting the throwing of seed into streams.

Even before the Civil War, scattering attempts had been made to use the seed for industrial purposes. The Chinese are said to have expressed oil from cottonseed in the sixteenth century. The English refined a little oil before 1800 and some was produced in the United States by 1826. But it really was not until after the Civil War that the industry can be said to have had any commercial importance. The number of cottonseed-oil mills in the United States increased from 4 in 1867 to 26 in 1870, 45 in 1880, 119 in 1890, and 369 in 1900; while the percentage of the cottonseed crop that was processed increased from 4 per cent in 1872 to 9 per cent in 1880, 25 per cent in 1890, and 53 per cent in 1900. It was in the eighties and nineties that the industry really began to attain importance. At that time oil was by far the most important

COTTONSEED

product. With increasing improvements in the refining process, its uses were multiplied. It served largely as a substitute for olive oil and lard, as raw material for soap, and as a fuel for miners' lamps. As the quality of the oil improved, less was used for soap and more for food purposes because the latter use commanded a higher price.

In the early days, cottonseed oil had to fight for a place in the kitchen and on the dinner table in competition with old favorites so that a large proportion of it was deceivingly sold under various names. While W. S. Gilbert was writing those immortal lines, "Things are seldom what they seem, skimmed milk masquerades as cream," much cottonseed oil was being mixed with animal lard, surreptitiously included in oleomargarine, and paraded under the label of olive oil. In fact, "cotton oil was willing to become olive oil in Spain, peanut oil in France, coconut oil in the Philippines, sesame oil in Africa, lard oil in Chicago, corn oil in Cincinnati, hog lard all over the world, butter in the Jersey Islands and still remain cottonseed oil in the South."¹

During the last two decades of the century, from one-half to two-thirds of the cottonseed oil produced in America was exported to Europe, where much of it was consumed in competition with olive oil. A large proportion of it was designated "pure olive oil," and then returned to America. This led several European countries, under the pressure of their olive growers, to place high tariffs on the importation of cottonseed oil, and later to levy duties on its export from their countries. However, in most instances as a result of the efforts of the American State Department under pressure from other cottonseed-oil interests, these tariffs were reduced. In America, the sale of cottonseed oil was indirectly discouraged through heavy taxes, inspired by the dairy interests, on oleomargarine.

Cottonseed oil soon found its largest domestic outlet in lard substitutes, which became increasingly important as the quality of lard fell. Making a substitute containing no lard was not a far step from selling an adulterated lard of inferior hog fats. The possibility of securing increasing quantities of cottonseed oil, along with the sudden liberation of large amounts of oleostearin—a by-product of the oleo oil required by the new margarine industry—had a stimulating effect. Finally as popular opposition to adulteration increased, as legislation eventually resulting in the Pure Food and Drug Act threatened, and as the quality of the oil improved, the industry decided to sell cottonseed oil for what it was. The American Cotton Oil Company was even able to break down the customary prejudices of housewives sufficiently to sell them "cotoline," a lard substitute containing over 80 per cent cottonseed oil.

¹ Ransom, L. A., *The Great Cotton Seed Industry of the South*, p. 83.

PRICE AND PRICE POLICIES

Cottonseed meal, which even in the early days was the second most important product of the seed, was also exported in considerable quantities, especially to England and the dairy countries bordering the North Sea. This was due, to a considerable extent, to the fact that its feed properties were appreciated abroad before they became well known in America. Probably the greater part of meal that was consumed domestically was sold directly to cotton farmers as fertilizer and for feed for their stock and to southern cattlemen. It was not until the nineties that the feed values of cottonseed hulls were appreciated. For some time after the rest of the seed was utilized, the hulls were either burned or, frequently, used as a fuel with which to run the oil mills. However, their ash was sometimes used as fertilizer. Linters were apparently first saved from the waste heap in appreciable quantities during the nineties. They tend to absorb oil when not removed, so that the crushers' initial interest in delinting was to augment their income through increasing the percentage of recoverable oil. It was not until later that linters were considered a direct source of income and a joint product. Although there have been further changes, outwardly the cottonseed industry had assumed most of its present characteristics by the turn of the century.

PRICE MOVEMENTS AND THE COTTON CROP

The cottonseed price structure is a network of interrelated prices. It does not merely concern the price of the cotton plant's seed. It includes within its web the prices of the four primary crushing-mill products—crude oil, cake and meal, hulls, and linters; and it runs out into refined oil, vegetable shortening, bread and cake, mixed feeds for animals, upholstered chairs, explosives, stockings, shatterproof glass, and a host of other products. These prices are connected with each other in a variety of ways. Some have common supply factors, several are the prices of joint products, some represent the cost of raw materials on which succeeding prices depend, others are the prices of final products which affect with varying force the earlier parts of the cottonseed price chain. But regardless of the manner of intertwining, it is essential to study these prices in relation to each other, for any one of these out of its context is meaningless.

Prices, at least in the cottonseed industry, manifest themselves primarily as conjunctions between the different parts of the productive process which are represented by separate business units and by individuals of varying bargaining strength. They indicate something of the nature of these parts; but more frequently a preliminary knowledge of the parts or the groups comprising them is necessary to understand the prices. The particular prices of cottonseed and its derivative products are determined primarily by four interrelated factors: (1) year-to-year price movements, which depend mainly on the changing size of the cotton crop and

COTTONSEED

secondarily on a variety of demand situations; (2) changes in the general price level; (3) the price and availability of competitive products and customary valuations which in a general way set the level of each of the cottonseed prices and determine their relation to each other; and (4) the detailed arrangements within the structure of the industry which—inside the limits of the other factors—determine the exact level or amount of each price. It is these arrangements which largely determine such important price and social factors as the relative degree of economic well-being and the relative bargaining strength of the various groups comprising the industry. In addition, a clear picture of the institutional setting is essential for an understanding of the meaning of prices to each of these groups, and of the relation between price and economic reality.

We shall begin our detailed study of the prices of cottonseed and its derivative products by observing the striking manner in which the year-to-year price of each of these commodities moves inversely to its annual production. As a preliminary to this, it is essential to bear in mind two things about the structure of the cottonseed industry. First, the annual production curves of cottonseed and its four primary products move together with each other and with cotton. Second, their annual price curves move together. This first point is indicated by Chart A. It clearly shows how closely the annual production of cottonseed, crude oil, meal, hulls, and, to a lesser degree, linters, has paralleled the course of cotton-lint production. In fact, the course of cottonseed is identical to that of cotton. This is because cottonseed is a by-product of cotton growing and the amount produced each year depends on the size of the cotton crop. This is so much a truism that the census bases its computation of cottonseed production on the size of the cotton crop.¹

The amount of cottonseed crushed generally follows closely the quantity produced, although in certain years the amount of cottonseed crushed has not kept up with production.² Extreme variations in the proportion of the total seed crop crushed may be due to unusual price and industrial situations. However, the year-to-year changes in the proportion crushed do not regularly correspond to price changes.

The production of meal and cake, of hulls, and, to a slightly lesser degree, of crude oil follows very closely the amount of cottonseed crushed. This would seem to indicate a considerable regularity in the proportions of each of these products recovered from an average ton of cottonseed

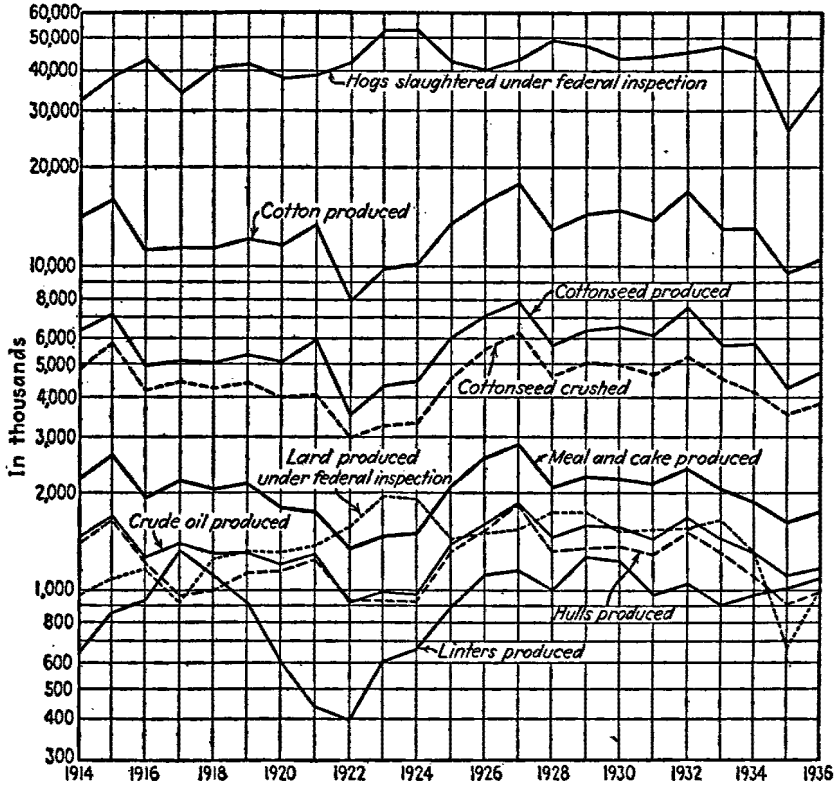
¹ It does this by multiplying the total weight of the lint produced by thirteen-sevenths. This is the assumed average ratio of the weight of cottonseed to the weight of cotton lint in an average sample of seed cotton. Seed cotton is cotton as it comes from the plant before the lint has been separated from the seed by ginning.

² Between 1914 and 1936, the proportion of seed crushed varied from 68 per cent in 1921 to 88 per cent in 1917. See also table in note 1, p. 263; and see p. 216 for discussion of limitations of these figures.

PRICE AND PRICE POLICIES

year after year and emphasize the fact that these products of cottonseed are joint products. In other words, fluctuations in demand or price do not affect the production of any one of them. Whatever variations occur in their proportions are rather the result of different crop conditions.

CHART A.—PRODUCTION OF COTTONSEED AND ALLIED PRODUCTS, 1914-1936



Sources: "Cotton and Linter Production," year ending July 31; United States Bureau of Census, *Cotton Production and Distribution*, Season of 1936-37, Bulletin 174, p. 4.
 "Quantities of Cottonseed Produced and Crushed, and Quantities of Crude Products, Meal and Cake, Crude Oil and Hulls, Obtained," year ending July 31; United States Bureau of Census, *Cotton Production and Distribution*, Season of 1936-37, Bulletin 174, p. 64.
 "Hogs: Federally Inspected Slaughtered in the United States," year ending Dec. 31; United States Bureau of Agricultural Economics, *Livestock, Meats, and Wool*, 1936, p. 69.
 "Lard—Rendered: Production from Hogs Slaughtered under Federal Inspection," year ending Dec. 31; United States Bureau of Agricultural Economics, *Livestock, Meats, and Wool*, 1936, p. 167.

Although it is true that it is possible to vary the amount of oil remaining—after crushing—in cake and meal and thus affect oil and meal production, this has not been done appreciably from year to year in response to prices. Any minor variations of this sort that have occurred have been of a long-time nature in response to changing trade desires and custom.

COTTONSEED

The case of linters, while similar, is slightly different. The increases and decreases in annual production correspond in most instances to those of cottonseed and its first three primary products. However, the wartime demand for munitions greatly increased linter production during that period, and the postwar readjustment augmented its decline. There is also some evidence that, unlike the other products, the production of linters is sometimes influenced by its price. This can happen in the case of linters because of the technological possibility of varying the number of cuts and the amount of linters recovered in each cut.

The trend of refined-oil production very closely follows the course of crude oil (see Chart D). This seems to indicate that the amount of oil refined in a year depends very largely upon the amount of crude oil produced that year or, in other words, on the size of the cotton crop. While there are yearly variations in crude-oil carry-over, they are unimportant in comparison with those of refined oil. Refined-oil disappearance—or consumption—kept very close to refined-oil production, except for three years, 1920, 1927, and 1932, when disappearance lagged behind. In each of these years stocks of refined oil were especially high. In 1935, on the other hand, disappearance went ahead of production. This was largely the result of a reduction in the number of hogs raised and the amount of cotton grown. The effect was accentuated by the importation of some cottonseed oil for the first time in many years and by the increased amount of cottonseed oil used in the manufacture of oleomargarine.

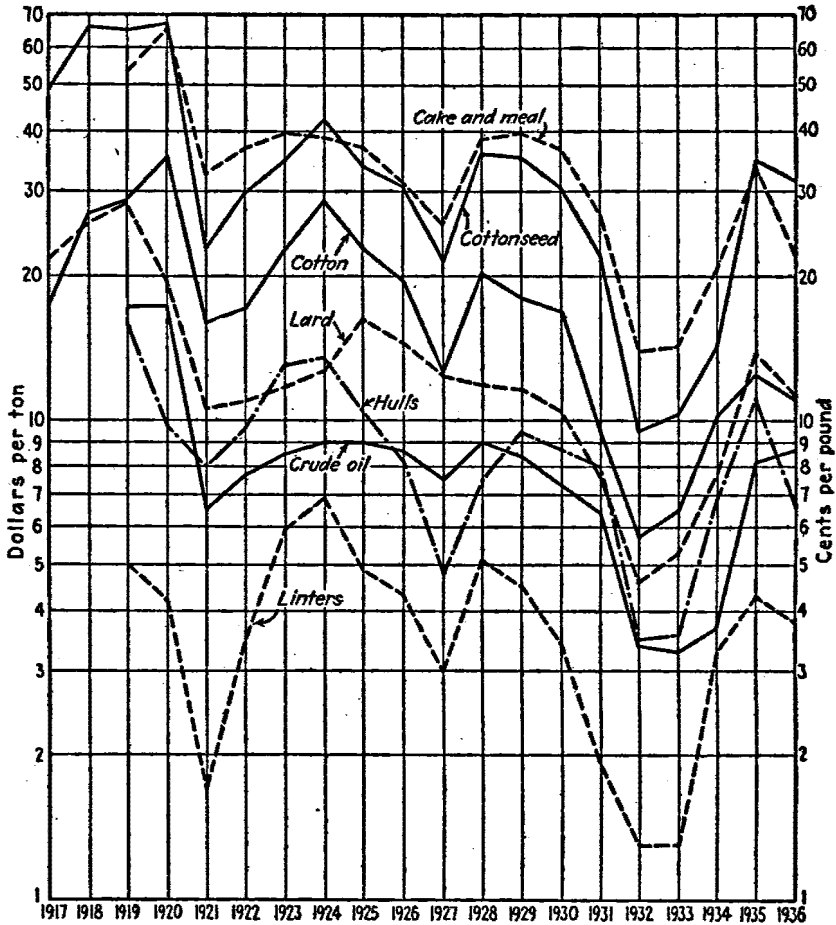
Most refined cottonseed oil is made into lard substitutes. Therefore its most important competitor is lard. The course of lard production has moved on the whole inversely to that of refined cottonseed oil. This is probably fortuitous, although lard is the chief competitor of shortening made from cottonseed oil and identical packing companies play a dominant role in the manufacture of each. It should be noted that the trend of federally inspected lard production follows very closely the course of the number of hogs slaughtered annually under federal inspection. In other words, roughly about the same proportion of hog is made into lard each year.

Not only does the production of cottonseed and its products follow the production of cotton; their prices also parallel the price of cotton (see Chart B). The price of each of these commodities, as well as the price of cotton, is strongly influenced by the annual amount of its production, and the production of each of these products tends to follow the trend of cotton production.

This parallelism to the year-by-year trend of cotton is especially close in the case of cottonseed, while the prices of linters and hulls follow the prices of cottonseed more exactly than those of the other products. Meal and crude oil follow the same general course, changing up or down

PRICE AND PRICE POLICIES

CHART B.—PRICES OF COTTONSEED AND ALLIED PRODUCTS, 1917-1936



Source: Cotton Prices: "Cotton, estimated average price per pound received by producers; United States, 1908-1910 to 1936-1937"; year ending July 31; United States Bureau of Agricultural Economics, Division of Statistical and Historical Research, table; and United States Department of Agriculture, *Agricultural Statistics*, 1937, p. 98.

"Cottonseed: average price per ton received by producers," year ending July 31; United States Department of Agriculture, *Fats, Oils, and Oleaginous Raw Materials*, Statistical Bulletin 59 (May, 1937), p. 78; and United States Department of Agriculture, *Agricultural Statistics*, 1937, p. 104.

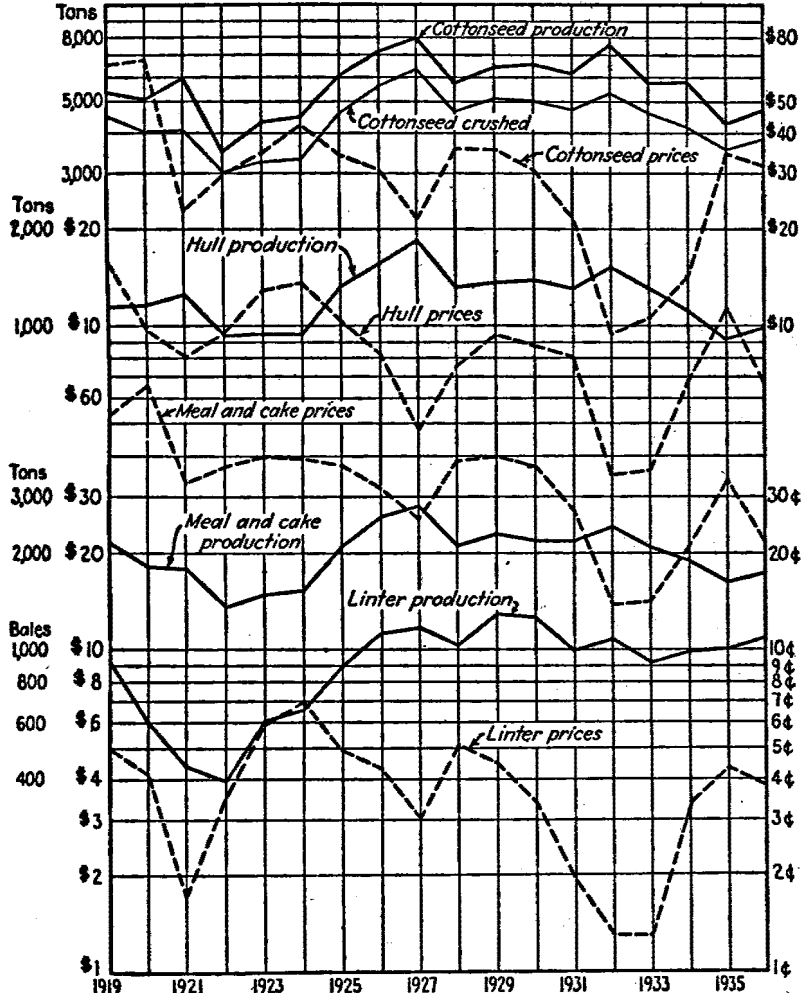
Lard Prices: "Lard, Prime Steam, prices in earload lots, per 100 pounds, at Chicago," year ending Dec. 31; United States Bureau of Agricultural Economics, *Prices of Hogs and Hog Products, 1905-1936*, Table 6. Cake and Meal, Crude Oil, Hulls, and Linters, year ending July 31, *United States Statistical Abstract*, 1936, p. 663, and computations based on United States Bureau of Census, *Cotton Production and Distribution*, Bulletin 174, pp. 4, 54.

The data for cake and meal, hulls, crude oil, and linters, unlike those for cotton and cottonseed prices, are not actual average farm prices. They are computed by dividing the total value of each product produced in a given year by the amount produced during that year. They are, therefore, really average per unit values for the whole country. Since there are no actual prices available for these products for the entire country, these per unit figures are regarded as more representative of the national situation and are better for comparison, in the following tables, with production than any of the more familiar local price series would be. As a matter of fact, these per unit values follow about the same year-to-year course as such local series as Crude Oil and Linters at Southeastern Mill Points and Memphis 41 per cent Meal.

COTTONSEED

at about the same time as cottonseed prices; but their low points are not so deep and their high points, especially in the case of crude oil, tend to

CHART C.—PRODUCTION-PRICE RELATIONSHIP OF COTTONSEED, COTTONSEED MEAL AND CAKE, COTTONSEED HULLS AND LINTERS, 1919-1936



Source: Data from Charts A and B.

flatten out. In the case of oil this is undoubtedly due to the influence of its most important derivatives, lard compound and vegetable lard substitutes, whose price curves remained relatively level from 1921 through

PRICE AND PRICE POLICIES

1930.¹ The annual prices of lard, the main competitor of vegetable shortening, will be seen to move with very little relation to the fluctuations in prices of cottonseed, cottonseed oil, or lard compound, except in 1920-1921 and 1930-1933, when the general price level was changing rapidly. However, lard and lard-substitute prices, while not parallel, moved closely together during almost all the period and definitely influence each other.

Chart C compares the production and price trends of cottonseed, cottonseed meal and cake, cottonseed hulls and linters. There is a clear inverse relationship between cottonseed crushed and cottonseed prices from 1919 through 1936. This relationship is equally striking when cottonseed production is compared with cottonseed prices. It will be noted that the peaks of cottonseed crushed in 1921, 1927, and 1932 correspond to the low points in the price trend; while troughs in the trend of cottonseed crushed correspond with the 1924, 1928, and 1935 peaks in cottonseed prices. During almost all the intervening years, production and prices moved in opposite directions. The only exceptions were between 1930 and 1931, when a slight production decline could not overcome the effect of sharp decline in the general price level; and between 1922 and 1924, when the sharp price upturn following the low prices of 1921—caused by the large crop and deflation—continued to 1924 in spite of a slight increase in production. The 1924 price rise was probably influenced by the decline in that year of oil production and consumption.

It seems clear then that generally a decline in average yearly cottonseed prices corresponds to an increase in the amount of cottonseed crushed, and conversely that a rise in average yearly cottonseed prices generally corresponds to a decrease in the amount of cottonseed crushed. It is also clear that cottonseed prices have no effect on the size of the seed crop, which is determined by the size of the cotton crop, which in turn is determined by factors having nothing to do with the seed situation. If prices influenced the amount of seed crushed, the effect was so slight that in no year did it make the crushing-price relationship any different from the production-price relationship. It would, therefore, appear that generally supply—which, since seed carry-over is not important, is essentially seed crushed—affects seed prices inversely. Carried back two steps further, the yearly rise or fall of cottonseed prices depends primarily on the size of the cotton crop. However, it should be understood clearly that these inverse relationships between production and price are by no means precise. That is to say, a given rise in production is not always accompanied by the same fall in price.

There is a corresponding inverse relationship between the production and price of cottonseed hulls and between the production and prices of

¹ Except when referring to specific products or statistical series, the terms lard compound, compound, lard substitutes, vegetable shortening, and shortening are used interchangeably to denote any or all shortenings composed of 75 to 100 per cent cottonseed oil.

COTTONSEED

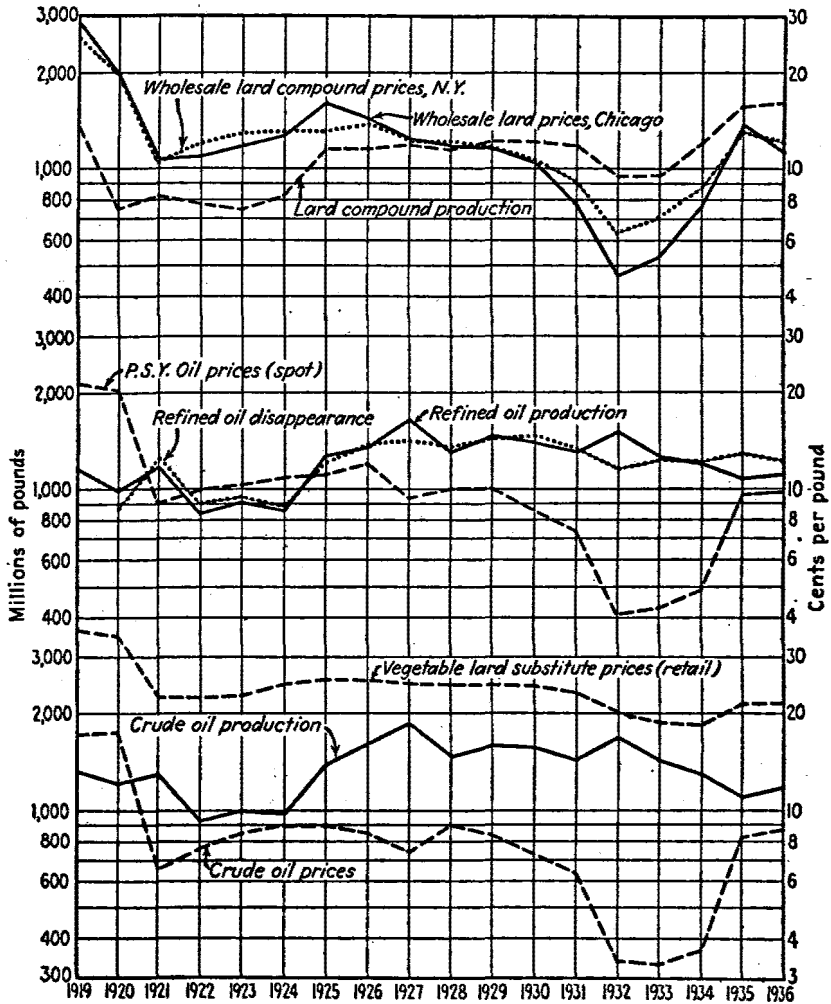
cottonseed meal and cake as exists in the case of cottonseed. This would seem to indicate that the yearly production of hulls, and of meal and cake, is the principal factor in determining their prices from year to year. The production-price relationship of linters was similar to that of the other cottonseed commodities after 1923, with the exception of 1927 and 1935. In the first of these years, the production peak was depressed through a concerted effort of crushing mills to limit the proportion of linters cut. In the second year, in spite of a small cotton crop and the accompanying lower production of oil, meal, and hulls, high prices and an increased export demand apparently caused mills to produce more linters. However, in 1920 and 1921, linter production dropped but did not prevent linter prices from falling along with the prices of the other commodities. Both these declines were accentuated by the closing of war industries which forced a shift in the use of linters from munitions back to mattress making.

There is a similar inverse relationship between the production and prices of crude and refined cottonseed oil and lard compound as was found in connection with cottonseed and the other three primary cottonseed products (see Chart D). As in the other cases, there are some exceptions to this usual relationship. In 1926, for example, there was a peak in lard-compound and refined-oil prices that did not correspond to the rest of the cottonseed price structure. However, its influence was passed down to crude-oil prices and kept them from falling as rapidly as the other cottonseed prices. This peak was apparently caused by the fact that while lard prices declined from 1925, they continued high and lard-compound prices rose to meet them. Compound and refined-oil prices rose especially sharply in June and July, 1926, to meet a decided speculative rise in lard prices (see also Chart F).

The curve for crude-oil prices fluctuates less widely than the other cottonseed products curves, and the price and production curves for lard compound and substitutes—which are made mostly of cottonseed oil—fluctuate even less sharply than those of refined or crude oil (see Charts D and F). But even at this distance from the cotton patch, prices are influenced, even if with diminished force, by the size of the cotton crop. Wholesale lard-compound prices are also influenced by the wholesale prices of its leading competitor, lard, and both price series generally move closely together and in the same direction. Although lard prices seem to be influenced by the number of hogs slaughtered, this production-price relationship is by no means so clear as in the case of cottonseed-lard compounds. However, the sharp rise of lard prices in 1925, which was entirely independent of the movement of the prices of cottonseed products, seems to have been caused by a sharp decline in the number of hogs slaughtered and the amount of lard produced.

PRICE AND PRICE POLICIES

CHART D.—PRODUCTION-PRICE RELATIONSHIP OF COTTONSEED OIL, LARD COMPOUND, AND LARD, 1919-1936.



Sources: Crude oil production and prices: see Charts A and B.
 "Retail Vegetable Lard Substitute. Prices in Cents per pound," year ending Dec. 31; United States Bureau of Labor Statistics, Bulletin 495, Table 9, and *Retail Prices*, January, 1933, p. 6, December, 1933, p. 5, December 1936, p. 12.
 "Cottonseed Oil, Prime Summer Yellow: average spot price per pound, New York," year ending July 31; United States Department of Agriculture, *Statistical Bulletin*, 59 (May, 1937), p. 80.
 "Refined Cottonseed Oil Produced," year ending July 31; United States Bureau of Census, *Cotton Production and Distribution*, Bulletin 174, p. 52.
 Refined Cottonseed-oil Disappearances: computed from United States Bureau of Census, *Cotton Production and Distribution*, Bulletin 174, pp. 51, 52, and earlier bulletins of this series, from "Stocks of Refined Cottonseed Oil" and "Refined Oil Produced," year ending July 31.
 Refined oil disappearances are based on the domestic supply. In most years practically no refined oil has been imported. In the years ending July, 1935 and 1936, however, there were appreciable imports, and, if these were added to the domestic supply for these years, the total refined-oil disappearances would be increased from

COTTONSEED

THE IRRELEVANT FUNCTION OF PRICE

Prices, as the regulators of an industry, are supposed to discourage production and encourage demand when they are low, and to stimulate production and diminish purchases when they are high. This is one of the basic assumptions of the familiar theory that the conduct of an industry may be left to the "automatic" interplay of prices. It is therefore pertinent to note in some detail just what relationships exist between price and quantitative supply and demand in the case of each commodity of the cottonseed price structure.

The yearly production of cottonseed is not affected by its price nor by the price of its four primary products. Its yearly production depends entirely on the yearly production of cotton lint. The production of cotton is determined, first, by the amount which is planted. This seems to depend on a guess of prices in the future, based on cotton prices and production during the preceding year, the amount of carry-over, and, perhaps, to some extent on the demand for cotton goods. Second, it is determined by governmental policy calling for limitation of planting or for crop destruction; and, third, by yield per acre, which is largely governed by the fortuitous events of the growing season, such as the amount of rainfall and the destructiveness of insect pests.¹ Production is also influenced by the customary character of cotton growing, which for countless farmers is the only known way of life. In the minds of the people who plant cotton it is the cotton lint and not the by-product, cottonseed, that is all-important in determining production policy. Changes in the price of seed and conditions surrounding its primary products have no effect on planting.

Nor does the price of seed and that of its primary products seem to have any great effect on the amount of seed sold by farmers to gins and to other seed buyers. Ever since cottonseed attained commercial value and it became customary for farmers to sell their seed, they attempted to sell as much of it as the gins and mills would take; and in recent years the mills have tried to get all the seed they can secure. To a minor extent, when cottonseed prices are extremely low, farmers may take back from the gins some of their seed, in addition to that retained for planting, to use directly for fertilizer or feed; but this is unusual. Over half of the 20

¹ Yield over a period of time is also determined by the quality of seed planted. But insofar as seed for planting is selected carefully, it is the cotton lint rather than the seed to be processed that is given prime consideration.

1,279,000 pounds to 1,581,000 in 1935, and from 1,217,000 pounds to 1,539,000 in 1936.
"Lard Compounds Production in millions of pounds," year ending Dec. 31, United States Bureau of Census, *Animal and Vegetable Fats and Oils, 1932-1936*, p. 8, and United States Bureau of Agricultural Economics, table, "Compounds: Production, . . . and apparent disappearance, 1912-1936," revised Dec. 1, 1937.
Wholesale Lard Prices: "Lard, Prime Steam, prices in carload lots per 100 pounds, at Chicago," year ending Dec. 31; United States Bureau of Agricultural Economics, *Prices of Hogs and Hog Products, 1905-1936*, Table 6.
"Lard Compounds Prices, New York, average price per pound in tierces," year ending Dec. 31; United States Bureau of Agricultural Economics, table.

PRICE AND PRICE POLICIES

to 25 per cent of the cottonseed crop that is not crushed is put aside as seed for planting next year's cotton crop. The remaining uncrushed seed is largely accounted for by seed of poor quality, seed lost in transit, cotton farms located too far away from seed-crushing mills, farmers who have never had the custom of selling their seed, and seed used directly as fertilizer or feed.¹

There is no appreciable carry-over of cottonseed. Practically all the seed that mills purchase moves to them during the four principal ginning months and most of the seed is crushed then and during the three or four following months. The farmers, especially the share croppers and small tenants, who form the overwhelming majority of cotton growers, are in no position to hold back any of their seed because they have no facilities for storing it; because they are generally forced to sell their seed immediately after ginning under a sharing arrangement with their landlords; because when seed is used to cover ginning costs the farmer does not feel it worth while to retain the remainder of his seed; and because any seed that the farmer can sell frequently represents the only real cash that he gets at the end of the growing season and he practically always wants to have it as soon as possible.

Ginners and other seed dealers have generally not carried over seed from year to year because their storage facilities are limited; because adequate warehouses are too expensive for the majority of ginners, who have little capital and weak borrowing power; because there is some danger of deterioration; and because even within a given season the mills have discouraged them from holding seed. But the main reason why they never have resorted to storing or destroying seed to limit supply is that the crushing mills have, through custom, direct ownership, contracts, and trade-association activity, virtually made the overwhelming majority of ginners and even other seed dealers their agents to buy seed for them at a fixed commission or differential. Since the most important part of the ginners' income, which is a substantial proportion of their total income, comes from commissions, there is every inducement for them to earn at least their commission before the end of the season. For the large proportion of gins that are owned by mills, or which have secured loans from mills or have special contracts with mills, the pressure to dispose of seed within the crushing season is especially great. While it is true that gins speculate on the seed they buy within a season, it would be infinitely more difficult for them to hold seed over for speculative purposes until another season because they generally find it difficult to obtain credit and because much of their borrowed capital comes from

¹ Another cause of the spread between cottonseed production and cottonseed crushed is the possibility that the United States Bureau of Census figures for seed crushed are too low and the probability that in certain years the estimate of seed produced based on cotton production is too high.

COTTONSEED

mills which would naturally oppose any activity designed to raise seed prices.

The mills generally carry over practically no seed from season to season because most of them are operating at overcapacity and believe that the more seed they process the lower their overhead costs, regardless of the prices they can obtain from the primary products of the seed. Also it is much safer to store products than seed.¹ The supply of cottonseed in a given year is therefore practically equivalent to the year's sales of seed by cotton growers to ginners and other seed dealers.

Price changes also have apparently no effect on the production of meal, hulls, and crude oil, although, as has been noted, they have some influence on linter production. Since there is no appreciable carry-over of seed, the production of the first three products and, to a considerable extent, of linters are direct functions of seed acquired by mills and of the cotton crop. Supply is also augmented by carry-over; but in the case of hulls this is generally negligible and in the case of meal and linters slight. The principal carry-over in connection with the cottonseed industry occurs in the form of crude and especially refined oil, so that for the oil and shortening sections of the industry, supply is the sum of yearly oil production plus carry-over. Or, to be more precise, at any one time the effective supply of refined oil is equivalent to its visible supply, which means its stocks on hand from the current and past seasons, plus refined oil obtainable from existing crude-oil stocks and from cottonseed that is still expected to be crushed.

Changes in the size of oil carry-over and stocks from year to year are essentially the result of shifts in the relation between consumption and supply; and insofar as price affects consumption it influences the part of supply represented by stocks and carry-over. Thus lower per capita consumption of lard substitutes during the depressions of 1920 and the early thirties undoubtedly tended to make stocks accumulate. It is also probable that there was a tendency in 1933 to withhold oil from the market in anticipation of higher prices, and in 1920 to delay oil purchases in anticipation of a price decline. In the one case an inflation was expected to raise prices generally, and in the other a deflation was expected to decrease them. However, changes in stocks are more apt to be caused by other than price considerations. For example, large stocks accumulated in 1927 and 1932 primarily because consumption was unable to absorb a sharp increase in production, and in 1933 because an unusually large carry-over from the preceding year could not be absorbed. They did not accumulate because the unusually low prices which resulted from unusually large production exerted any influence.

¹ The term "products" as used here refers to the four primary cottonseed products—crude oil, cake and meal, hulls, and linters.

PRICE AND PRICE POLICIES

The yearly production of cottonseed, as has been noted, has a decided effect on its price. And similarly, the production of each of its products seems to affect markedly the price of each. In years of large production the price is lower, and in years of small production, higher. The extent to which this production-price relationship is causal will be discussed later; but it is worth noting at this point that in the case of cottonseed, production may affect its prices directly or indirectly. In the latter case, a greater quantity of seed, in conjunction with carry-over of oil and of other principal products, may affect the price of seed. That is to say, if the price of oil—and similarly of the other primary products of cottonseed—is partly determined by its visible supply, which really includes the supply of seed as well as the production and carry-over of crude and refined oil, and if the price of seed is partially determined by considering the value of its finished products, the yearly production of seed has thus an effect on its own price. However, to the extent that seed prices are affected by those of its primary products, seed production indirectly affects its own price in a much more important way through practically determining the production of its primary products, which is the leading factor in determining their prices.

The volume of yearly purchases of cottonseed is not appreciably influenced by either the price of the seed or the price of its primary products. The quantity of seed purchased depends on the yearly production of seed, which in turn is determined primarily by the yearly production of cotton. This is because practically all seed that is offered for sale is purchased by mills. Most of the mills claim that they are suffering from overcapacity and as a result constantly compete with each other to obtain as much seed as possible. Even in years when the mills obtain low prices for their products, they continue to buy as much seed as possible in order to maintain control over their sources of raw material. They fear that should they reduce their purchases, their rivals might capture some of their seed supplies for all time. Each mill seems to operate on the theory that it must, at all costs, maintain a constant and dependable supply of seed.

Demand for most of the cottonseed products seems to be practically as absorbent and as independent of yearly price fluctuations as for cottonseed. Prices of meal and hulls seem to have no effect on the amount purchased except in extreme cases, because generally all that is offered for sale is bought, and the amount offered for sale depends on the size of the crop.¹ It is probable that if meal prices were much higher than equivalent and equally available fertilizers and high protein feeds, and if hull prices were much higher than equivalent and equally available bulk feeds, their sales would fall off. Also if competitive products should flood the market, sales might decline. But such situations are primarily

¹ There are some regional exceptions due to nonprice factors.

COTTONSEED

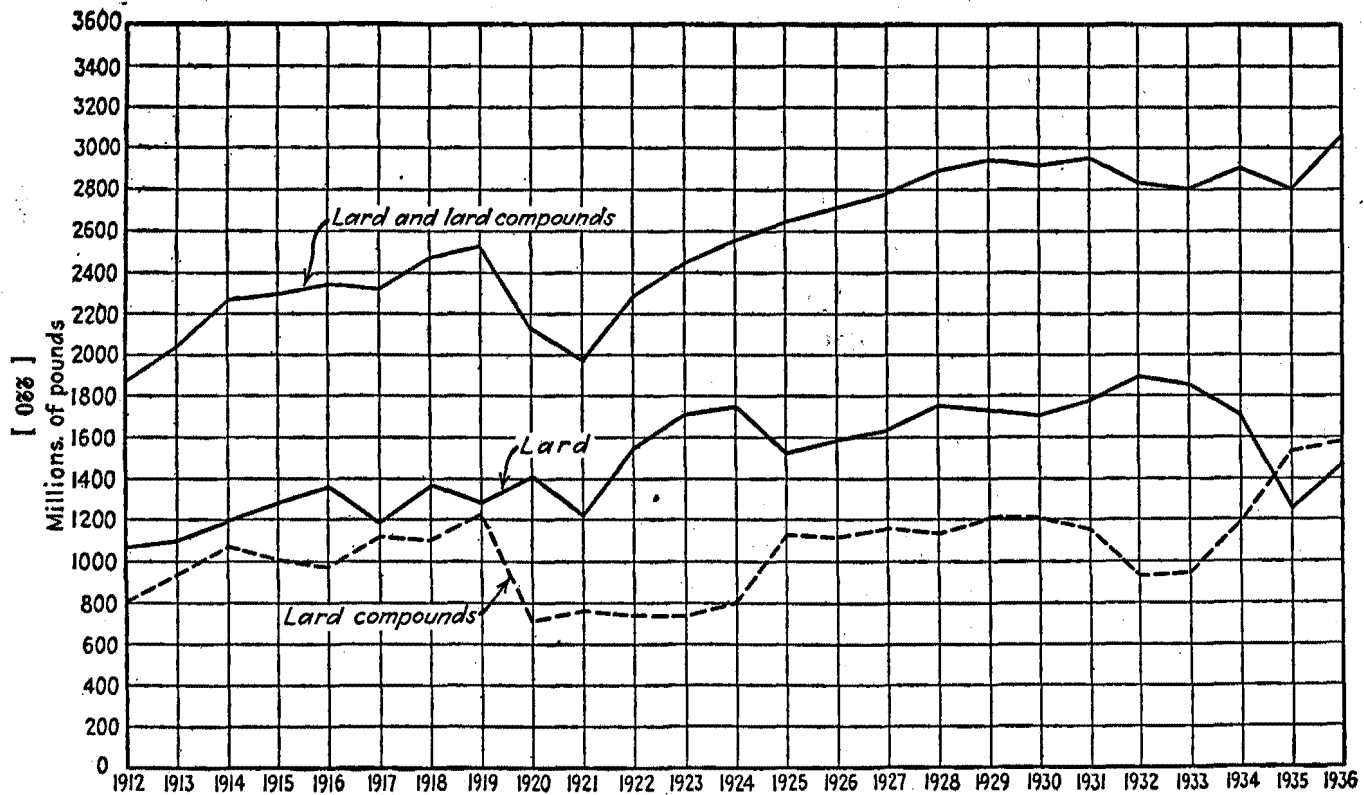
potential, and in practice merely tend to keep the prices of cottonseed products in line with those of their competitors rather than to affect the quantity of purchases.

Prices also seem to have relatively little effect on changes in the consumption of crude oil. Generally, during a given year, as much crude oil as is produced is refined. Crude stocks are largest during the crushing season and diminish as the year advances. They do not change so much from year to year as do refined stocks because carry-over is mostly in the form of refined oil. Insofar as crude carry-over fluctuates, what will be said about refined carry-over largely holds for it.

The demand for refined oil is also very absorbent; prices seldom have a positive influence on consumption. This is due, to a considerable extent, to the nature of domestic consumption of lard compounds, the principal product of refined oil, and of its principal competitor, lard. The combined domestic disappearance, or consumption, of lard and lard compounds increased steadily year by year from 1912 through 1931, except for a minor decline in 1917 and a considerable decline during the postwar readjustment years. There was also a falling off of consumption during the depression years, 1932 through 1935. What is most striking is the gradual steady upward secular trend of the combined domestic consumption of lard compounds and lard regardless of fluctuations in price, or in the consumption or production of either (see Chart E).

The amounts and proportions used domestically of each of the two products varied inversely to each other from year to year, but their sum slowly increased. Any excess of production over consumption, except for small stocks, was exported. Lard comprised most of the exports, lard-compound exports having been virtually negligible and having tended to decline steadily. The fluctuations in these exports, which absorbed surpluses and enabled the total domestic consumption of the two products to increase steadily, were supplemented by fluctuations in exports of oil, which tended to be highest in years of high production. Thus oil, which might have increased the supply of shortening, was in certain years withheld from manufacture and from the domestic market. If exports were no longer possible, it is probable that surpluses would accumulate and lower prices would result, unless new uses for shortening or for refined oil or for lard were discovered. But even in this case it is unlikely that the lower prices probably resulting from the suddenly increased domestic supply would increase demand for lard and lard compounds appreciably, because the uses of these products are limited and their consumption is amazingly constant in spite of price changes. The regularizing of domestic demand, through letting lard and compound counterbalance each other and through exporting surpluses, apparently has been made possible largely by the domination of both parts of the industry by identical companies. In addition, the frequent fortuitous inverse relation-

CHART E.—DOMESTIC CONSUMPTION OF LARD AND LARD COMPOUNDS, 1912-1936



For source see page 221.

PRICE AND PRICE POLICIES

COTTONSEED

ship between cottonseed oil and lard production, as noted above, has undoubtedly had an influence.

The extent to which demand fails to keep up with or runs ahead of supply is indicated, in the case of refined oil, by changes in stocks or carry-over. But there is no evidence indicating that lower prices encourage consumption and diminish stocks, or that higher prices discourage consumption and increase stocks, as they should if they performed their theoretic economic function. On the contrary, insofar as one can generalize, high carry-over or stocks tend to come at the end of years of low prices, and low carry-over and stocks tend to occur at the end of years of high or medium prices. However, this does not mean that prices caused these carry-over situations. In 1927, 1932, and 1933, for example, the high stocks and carry-over were not the result of low prices, but were due primarily to the unusually high production during 1927 and 1932. And the falling off of demand in 1920, 1932, and 1933, as expressed in per capita consumption, was due to falling off of purchasing power and not to lower oil or shortening prices; although it is undoubtedly true that an even more drastic price reduction might have increased purchases and caused some bankruptcies.

Demand for cottonseed, as expressed in the volume of seed purchased in a year, does not seem to affect the price of seed, except insofar as the desire to purchase seed represents a constant demand for the total available seed supply and as a result gives added importance to the effect of changes in supply on prices. The quantitative yearly purchases of the primary products of cottonseed have an effect on the price of seed insofar as they affect the price of the primary products, which probably also affects the price of seed. Demand for the products, as expressed in yearly purchases, generally plays a negative part in determining price and through its absorbent quality permits supply to exert the main influence in year-to-year price changes. However, in certain years demand augments the effect of supply. Thus in 1927 and 1932 lagging disappearance supplemented the influence of large stocks and unusually large production in causing decidedly lower refined-oil prices. In 1934 an unusually great need for meal in the drought area, along with diminished production due to the crop-reduction program, resulted in decidedly higher meal prices.

This survey of year-to-year production-price relationships of cottonseed and its products leads us to certain conclusions regarding the nature of their prices. First, with minor exceptions, prices generally have

Sources: "Lard, including neutral lard, apparent disappearance in continental United States": United States Department of Agriculture, *Statistical Bulletin* 59 (May, 1937), p. 62, and United States Bureau of Agricultural Economics, *The Fat & Oil Situation*, March, 1937, p. 10. The figures for 1932-1936 are preliminary.

"Lard compounds, apparent disappearance": United States Bureau of Agricultural Economics, Division of Statistical and Historical Research, table, "Compounds: Production, . . . and apparent disappearance, 1912-1936," revised Dec. 1, 1937. The figures for 1935-1936 are preliminary.

Lard and lard compounds, apparent disappearance: The sum of lard disappearance and lard compounds disappearance. Year ending Dec. 31.

PRICE AND PRICE POLICIES

no economic function in determining quantitative supply or demand. At most their influence is potential and negative. It has been seen that prices do not affect production, except in a limited way in the case of linters; that fluctuations in carry-over of cottonseed and all its products, except refined oil, are unimportant so that, even if price should exert any influence on them, this may be ignored; that changes in refined-oil carry-over are due primarily to shifts in the production-disappearance relationship, in which production plays the active role and in which price occasionally plays a minor one on the consumption side; and that the probable withholding of oil in anticipation of a general rise in prices in 1933 was exceptional and probably did not play as important a part in augmenting stocks and carry-over as the large crop of 1932 and the falling off of per capita consumption.

It also has been seen that consumption, or the demand for cottonseed and its products, is extremely absorbent and generally follows production closely regardless of price; that in the two principal cases where refined-oil consumption lagged behind supply, it did so in spite of decided decreases in price; that low prices in 1927, 1932, and 1933 did not increase consumption enough to absorb the surplus; that in 1920 and 1932 disappearance lagged partly because a general depression lowered purchasing power and reduced purchases; that the high prices of 1926 did not discourage consumption and were accompanied by a low carry-over; and that, apparently, to date no decrease in prices has been large enough to increase consumption enough to be noticed, and high prices have not resulted in lower consumption.¹ From the standpoint of regulating the production of an industry or affecting the habits of consumers, year-to-year price fluctuations, with the partial exception of linters, appear to be largely useless.

In the second place, it has been seen that year-to-year price changes of cottonseed and its products have been largely the result of year-to-year fluctuations in production accompanied by an extremely absorbent but apparently limited demand. Price fluctuations as determined in this way are largely irrelevant to the needs of most of the groups connected with the industry. It is surely not to the interest of purchasers of cattle feed, shortening, or salad oil, or even of many purchasers of linters, to have the prices they pay determined largely by the size of the cotton crop—determined as it is by forces beyond the control of the cottonseed industries. And certainly such capricious yearly price fluctuations, which are not necessarily related to changes in purchasing power, are a disadvantage to consumers. For the majority of cottonseed producers, this irregularity in prices is but an aspect of an uncertain life on the margin of subsistence. For ginners and cottonseed crushers and refiners, these

¹ The 1920 situation of high prices and lagging disappearance was largely the result of an unusual speculative situation and of postwar industrial and market readjustments.

COTTONSEED

changing yearly prices, along with monthly and daily fluctuations, are a reason for their being speculators as well as processors. And to an even greater extent, month-to-month, day-to-day, or even minute-to-minute price changes—based as they are largely on speculative activity and on production and consumption realities and rumors almost entirely independent of cost considerations—are essentially irrelevant to the requirements of industry and the consumer.

The larger year-to-year movements within the cottonseed price structure, and their relation to yearly supply and demand factors, at most indicate certain limits to the various activities comprising the industry. They are no more than indications of certain relationships between various groups where they come together at some point in the productive process. Taken alone they indicate very little about the basic industrial situation and leave much to be explained about themselves. It will be the task of the following chapters to examine in some detail the arrangements within the cottonseed industry.

THE FORM OF THE INDUSTRY

The structure of the cottonseed industry of the United States roughly resembles a pyramid. At the base are over 1½ million cotton growers, above whom are successively some 12,625 active cotton gins, 471 cottonseed crushing mills, and about 70 cottonseed oil refineries. Five companies account for over 70 per cent of all cottonseed oil refined, and five refining companies produce 85 per cent of all vegetable shortening. The control is essentially from the apex to the base of the pyramid. A better comparison would be to a funnel through which all cottonseed and cottonseed-oil products must be drawn. The influence of each refinery at the vortex is much greater than the influence of each cotton grower at the outside; and each crushing mill and gin in between has more influence than the cotton grower and less than the refinery. To change metaphors again, on the whole the nearer the bottleneck, the greater the bargaining power.

These pictures, however, are oversimplified, for it must be borne in mind that cotton and cottonseed each take a separate road after leaving the gin; that crude oil, meal, hulls, and linters follow different channels from each other after leaving the crushing mill; and that future exchanges—although standing one side of the productive process—have an important indirect influence on price. It should be noticed further that the apex of the cottonseed-oil pyramid meets the apex of the lard-production pyramid; that is to say, the "big four" meat-packing companies not only produce 48 per cent of the federally inspected lard, but also produce 65 per cent of all vegetable shortening produced in the United States. Let us proceed then to examine the various parts of the industry, constantly keeping in mind that the different prices comprising the cot-

PRICE AND PRICE POLICIES

tonseed structure merely manifest themselves at those points where goods move from one part of the industry to the next, or rather from one bargaining unit to the next.

Price in a Nonpecuniary Economy. Cotton farming in America is carried on under a variety of arrangements, most of which involve some form of tenancy. Over one-third of the cotton farms of the country are operated on the share-cropping system, under which it is generally understood that the cropper will divide his cash crop—which is almost entirely cotton—equally with his landlord, who agrees to supply the land, a ramshackle house, tools, seed for planting, a mule, and at least half of the fertilizer. Since the cropper brings practically nothing but himself and his family to the cotton-growing arrangement, he must be supplied with food and other bare necessities of life during most of the year, or, in vernacular, must be “furnished.”

At the end of the growing season, the cropper takes his cotton to be ginned. The landlord takes his half of the lint, and the share cropper theoretically receives his half. In practice, however, the landlord generally takes care of selling the cropper's share. In fact he frequently “buys” it himself. He can treat the cropper's share rather arbitrarily because all southern states provide the landlord with a statutory preference lien on the tenant's crop for rent and for advances to tenants made for strictly agricultural purposes, and because in most states the products raised by the cropper belong to the landlord until sold or divided. The cropper, therefore, only receives cash for his half of the cotton after the advances made to him by the landlord during the course of the year have been checked off against the value of his cotton. With excessively high rates of interest charged for his advances, the high prices of the plantation commissary and local storekeeper, and the fairly frequent practice of arbitrary or downright dishonest bookkeeping, the chances of the cropper's having any of his cotton lint free of debt at the end of the season are relatively slight.

The story of cottonseed in relation to the share cropper is slightly different. In most cases it is shared, like the lint, with the landlord on a fifty-fifty basis. While the lint is sold after ginning to local representatives of large cotton buyers, or may sometimes be held for a time in anticipation of higher prices, most seed is sold immediately after ginning to the ginner, who acts as a seed-buying agent for the crushing mill. In some instances the ginner is the plantation owner. It has become customary for him to deduct the costs of ginning and of the bags and ties required for baling the lint from the price growers receive for their seed. These costs are generally shared on the same basis as the lint and the seed, so that in a fifty-fifty share-cropping arrangement the cropper has his half of the ginning and bags and ties cost deducted from his half of the seed.

COTTONSEED

The amount that he receives for his seed varies considerably from season to season and naturally varies according to the size of his crop. There are further variations from farm to farm and between different regions. In 1929 the median farm of the cotton type produced about six bales of cotton, which would mean that the cropper's share would be three bales.¹ From this he would get about a ton and a half of seed, which at \$30.43 a ton would give him a credit of \$45.64. From this would be deducted his share of the cost of ginning, bags, and ties, which at \$5.99 per bale would be \$17.97. This would leave him \$27.67 net. However, in 1931, with seed prices less than one-third of what they were in 1929, and the costs of ginning but slightly reduced, the average share cropper of the median group of cotton farms received only about \$1.05 net for his seed. His average net return for seed during 1923-1936 was \$25.01, and during the nine years in which seed sold for over \$30 a ton, it averaged only \$34.34.² Even these estimates, which are obviously at best

¹ Acknowledgment is made to H. A. Turner of the United States Bureau of Agricultural Economics for the method used and for his computations of the estimated number of bales produced on the median farm of the cotton type, and for the estimate of the median cash value of the cotton crop of an American farm of the cotton type in 1929.

ESTIMATE OF INCOME FROM COTTONSEED OF A SHARE CROPPER PRODUCING SIX BALES
In 1929 the median group of farms of the cotton type produced six bales, which meant that a share cropper on that farm received three bales

Year, beginning August 1	Average farm price of seed per ton	Average seed income from 3 bales (1½ tons of seed)	Average cost of ginning, bags, and ties per bale	Average cost of ginning, bags, and ties for 3 bales	Average seed income per share cropper
1923	\$42.23	\$63.34	\$6.19	\$18.57	\$44.77
1924	34.08	51.12	6.16	18.48	32.64
1925	30.82	46.23	6.24	18.72	27.51
1926	21.55	32.32	6.22	18.66	13.66
1927	35.95	53.92	6.12	18.36	35.56
1928	35.26	52.89	6.20	18.60	34.29
1929	30.43	45.64	5.99	17.97	27.67
1930	21.93	32.89	5.37	16.11	16.78
1931	9.52	14.28	4.41	13.23	1.05
1932	10.55	15.52	4.31	12.93	2.59
1933	14.21	21.31	4.79	14.37	6.94
1934	34.79	52.18	5.11	15.33	36.85
1935	31.19	46.73	5.03	15.24	31.54
1936	35.41	53.12	4.95	14.85	38.27
Average 1923-1936.....					\$25.01
Average for 9 years in which seed sold for over \$30.....					\$34.34

For seed prices, United States Department of Agriculture, *Statistical Bulletin 59* (May, 1937), p. 78, and United States Department of Agriculture, *Agricultural Statistics*, 1937, p. 104; for costs of ginning including

PRICE AND PRICE POLICIES

rough approximations, are too high for the majority of share croppers, since over half of them operate farms smaller than the median size.¹

It is of significance that seed is generally not covered with debt to the same extent as lint and as a result frequently represents the only cash that the small cotton grower sees at the end of the season. In many instances this freedom from debt has practically become customary. It may be a survival from the early days when seed first gained commercial value and because of its newness was handled somewhat differently from the lint. It is said that in certain instances landlords have even waived any rights they might have to the seed; but insofar as such arrangements exist, it is more probable that they are connected with share-tenant arrangements. However, in some regions, due either to local custom or to the interest of landlords in oil mills, the landlord keeps all the seed.

In many cases, however, the fact that seed provides the small farmer with the only cash he receives after ginning may merely be fortuitous or apparent. While there may be no definite custom that the seed shall not be used as well as the lint as security for advances, in practice a lien would be placed on the seed only after the full value of the lint is exhausted. Undoubtedly in many instances if the lien is on the entire crop, it is merely a coincidence that the actual cash received by the tenant approximates the value of his seed. But whatever the cause of this correspondence between seed value and actual cash, insofar as it exists, it makes the price received for seed seem relatively much more important than its proportion of the total value of the entire crop.

Share-cropping arrangements vary in detail from one section of the country to another and even from plantation to plantation. Although generally the crop is shared on a fifty-fifty basis, in a number of cases, especially in the South Atlantic states, the landlord retains two-thirds of the crop and often all the seed, and sometimes he retains three-fourths of the crop. Share cropping merges into the share tenancy system by which almost another third of the farms of the country are operated. Under it the landlord generally supplies merely the land and cabin and

¹ The use of other methods to obtain an estimate of the average share cropper's seed income (before deducting ginning charges) on the average cotton farm gives somewhat different estimates for 1929, for example, than \$45.64. The higher estimate of \$51.12 is obtained by multiplying the United States Bureau of Agricultural Economics' estimate of average 1929 credit per acre for cottonseed, \$4.69, by the United States Bureau of Census' 1929 average acres per cotton farm, 21.8 acres, and dividing by 2 to get the cropper's share. The lower estimate of \$31.76 is obtained by multiplying the estimate of the share cropper's 1929 income from the cotton crop of the median-type cotton farm, \$234, by the 1929 percentage that seed formed of the total cotton crop, 14 per cent.

bags and ties, estimates of United States Bureau of Agricultural Economics.

NOTE: This table has been made with the assumptions that seed cotton which produces two 500-pound bales of cotton yields a ton of seed; and that the median group of farms of the cotton type produced three bales, not only for 1929 but for all years. In addition to other limitations, these estimates are inaccurate to the extent that the amount the share cropper grows varies from year to year.

COTTONSEED

in return receives one-third of the cotton and one-fourth of the grain. The tenant generally supplies everything else that is needed, but these arrangements vary greatly from farm to farm and merge into share cropping on the one side and cash tenancy on the other. While it is very difficult to generalize about the country as a whole, in most cases the seed is shared on the same basis as the lint, and ginning costs are allocated in the same proportions; that is to say, most share tenants receive two-thirds of the lint and of the seed and must pay two-thirds of the costs of ginning and bags and ties. On the whole, the share tenants are a little better off than the croppers and exercise greater responsibility in the raising and sale of their crops.

Cash tenants, and small part and full owners, generally make a better living than share tenants. They receive their entire crop at the end of the season and may sell it as best they can. Out of their cash income they must pay all living and operating expenses, including rent or interest on mortgage. Cash and therefore cottonseed prices have greater meaning for them than for croppers and share tenants. But when all is raised and paid, few can be said to have had a flourishing year. Small owners, cash tenants, and also share tenants are considerably more numerous in the newer cotton growing regions of Texas and Oklahoma than in the Old South. Plantation owners and other independent landlords, although they frequently have economic difficulties on their own level, generally have a decidedly higher income in terms of housing, food, clothing, amenities, and freedom than tenants and most small owners. They operate their plantations or farms with share croppers and tenants, and with farm laborers hired usually by the week or month, most of whom are even worse off than the croppers.¹ They depend principally on their cotton crop for the cash needed to meet their expenses and to give them, if possible, a profit. Since about one-eighth of their cotton-crop income comes from the seed, they are interested to that extent in getting as much for it as they can. They have an additional interest in income from seed beyond its money value, insofar as they depend on it for ready cash at harvest time. It was this group, supplemented by small owners, that was most vocal in complaining about seed prices during the early thirties.

The overwhelming majority of cotton growers exist on an extremely low standard of living and their plight, especially that of the share crop-

¹ It appears that recently cotton-farm laborers have increased in certain districts where as a result of the government's acreage reduction program certain planters have found it more economical to hire laborers than furnish croppers who produce less. In addition, hiring laborers made it unnecessary to share benefit payments with croppers. Where laborers are employed—whether on plantations in the older cotton growing regions or in the newer corporation-operated irrigated regions of the far West—the employer keeps all the seed as well as the cotton. In these cases seed is merely the source of part of the funds used for paying wage bills and operating expenses and of part of whatever profits are made.

PRICE AND PRICE POLICIES

pers, is extremely serious. Even in 1929 the median cash value of the cotton crop—cotton lint and seed—of an American cotton farm was \$468, which meant a credit on such a farm of \$234 for the share cropper and his family for an entire year. As most share croppers operated smaller farms, they received even less. In return for their efforts, the overwhelming majority received miserable housing; an inadequate diet that frequently breeds pellagra; ragged clothing; long hours in the fields for themselves, their wives, and their children, old and young; scanty education for their children; and lack of security from year to year. Many are tied to the plantation for indefinite periods through being kept in debt at the end of each season. But even the majority are under their landlord's domination and for all practical purposes cannot even challenge his accounting, which determines their incomes. Plantation owners are customarily the absolute masters of their domains. Their control over Negro tenants is especially complete, for it is a cultural truism that white supremacy depends on keeping the Negro subjugated and sufficiently degraded. The recent attempt of croppers, tenants and farm workers to improve their conditions by organizing the Southern Tenant Farmers' Union and the Share Croppers' Union¹ has been fought with malicious violence and legal subterfuge by planters and their lay and official allies, who see an issue of employer absolutism combined with race superiority.

It is difficult to see just what relation price has to this situation of economic degradation and social terror. The prices received for crops seem to have relatively little effect on the miserable level of existence of share croppers and even of most tenants. There is no evidence that the size of advances appreciably varies with prices, while the amount of cash received at the end of the season is largely an aspect of the aesthetics of accounting. According to the United States Department of Agriculture, "It is generally thought that plantation tenants are better satisfied and more stable in occupancy if they have a balance of cash at the end of the year. . . . Therefore a consistent policy of management, wherever possible, conforms to this end."² In other words, cash at the end of the season—whether from seed or from lint—is of more psychological than of material significance.

The lack of meaning of price to the welfare of most share croppers, and even of many tenants, is especially striking in the case of cottonseed. Between 1921 and 1931 its value averaged only 13 per cent of the total farm value of cotton lint and seed. However, a considerable part of

¹ More recently the former organization became a part of the United Cannery, Agricultural, Packing and Allied Workers of America (affiliated with C.I.O.); while some of the members of the latter joined the U.C.A.P.A.W. and others joined the Farmers Union. The future welfare of croppers, tenants and workers who grow cotton will depend in large part on the growing strength of their unions.

² United States Department of Agriculture, *Department Bulletin 1269*, October 18, 1934.

COTTONSEED

this was absorbed in paying the cost of ginning, which must be considered a production cost. The balance available for spending or paying off debts, ranging as it did for the median farm from \$1.05 to \$44.77 during 1923-1936, was even at most a small fraction of total income or credit. In a situation where cash is an aspect of bookkeeping policy and where changes in physical income do not correspond closely to changes in pecuniary income or credit, changes in the fraction affected by cottonseed prices are of little importance. In fact, one is forced to conclude that the price of cottonseed under share-cropping arrangements has little more relation to economic reality than money has among the Trobriand Islanders; and that like money for the Argonauts of the Pacific, the price of cottonseed for the southern share cropper performs primarily a ceremonial function.

The Ginner's Toll. When cotton is picked the farmer generally drives it in his wagon to the gin located at the nearest town or crossroads to have the lint separated from the seed. When his crop has been ginned, the grower—or his landlord—receives the cotton. He may take it home to sell at a later date, or sell it at once to a cotton buyer who starts it through the complicated marketing maze to the factory. At the same time he must purchase from the gin the bags and ties necessary for binding his bales and must pay the ginning fee. If the gin is owned by a plantation, similar transactions nominally take place between a tenant and the ginner-landlord. Practically all the seed, on the other hand, is sold to the ginner immediately after it is separated, although some is still sold to street buyers. The farmer catches enough seed in his wagon for next year's planting and leaves the rest with the ginner.

The price that the grower gets for his seed is largely beyond his control, for only in extreme cases does he withhold seed for higher prices. His bargaining strength is very much weaker than that of the ginner, especially if he is a tenant, because of the pressure which practically compels him to sell his seed at ginning time, because he knows less than the ginner about prevailing prices and the quality of his seed, because his scale of operation is much smaller than that of the ginner and he requires cash immediately, and because, as is frequently the case, when the farmer is Negro and the ginner is white, the latter can augment his economic advantage with racial pressure. As a rule the farmer is compelled to accept the price that the ginner posts for wagon-lot seed. This has generally been the price that the crushing mill posts for car-lot or wholesale seed minus the ginner's commission. In many instances it is very difficult to tell exactly what price a farmer receives for his seed, because he has three or four different business transactions with the gin. Theoretically, the farmer pays independently the ginning fee and the cost of his bags and ties and receives a price for his seed. However, in a

PRICE AND PRICE POLICIES

number of instances, ginners may juggle these three prices and virtually give the farmer more than other ginners will pay for his seed, by charging a lower ginning fee or charging less for bags and ties. In the relatively few cases where ginners buy the farmer's cotton as well as seed, they may give the farmer the equivalent of a seed bonus by paying more than the market price for his cotton.

The gin's seed business is not merely a matter of collecting seed from farmers and selling it to mills at a commission. While most seed is sold in this way and while the farm price of seed on a given day is generally the mill price on that day, minus the commission, many ginners operate their seed business on a speculative basis. First, they may hold some of their seed over for a period of time in anticipation of a rise in prices so that, if their prediction is correct, they receive in addition to their commission the difference between seed prices on the day of purchase and on the day of sale. And second, they may sell seed short in anticipation of a falling market. As a result, the gin spread of a particular lot of seed—the difference between farm and mill prices—is sometimes greater or smaller than the ginners' commission.

Mill-controlled Gins and the Struggle for Seed. Gins sell by far the greater part of their seed directly to crushing mills. In order to be assured of a constant and dependable seed supply, the mills have gotten control, in one way or another, of most of the gins of the country. First, they own outright a considerable number of gins. In 1929, for example, they owned directly 9 per cent of all the gins in the ten principal cotton-producing states and as high as 44 per cent in Oklahoma, 18 per cent in Tennessee, and 12 per cent in Texas. One company alone, the Wesson Oil & Snowdrift Company, owned 117 gins in 1934. Naturally, these gins supply all their seed to their parent mill. Second, mills have attained control of the seed of other gins through making them their debtors and through special contracts. Apparently gins, being very small and seasonal undertakings, have difficulty getting credit through usual banking channels. The mills, anxious to acquire seed in a new or competitive area, have tended to give extremely liberal, and sometimes reckless, terms. Some of their loans are secured by mortgages on gins. In many instances they have made these loans for building gins in regions already having adequate ginning capacity. Whether secured loans are made for building new gins or repairing old ones, they are generally accompanied by a refusal contract which provides that the gin must sell all its seed to the mill making the loan unless it can get better prices elsewhere.

In a similar way, mills obtain an option on all a gin's seed through making short-time and yearly advances, which are generally unsecured. These advances may be for a variety of things; they are generally made

COTTONSEED

early in the season for repairs, coal, bags, and ties—which may be advanced in kind—or other miscellaneous necessities required by the gin before it can commence operations. Advances may also be made to gins by finance or loan companies organized by mills or by banks in which mill owners or their relatives are interested. Presumably, the ginner, knowing on which side his bread is buttered, delivers his seed where expected. During the past few years in certain districts a new practice has developed of making advances on an f.o.b. contract. The mill advances enough money for one to three carloads of seed and when this seed is sent makes another advance for the next shipment.

One of the most important methods by which mills obtain seed from gins is through the commission contract. This device may be used in conjunction with most of the types of mill financing just described as an alternative or supplement to the refusal contract, or it may be used independently of other credit arrangements. Under such contracts the ginner becomes the mill's agent. He buys seed with funds supplied by the mill at a price dictated by the mill so that the seed really becomes the mill's property when purchased from the farmer. The ginner in return receives his commission, which for a number of years prior to the depression of the thirties was customarily set at \$3 per ton. During the late twenties, if not for longer, custom was supplemented by trade-association agreement. However, with the fall of cottonseed and other prices during 1931-1933, this commission dropped in many cases to \$2, \$1.50, and even \$1.

Through their ability to set a maximum spread between wagon- and car-lot seed prices at their own gins and under commission contracts, the mills were virtually able to establish a fixed differential between farm and mill seed prices throughout most of the industry. Even the street buyers and independent seed brokers, who supply the mills with the small percentage of seed which they do not purchase directly from gins, were forced to observe this limit. In other words, the mills tended to establish a system which made the prices farmers received for their seed directly dependent upon the car-lot prices quoted by the mills.

The mills were never entirely successful in maintaining these differentials. There have always been areas in which the mill trade associations were not all-powerful. In such localities ginner apparently have taken a larger spread than the "official" association commission by paying farmers as much below the mill price for seed as they could get away with. Similarly, there have been various means by which mills and gins have sometimes evaded the literal observance of the differential. It has always been possible for a ginner nominally to take the usual \$3 a ton spread on his seed and actually show a larger spread on his books. For

PRICE AND PRICE POLICIES

example, if the trade association's "posted" or "reported" price for car-lot seed is \$34 and a mill pays a ginner \$1 above this (\$35), and if the ginner pays the farmer \$31 for wagon-lot seed, the ginner will have a nominal spread of \$3 between the posted mill price and the farm price. However, his actual spread as shown on his books will be \$4.

A ginner may also be nominally taking a \$3 spread and actually be showing a \$4 one on his books in those cases where mills book seed on a declining market in order to be sure of securing certain seed supplies. In such cases mills inform the ginner—or other dealers—from whom they buy seed that prices are going to go down, but that they will agree to continue to purchase seed from them at the current price, even after the market declines. For example, if the mill price for seed is \$35 when the agreement is made and if at a later date the market has declined to \$34, the ginner can subtract the usual \$3 commission rate from the market price of \$34 and pay the farmer \$31. But since the mill has agreed to continue paying him \$35 for all the seed he delivers, his actual spread will be \$4. Similarly, other contractual arrangements may make the fixed differential between wagon- and car-lot seed based on current farm and mill prices on a given day differ from the spread between farm and mill prices shown on a ginner's books. There is some evidence that during the recent depression years, in certain areas at least, many mills have failed to maintain the differential.¹ However, conclusive evidence is lacking to indicate either the extent or duration of this failure, and there is none to indicate that at any time the mills abandoned their desire to maintain a maximum spread between wagon- and car-lot prices.

As a part of their effort to control seed supplies and to set up price differentials, the mills have shown a great deal of hostility toward independent seed brokers. This is because brokers have tended to hold seed, speculate, and pay higher prices to farmers than gins, all of which tends to raise the price mills have to pay for seed. It is also because it is more difficult for mills to obtain a dependable seed supply from them year

¹ Dickson, A. M., *Cottonseed Prices in the United States, 1934-35* (mimeographed by the Agricultural Adjustment Administration, March, 1936). In this interesting study the author concludes that for the 1934-1935 season while "gins on mill yards apparently endeavored to some extent to maintain fixed spreads or margins between mill prices and gin prices; . . . nearby gins, apparently, did not attempt" this. Unfortunately the evidence for the latter part of this conclusion is inconclusive for several reasons. First, although the sample for mills and mill-yard gins seems to be adequate, the sample for "nearby" gins covers only a small fraction of such gins. Second, the assumption that a "nearby" gin sells its seed to the nearest mill leaves one with many doubts. It seems to substitute concepts of geography and of the behavior of conventional economic men for the reality of contractual arrangements and of a severe competition for seed supplies. And third, as has been indicated above, there have always been situations in which the spread on the books of a gin have differed from the reported mill-farm price differential.

COTTONSEED

after year than from gins. As a result the mills largely forced the independent brokers out of the industry through their 1928 trade association rule which required brokers to receive their commission from the seller instead of from the buyer. Since the brokers' commission was greater than the additional amount they offered for seed over ginner's wagon-lot prices, there were few farmers who would continue to patronize them.

Mills also buy seed in car-lot or wholesale quantities through 50-cent commission buyers whom they employ. These buyers usually receive 50 cents for each ton of seed they purchase. They are distinguished from brokers in that they work for only one company. Numerous mills complained that many 50-cent buyers, such as ginner's wives, perform no service whatever and accused some of their competitors of paying higher prices for seed under the disguise of such functionless commissions. The national and state trade associations have been active in trying to end this situation, and have forced all bona fide 50-cent commission buyers to be registered with the national association. They also definitely fixed this commission at a maximum of 50 cents per ton; but during the depression of the thirties, it was, in certain instances, lowered.

Back of these efforts to control the sources of seed is the actual and potential vigorous competition existing between the mills of a particular district. It is rather a competition for securing essential raw materials than one of price. Each mill tries to establish its own sphere of influence through dominating as many gins as possible so that it will be assured, over a period of years, of a constant and predictable seed supply. Obtaining the maximum amount of seed is a critical problem for practically every mill because it is generally believed, and on the whole correctly, that there is a considerable excess of productive capacity. Each mill is, therefore, extremely anxious to utilize as much of its capacity as possible in order to cut overhead and unit costs to a minimum. Since the total amount of available seed for the entire country and for any one district is the result of crop factors beyond their control, mills have been compelled to compete with each other for the existing supply.

The degree of competition for seed in a given district depends upon the number and size of the mills in relation to the seed supply that is within their reach. It is also affected by the number of different companies and the type of contractual arrangements between mills and gins. It would be impractical for certain gins to sell their seed to more than one mill; but gins located near large terminal milling cities may be within easy transportation distance of a number of different mills. In the latter case, if there are not enough gins to supply the needs of all the mills in the district, there is a tendency for prices to be somewhat higher than elsewhere.

PRICE AND PRICE POLICIES

The Functions of the Crushing Mill. The cottonseed crushing mill, or oil mill as it is frequently called, is in a sense one of a series of agricultural processing plants between the farmer and the consumer. In another sense it is the heart of the cottonseed industry because it is here that the seed is broken down into its four products: crude oil, cake and meal, hulls, and linters. It is from here that the industry branches out into a wide variety of places. The oil and linters may be regarded as semi-raw materials. The oil is shipped to refineries, where various impurities are removed and where it is processed further so that it may be utilized as salad and cooking oil and vegetable shortening. The linters are sent to cellulose and upholstery plants, where they are transformed into a myriad of products ranging from ladies' stockings to roofing. Cake and meal and hulls, requiring no further processing, are in a sense finished products, unless animal feed and fertilizer can be considered raw materials.

When seed arrives at the mill, it is generally placed in a carefully built warehouse, where the seed is kept dry so it will not deteriorate and where it is well ventilated so that there is no danger of spontaneous combustion. From there it is moved into the plant, where it is subjected to a series of processes. After as much foreign matter as possible is removed, it is ready to be delinted; that is, the short fibers or linters adhering to the seed are cut off. Sometimes just one cut is made, producing what is known as mill-run linters, and at other times two cuts are made, which are designated by the trade as first- and second-run linters. The seed is next put through a machine which removes the hulls, or outside covering. The kernel—what remains of the seed—is put into large kettles and cooked. While still hot, it is wrapped in coarse cloths and placed in a large hydraulic press which under great pressure expels the oil. In a few plants chemical processes are used instead of presses. The very hard substance which remains in the cloth after the oil has been forced out is known as cottonseed cake. After it cools it may be bagged and sold in large hunks as cake; more frequently it is ground at the mill and sold in bags as cottonseed meal.¹ The relative value of the four primary products varies somewhat from year to year. However, crude oil generally accounts for over half of the total value, cake and

¹ Most mills also recover three minor waste products known as motes, grabbots, and flues. Motes are particles of seed husk. Grabbots are hunks of cotton lint that have escaped from the gin and come to the mill mixed into the seed. Flues are nothing more than cotton fluff and are primarily gotten from crushing-mill sweepings. Grabbots and flues are used for about the same things as linters or are reconditioned as low-grade cotton. The value of all three products is relatively slight, but conscientious millers collect them and add slightly to their total income through their sale when prices are high. However, when the market is very low they are not sold at all.

COTTONSEED

meal about one-third, hulls from 3 to 7 per cent, and linters from 2 to 12 per cent.¹

In the early days the crushing mill occupied a place somewhat similar to the cotton gin or old-fashioned gristmill. It was located in a community surrounded by farmers and ginners, who were close enough to cart their seed to the mill for processing and to get in return feed for their livestock and fertilizer for their fields. Some of the smaller country mills with two or three presses still occupy this position. But with large companies playing an increasingly important part in recent years, with the improvement of highways and the greater use of motortrucks, and with the widening markets for meal and cake, the larger terminal mills in cities and at railway centers have become increasingly important.

Mills carry on a variety of businesses and have a number of different connections with the rest of the economic system. In addition to being a processing plant, most mills also operate a retail feed and fertilizer business. For years it was customary for mills to exchange meal for the seed they bought on a pound-for-pound basis. They either did this directly at

1
PERCENTAGE THAT VALUE OF CRUDE OIL, MEAL, HULLS, AND LINTERS ARE OF TOTAL
VALUE OF COTTONSEED PRODUCTS

Year	Crude oil	Cake and meal	Hulls	Linters
1916-1917	53.4%	26.0%	4.9%	15.7%
1917-1918	60.4	27.0	5.2	7.4
1918-1919	59.2	30.3	4.7	5.8
1919-1920	59.5	33.8	3.2	3.5
1920-1921	54.1	37.3	6.4	2.2
1921-1922	52.2	36.4	6.5	4.8
1922-1923	49.0	34.1	7.0	9.9
1923-1924	48.4	32.5	7.0	12.1
1924-1925	52.6	32.9	5.7	8.8
1925-1926	54.2	31.8	4.9	9.1
1926-1927	59.2	30.2	3.7	6.9
1927-1928	53.4	32.5	4.0	10.0
1928-1929	50.5	34.2	4.8	10.5
1929-1930	50.1	35.8	5.3	8.8
1930-1931	54.0	34.5	6.2	5.3
1931-1932	56.1	32.3	5.1	6.5
1932-1933	54.1	33.7	5.4	6.8
1933-1934	43.3	35.3	6.7	14.7
1934-1935	51.7	30.4	5.8	12.1
1935-1936	60.5	23.1	3.9	12.5

Arranged from The Federal Trade Commission's *Report on Cottonseed Industry*, Part 13, p. 16707; and computations based on United States Bureau of Census, *Cotton Production and Distribution*, Bulletin 174, 1937, p. 54.

PRICE AND PRICE POLICIES

the mills with gins or they left a supply of meal with the gins which they owned or controlled. However, as the value of cottonseed meal increased in relation to its bulk and became worth more than an equal weight of seed, this exchanging practice became very unpopular with the mills and during the late twenties was generally stopped in most districts. Mills also sell a considerable amount of meal and most of their hulls to local farmers, who come directly to their plants. As we have seen, many mills also operate gins and several of them, as will be indicated shortly, are in their turn owned by refining companies. A number of crushing mills also perform additional functions to supplement their income. For example, in western Texas some mills operate stock-feeding farms in proximity to their mills, a number operate fertilizer plants, and several sell ice in the off season. In fact one miller went so far as to say that he ran "a gin, ice, and fertilizer business," indeed a strange industrial cocktail!

The ownership of cottonseed crushing mills is of three principal types. First, there are the independents that include most of the country mills and a large number of terminal mills. Their owners are generally also their managers and live near the plant. Second, there are the chain mills, which are independent of refiners. All the mills of a chain are generally located within two or three neighboring states. Mills are also owned by the large cottonseed refining companies. Three of them, although operating a minority of the mills, occupy a key position in the industry. The Procter & Gamble Company owns 13 mills through its subsidiary, the Buckeye Cotton Oil Company; the Wesson Oil & Snowdrift Company owns 84 mills through the Southern Cotton Oil Company and its other subsidiaries, while Swift & Company owns its mills directly. In 1931, the ten leading groups of chain and refinery mills operated about 178 mills with over 1,200 presses, which represent approximately 45 per cent of the total number of active presses in the ten principal cotton-producing states.

The significance of these groups can be appreciated when one realizes that although crushing mills are scattered across the cotton belt without respect for geographical boundaries, the industry has been essentially organized within state lines. In 1933 the percentage of total output controlled by chain and refinery groups was 70 in both North and South Carolina, 60 in Georgia, 45 in Alabama, 75 in Mississippi, 80 in Arkansas, 85 in Louisiana and Oklahoma, 65 in Texas, and 95 in Tennessee. In most of these states two or three companies accounted for most of the group total. The two largest companies, Buckeye and Southern, which operated crushing mills respectively in six and nine of the ten principal cotton states, together crushed about 20 per cent of the United States total. However, important as is their influence, neither of these two companies

COTTONSEED

nor the ten leading groups can be said to control or set prices for the entire industry, except as they do so indirectly through the important role they play in the cottonseed trade associations.

THE FABRIC OF TRADE ASSOCIATIONS

In spite of the important part played by large companies and by chains, a great deal of actual and potential competition exists within the industry. It has been largely to keep this within certain manageable bounds that the crushing mills have developed their flourishing trade associations. There are certain phenomena which they have been unable to direct and which they have apparently assumed to be beyond their control. Among these are the year-to-year price movements, which depend primarily on the size of the cotton crop, shifts in demand caused by changes within other industries, and month-to-month and even day-to-day price fluctuations resulting from real or assumed shifts in quantitative supply and demand.

The crushing mills have accepted this world of flux and have tried to regularize the rest of their existence within its limits. They have acknowledged the inevitability of motion, but have attempted to equalize its effect. So long as all move in unison and none can steal a march, temporal motion loses much of its threat. To create a level of competition, they have tried to establish for all companies in the seed-buying field a *status quo* in relative spheres of influence and have endeavored to abolish as far as possible price competition between companies. They have used their associations to set maximums for certain elements in the total price, such as seed dealers' commissions. They have used them to define the exact meaning of a quoted price, as in grading. And they have employed them in the attempt to make all mills within a given area adhere to the same price at a given time.

The first national association was founded in 1897 as the Interstate Cottonseed Crushers' Association. In the early years, it was primarily active in advertising the virtues of cottonseed products and in using its influence to abolish all tariffs and other laws interfering with their sales. It gradually developed an elaborate set of trading rules, port controls, and arbitration facilities for its disputing members. At the same time nominally independent associations existed in each of the leading cotton-producing states. They attended to matters of local interest, and in certain cases posted and reported prices; but with the exception of the Texas association they did not have trading rules. However, the membership of the national and state associations was about the same, and the secretaries of the latter were voting members of the former. A semi-national organization known as the Sons of Plato existed for a number of years prior to 1917. The crushers who formed its membership appar-

PRICE AND PRICE POLICIES

ently met in secret conclave under the guise of a fraternal order and during the course of the evening fixed prices and prorated seed among themselves. Its romantic existence was suddenly ended when it became the subject of antitrust investigations and prosecutions.

As part of a plan for greater centralization, the Interstate Association was reorganized as the National Cottonseed Products Association in July, 1929, and during the summer eight state associations became divisions of the new national organization. The Texas and Oklahoma associations, however, maintained their individuality. Over 84 per cent of the active crushing mills of the country belonged either to the N.C.P.A. or to these two state associations.

The crushers' associations exist primarily to promote their trading rules. Most of these concern price and are based on old customs and practices. In 1928 they were clarified and brought together in the so-called Memphis Code of Ethics, which was approved by the Federal Trade Commission after a trade practice conference held under its auspices. The principal price-reporting provisions were classified in the group of trade practices, the violations of which were designated as unfair methods of competition. Certain other supporting rules were grouped as sections merely expressing the opinion of the industry with regard to fair and unfair methods of competition. In October, 1929, the United States Senate passed a resolution directing the Federal Trade Commission to investigate conditions in the cottonseed industry. During the course of its investigation the commission became aware of the price-fixing tendencies of certain provisions in the first group of trade practices. When its final report was submitted in 1933, it officially shifted its position and issued a formal complaint charging that certain practices of the industry constituted a conspiracy in restraint of trade.

The general counsel of the national association stated that one of the main objects of the code was "the publication of a uniform f.o.b. price." He might have added that its prime objective and that of the whole association was to establish uniform prices for each section of the industry. The elaborate seed-grading system and the series of rules standardizing the terms of sale had as their main purpose the definition of price. Unless the precise meaning of a quoted price is agreed upon by all, price reporting is meaningless and enforced uniformity is impossible. In order to prevent special sales arrangements from hiding the significance of a quoted price and from creating competition through subterfuges, the crushers insisted that all employ identical terms of sale. They ruled that the "payment or allowance to sellers of seed or buyers of products thereof, of commissions, bonuses, rebates, or subsidies of any kind, confidential prices or the use of any device which does not include in the price paid or bid the entire consideration is hereby declared an unfair method of competition in the

COTTONSEED

form of commercial bribery." In the same connection they ruled out the old custom of exchanging cottonseed meal for cottonseed on a ton-for-ton basis.

Quality and the Price of Seed. A system of seed grading has two main purposes. First, it must be included as an integral part of any highly developed price-reporting or price-uniformity program. It is essential to know exactly what quality of seed a quotation represents and to have some automatic means of relating "off grades" to a basic grade in terms of price. And, second, it is a convenience in making and settling sales contracts with a minimum of friction.

In the early days it was assumed that most of the seed within a district was of the same quality. The same price was paid for all seed, unless some was obviously damaged. In that case a deduction of some sort was made. This method is still generally used in sales between farmers and gins, but has been largely displaced in transactions between gins and mills. The quality of cottonseed is actually far from uniform. It varies widely with the season, the region, the seed used in planting, and the care with which it is cultivated and handled. In 1932-1933 samples tested by the Department of Agriculture indicated that the proportion of oil in a given quantity of seed varied from 13.5 to 22.6 per cent, the ammonia content from 2.9 to 5 per cent, and the water content from 6 to 34 per cent, while the percentage of dirt and trash ran as high as 42 per cent. Not only does the quality of seed vary throughout the country, but there are also striking differences between different lots of seed even within a locality.

The first important grading system used for settling seed contracts between mills and seed sellers was the "cut and count" method. It was developed after 1917 by the Interstate Cottonseed Crushers' Association in cooperation with the Department of Agriculture and was made part of the association's trading rules. The system generally was invoked only when seed did not seem to be in reasonably good condition. In that case each seed of a sample was cut with a sharp knife and examined. Discounts were then made from the going price of seed on the basis of the proportion of the sample that was discolored. Final settlement was frequently made only after some higgling. This system has the advantage that it can be performed in the presence of both buyer and seller, but has the disadvantage of being inaccurate and likely to be used by buyers to give what amounts to secret rebates.

The most highly developed grading system was worked out through the efforts of Dr. G. S. Meloy of the Department of Agriculture and certain industrial chemists. It requires very careful sampling and the services of skilled chemists and expensive laboratory equipment. Toward the end of 1933 there were thirty-seven laboratories doing such analytical work, of which approximately 40 per cent were plant laboratories con-

PRICE AND PRICE POLICIES

nected with mills and about 60 per cent were independent commercial laboratories. In recent years all samplers and chemists have been required to be registered with the N. C. P. A. after fulfilling certain minimum requirements. The "Meloy method" provides for a "basis" grade which it defines as cottonseed containing 18.5 per cent oil, 3.5 per cent ammonia, and not over 1.8 per cent free fatty acids in the oil of the seed, not more than 3 per cent foreign matter, nor more than 12 per cent moisture. The percentages for oil and ammonia content were based on the average content of a great many analyzed samples. The free-fatty-acid percentage represents the point beyond which oil becomes so rancid that it cannot be used for food purposes but must be utilized in a less valuable form as soap. The foreign-matter percentage is chosen because most cleaning machines leave about 3 per cent of foreign matter; the water-content percentage represents the point up to which seed may be stored without fear of deterioration. The basis index is 100, and the index of any given sample of seed is calculated by multiplying the quantity index, which indicates the oil and ammonia content, by the quality index, which represents the percentage of free fatty acids, moisture, and foreign matter. For example, the analysis of a basis grade sample would indicate 18.5 per cent oil, 3.5 per cent ammonia, 1.8 per cent free fatty acids, 3 per cent foreign matter, and 12 per cent moisture. Having decided that the basis grade is to be 100, certain mathematical manipulations are necessary to arrive at concrete results. It has been found that a $\frac{1}{4}$ per cent change in the oil content, when the ammonia content remains constant, or a $\frac{1}{6}$ per cent change in the ammonia content, when the oil content remains constant, will change the value of the quantity index by 1 per cent.¹ Therefore to get the quantity index in the sample under consideration, the oil content 18.5 is multiplied by 4, which equals 74, and the ammonia content 3.5 by 6, which equals 21. Their sum only equals 95, so that a constant of 5 is added to bring the basis up to 100. This when multiplied

¹ This method of computation is derived from the oil-cake reciprocal method, which is based upon the combined "value" of oil and ammonia in cottonseed. It is found that the market value of 1 pound of oil is generally about five times the value of 1 pound of meal containing 8 per cent ammonia (41.13 per cent protein). The number of pounds of such meal in a lot of cottonseed is then divided by five to get its oil equivalent, and this is added to the number of pounds of oil in the lot to get the combined value of oil and ammonia expressed in pounds of oil. This sum is then divided by 545 pounds, which is the oil equivalent of the oil and ammonia in the basis grade of cottonseed, to secure the quantity index. (This formula is used only for cottonseed containing 17 per cent or more oil.) The method of computing the quantity index given above in the text was found to give mathematically comparable results to the oil-cake reciprocal method and has been found much easier to use in practice. But whichever method of computation is used, it is important to note that the quantity index is not based merely on physical quantities; it is also based on average market valuations of equal weights of oil and 41.13 per cent meal. For further details about methods of cottonseed grading see G. S. Meloy, *Development of Standards for Grades of Cottonseed* (Mimeographed by the United States Bureau of Agricultural Economics, June, 1935) and Dickson, *op. cit.*, pp. 22-44.

COTTONSEED

by the quality index, which is also 100, naturally equals grade 100. Another sample of seed containing different proportions of oil and ammonia, as frequently happens, might still be grade 100 through having the changed proportions of oil and ammonia counterbalance each other.¹

This grading system obviously is based on a number of arbitrary judgments. The final result would be quite different if average samples are found at some future date to contain other proportions of oil and ammonia, and if the constant, 5, were changed to balance this or were dropped entirely. It also would make a difference if the percentage that will change the oil and ammonia content by 1 per cent were regarded as merely of mathematical significance, and if it were decided that there is no sound reason for believing that a deficiency in the quality index should have the same effect on the price of seed as an identical deficiency in the quantity index.² Arbitrary assumptions, however, do not necessarily invalidate a system. The Meloy method certainly affords a better indication of the physical character of a given lot of seed than any previous

¹ To indicate what happens in a case when a premium is paid, let us take a sample containing 22 per cent oil, 3.87 per cent ammonia, 2.5 per cent free fatty acids, 5.2 per cent foreign matter, and 14.6 per cent moisture. The computations would be as follows:

Oil.....	4 times 22.6 equals	90.4
Ammonia.....	6 times 3.87 equals	23.2
Plus the constant		5.0
		118.6 = quantity index

Free fatty acids, foreign matter, and moisture content, let us say, are within the specifications of subquality cottonseed. The quality index is then found as follows:

Free fatty acids.....	2.5 minus 1.8 equals 0.7	0.7 times 5 equals 3.5
Foreign matter.....	5.2 minus 3 equals 2.2	
Moisture.....	14.6 minus 12 equals 2.6	8.3

100 minus 8.3 equals 91.7 = quality index

Multiplying the quantity index of 118.6 by the quality index of 91.7, one gets 108.7 or a grade of 109. To translate this into terms of price, the price of the basis grade, which we shall say for example is \$35 a ton, is multiplied by the index which we have found for this hypothetical sample to be 109, which gives the price of this seed as \$38.15. In other words, this lot of seed receives a premium of \$3.15 per ton.

² Further evidence of the arbitrary character of this grading system may be seen in the following statement from Dr. Meloy's *Development of Standards for Grades of Cottonseed*, p. 14: "The suggestion that 3.5% reduction be made on account of each increase of 1.0% in the free-fatty-acids content met with considerable protest as excessive from a number of oil mills, and as a compromise, 3.0% was adopted for trial purposes."

It should also be noted that 3 per cent was used in 1929 and 1930 and was raised to 5 per cent in May, 1930. Later some divisions used the 3 per cent and some the 5 per cent reduction. See Federal Trade Commission's *Report on Cottonseed Industry*. Part 13, pp. 15883-15884. In the example in note 1 above, the 5-to-1 ratio is used. If instead the 3-to-1 ratio were employed, the grade in this example would be changed to 110 and the price of seed to \$38.50 per ton, or 35 cents more than if the 5-to-1 ratio were used.

PRICE AND PRICE POLICIES

method. While it is true that the Meloy seed is a hypothetical one, so is the time-honored "normal" or average seed of a district. In creating a seed-grading system—as in selecting weights or base years for index numbers—methodological choices largely determine the result. One set of choices benefits one group; a different set may benefit another. As a standard for price reporting by crushers, the precision of the Meloy seed-grading system is of greater importance than the validity of its assumptions.

In 1928 the Cottonseed Crushers' Association of Georgia introduced the "Modified Meloy Method," which is the qualitative half of the Meloy system. Three other southeastern states introduced it the following season, but seem to have discontinued it. The N.C.P.A. adopted the full Meloy method in 1930 as part of its trading rules, but apparently left it up to its separate divisions to put it into effect. Thereafter, seed was graded by this system throughout the valley section including Mississippi, Arkansas, Tennessee, and northern Louisiana. Two years later the Department of Agriculture made the Meloy method an optional official standard for grading, sampling, and analyzing cottonseed sold or offered for sale for crushing purposes. This gave it legal force only when agreed to in advance by buyers and sellers, which in practice virtually meant when a district of the N.C.P.A. adopted it.

The opponents of seed grading stress three points. First, certain rules and practices are arranged to the advantage of the buyer. Second, the benefits of premium seed are not sufficiently passed back to the grower. Third, the main function of this system is to enable cottonseed mills to establish uniform seed prices with greater ease.

The rules of the national association provide that grading shall be done by the mill purchasing the seed at its own expense. If the seller disagrees with the mill's grading, he may have an analysis made by a commercial laboratory at his own expense. However, the customary cost of an analysis is \$2.50—an extremely expensive procedure for the ordinary small gin or seed seller. There have also been accusations that certain mills and the laboratories which they hire have graded seed too low.¹ The seller is also at a disadvantage because, since seed is graded at the point of delivery, he must take all risks of seed damaged in transit. The overwhelming majority of farmers, moreover, do not receive any direct benefit from premium seed and are not penalized for low-quality seed. Under the Meloy system, few individual farmers can afford to have their seed graded because the expense practically makes it prohibitive to grade less than car-lot quantities; and even when they can afford the expense, it does not give them higher prices for their premium seed in those regions

¹ Mills have also been accused of grading seed too high. This practice would give a mill a competitive advantage, for it is the equivalent of paying more than its posted price.

COTTONSEED

where seed is purchased on the basis of the so-called average grade of the district. It is claimed, however, that the benefit is passed back to most producers through paying premiums or making deductions on the basis of the average seed of a district; but in this case also the seed of a particular grower is not graded according to its actual quality. What does seem to be passed back to the grower is the added marketing costs resulting from grading.

It is also assumed that grading will improve the quality of seed and, therefore, increase the farmer's income. In districts where grading has been in effect for some time there is evidence that seed has been handled with greater care, resulting in lower moisture content and in many fewer tons of dirt being shipped to mills along with seed. However, it is difficult to see why this improved quality of seed should benefit the farmer. If more careful selection of seed at planting time and more careful handling at harvest time result in higher oil and protein content per ton, this would be equivalent to increasing the total supply.¹ For a time this would benefit those farmers who produce high-quality seed as against those who do not—assuming that premiums would be passed back to the grower. But eventually it would tend to hurt the farmers as a whole because a permanently increased supply—other things being equal—would tend to decrease prices. Even if seed grading results in increasingly higher quality cottonseed, which is accompanied by an increasingly large proportion of high-grade seed, it is naïve to assume that the basis price would not be dropped correspondingly or that the definition of the basis grade would not be changed so as to reduce the amount of premiums paid. The history of the relation of piece rates to increasing factory productivity is suggestive in this connection. The benefit of more productive technology was not passed back to the piece worker because when his productivity increased beyond a certain point, his rate was cut.

It is also well to note that the Federal Trade Commission reported that for seven states using seed grading in 1931-1932, definitions of the basis grade were approximately 5 per cent below the actual average content of the seed. This meant that premiums were paid on over half of the graded seed. But this did not mean that farmers received more for their seed than they would have without grading because the basis can be changed whether or not a premium is paid. Just where the basis is set and the proportion of premiums paid becomes largely a matter of policy just as the amount of cash a share cropper receives at the end of a season is a question of plantation accounting. A member of the N.C.P.A. Seed Grading Committee put it, "I have no doubt about the good psycho-

¹ It is true that cotton planted with high-quality seed produces a crop of higher quality seed as well as lint. However, this results in a greater seed yield per acre rather than greater yield per ton.

PRICE AND PRICE POLICIES

logical effect about having more premiums than discounts; that it creates a better and more wholesome situation between the buyer and seller."

The most important result of seed grading, however, seems to be to increase the control of mills over seed buying. In the first place, it has been a factor in making it more difficult for the so-called independent gins and seed dealers to exist. This tends to reduce competition among buyers and lower seed prices. As has been noted, the mills have fixed a definite differential between car-lot and wagon-lot seed prices through their agreements with their own and commission gins. Other seed dealers cannot receive more than the car-lot or mill price of the seed and cannot pay the farmers more than the car-lot price without cutting into their margin. It is generally difficult for the independent to find farmers willing to accept less than the wagon-lot price as set by the mills. Any deductions for low-grade seed must come out of the differential or margin on which the dealer depends for all but his speculative seed income. This reduction of income has pushed some of the independents to the wall.

It is in connection with price reporting that grading has its greatest importance. Accurate quotations cannot be made without a clear definition of the exact quality to which the quotation refers and without some system of relating other grades to the basis price. Realizing the importance of this, the N.C.P.A. in 1930 adopted as one of its rules that "All quotations for cottonseed shall be made on basis cottonseed, f.o.b. shipping point, and all purchases shall be settled on an index relation to such basis cottonseed." Grading then must be regarded as an integral part of price reporting and as an aspect of the crushing mills' efforts to fix or regularize prices for their own benefit. The fundamental problem and effect of grading was indicated by the editor of the *Cotton Oil Press* in the issue of January, 1934, when he said, "The only states which showed any profits at all during the season of 1931-1932 are the three states where standard seed grading has been practiced continuously: Arkansas, Mississippi, and Tennessee."

Although seed grading may benefit the mills, it is largely beside the main point for share croppers and share tenants. Even if premiums were passed back to the grower, and if the basis price could not be shifted to meet the desires of the mills, the proportion of the growers' income resulting from most premium payments would be of slight consequence. Assuming a very high premium of 10 per cent, this would amount to a theoretical addition of only \$4.56 to the total seed income of a share cropper of the medium group of cotton farmers in 1929. In other words, since in 1929 14 per cent of the cotton growers' total cotton income came from his seed, even this very high premium would add only 1.4 per cent to his total income. In a system where cash plays an inconsequential part and where even prices have relatively little effect on a

COTTONSEED

miserable standard of living, the trivial potential increases through seed premiums would seem to dodge the fundamental problems of the majority of cotton growers. While it is certainly desirable to prevent mills from being the sole beneficiaries of a grading system, the concern of some well-meaning people that premiums be passed back to growers ignores the main issue. The insistence on technological justice in a segment of a price seems ludicrous in a total situation replete with injustice.

Price Zoning. It should be clearly borne in mind that there is no such thing as a single price of cottonseed for the entire country. Prices not only vary according to quality, but also differ between states and within local regions. In fact, a careful examination of seed prices indicates that most important price zones run along state lines or rather the boundaries of the state divisions of the N.C.P.A. Sometimes the price uniformity extends across state lines, because not only does each state generally have a separate price-reporting organization but in many instances neighboring states systematically exchange price information. Also when two or more states are included in the same division their prices are the same. It has become a matter of courtesy for a mill buying outside its own division to observe the going price of the region in which it buys. There is apparently no consistent reason why one of two adjoining states has a lower price than the other. It is certainly not caused by variations in the quality of seed on two sides of an imaginary boundary line. For example, in the fall of 1931, Mississippi delta seed sold for \$2 per ton more than similar quality seed on the Arkansas side of the river.

The Memphis code rule, requiring the price of seed to be quoted on a basis of f.o.b. shipping point, has been an important factor in developing price zones between states and also within states. This has enabled mills to pay the identical price for seed to all gins and other seed sellers within a zone and absorb the varying freight rates through basing their price on an approximate average transportation cost. If, instead, prices were quoted as delivered at the mill, it would be difficult for the crushers to quote a single price for seed. If they could not quote a single price, their open price system would become virtually inoperative and their whole system of controlling seed through refusal contracts would be seriously undermined.

Price Reporting and Price Uniformity. Two reporting systems have been devised by the state cottonseed crushers' associations and the divisions of the N.C.P.A. for establishing price uniformity—price posting and cooperative price publicity. Price posting has been developed west of the Mississippi and probably over half of the cottonseed crushed in the country has been directly affected by it. It involves posting, at some well-known exchange, seed prices arrived at by the secretary of a state cottonseed crushers' association or by a committee which includes

PRICE AND PRICE POLICIES

the secretary. This practice was started in 1924 on the Dallas Cotton Exchange, the Houston Merchants Exchange, and the New Orleans Cotton Exchange, and in 1926 on the Little Rock Cotton Exchange. No purchases or sales of cottonseed were ever made on these exchanges. They were used merely for giving publicity to prices arrived at by representatives of the crushers. Posting at a recognized market made it possible to obtain telegraphic notice of changes in posted prices through Western Union Commercial Dispatches.

The method of determining what the posted price should be varied somewhat among the four states involved. The Dallas posted price as first calculated did not necessarily represent prices actually paid in its locality but was said to be one that ensured a reasonable profit and was based on a fair average price. The average apparently had nothing to do with mathematics but was rather what the committee considered the seed to be worth. After price posting was taken over by the North Texas division of the N.C.P.A., quotations were supposedly based on an intermediate figure between the highest and lowest prices reported to the secretary by both interior and terminal mills. The Dallas posted price was also used by the Oklahoma Cottonseed Crushers Association as the basis for prices within its territory. The Dallas price was at first on a delivered Dallas basis and during that period Oklahoma mills deducted the freight from Durant, Oklahoma, to Dallas, which was \$4 a ton, to arrive at the price for their state. When, in 1927, the Dallas posted price was changed to an f.o.b. shipping point basis, Oklahoma mills purchasing seed on that basis frequently paid \$1 under the Dallas price.

For some time the secretary of the Houston committee arrived at the posted price for his territory by deducting an estimated cost of crushing and a \$2 per ton profit from the estimated value of the cottonseed products. This method was abandoned for fear that it might be illegal. Thereafter the posted price was established on the basis of information furnished by the Houston terminal mills and later by a larger part of the membership of the South Texas division. These prices were at times intermediate between the highest and lowest reported. They were quoted as delivered at Houston so that the price paid to ginners was this price minus the freight from the ginning point to Houston. During most of its history the New Orleans posted price was calculated by deducting the estimated working cost and freight and a \$2 per ton profit from the estimated total value of products. Shortly before posting was abandoned at New Orleans in 1929, greater attention was given to actual mill prices in arriving at the posted price. The Little Rock posted price was for two years the "average" price reported by Little Rock mills to the exchange secretary and thereafter was supplied by the secretary of the Arkansas association.

COTTONSEED

In all these states price posting was considered part of an unwritten code of ethics. In Arkansas the posted price was definitely regarded as the market price and departures from it were considered to be "irregular, unfair, and unethical." In all the sections involved the posted price was used as a basis of mill buying and prices tended to follow it rather closely. However, prices within a posting area were not necessarily identical at a given time and mills desiring to get seed at any cost tended to pay above the posted price. Some were even accused of not reporting these higher prices to the committee in charge of posting. Although prices paid by mills to gins were frequently above the posted price, the prices paid to farmers were generally the posted price minus the usual \$3 per ton spread between wagon-lot and car-lot seed. This meant that farmers did not get the advantage of the higher prices that mills were sometimes willing to pay to secure seed and that this extra amount went to the ginners. It should be further noted that the posted prices in the earlier period tended to be supplied only by the larger terminal mills and that throughout the entire period they were established through rather arbitrary computations by secretaries of posting committees to enable mills to attain satisfactory profits. Since 1928, there has been a tendency for states west of the Mississippi to adopt the price-reporting system in use east of the river.

Mills east of the Mississippi have tried to achieve price uniformity through cooperative price reporting, or the interchange of price information, through their state association secretaries. This was done in an informal way for a number of years. Finally, in 1926, a more precise form of reporting was incorporated in the Memphis code. It provided "that each mill shall, by all available means, publish immediately to the selling public the prices paid for cottonseed, and to the buying public, the prices received for the products thereof." False and fictitious reporting was declared an "unfair method of competition." The most usual method has been for mills to report their prices by telegraph or telephone to their state association or division secretary, who on the basis of these reports determines the market price. This is passed on to the general public through the press and sometimes the radio and is usually communicated directly to members by wire. After a while, many divisions inaugurated a system of daily mail reports, supplemented by telegrams from members who altered their prices between reports. In spite of numerous warnings by association officials, the participation of mills in the reporting was far from complete. As a result the reported price was based only on the communications from the participating mills. This situation increased the tendency for the smaller mills to follow the prices announced by the larger mill interests. For example, during the 1929 season, only four companies in Georgia reported at all regularly,

PRICE AND PRICE POLICIES

two of which were Buckeye and Southern. The thirty or so other mills in the state only reported occasionally or not at all.

The establishment of a market price through association reporting is far from a matter of mechanical exactitude, and by its very nature involves more or less interpretation by the association secretary. Some secretaries went so far as to calculate the current prices of products from a ton of seed, to deduct an average working cost and freight and a decided profit, and to suggest that the difference was a fair price for seed. In some cases, they excluded profits from their calculations and merely suggested a figure that would be the maximum price for seed if no loss was to be sustained. Secretaries at first generally reported that a certain price was being paid or that a certain price was the market price, without disclosing just which companies were paying this price or what quantities were being sold at it.¹ It was feared that this method of reporting might lead to legal prosecution. Certain divisions, therefore, reported to their members the names of companies reporting specific prices, and some divisions officially prohibited secretaries from interpreting the market. Nevertheless certain secretaries have advised their members when a change in price, announced by some mills, has become "the general market price."

In addition to interpretations of this sort, secretaries were bound to make judgments of some kind in announcing to the public either a single price or the range of prices on a given day. For example, they had to judge whether especially high prices, reported as being paid merely to meet competition in a certain locality, should be given out to the public. Generally the association officials have excluded such high prices in their reports to the public but sometimes have reported them to the members, stating clearly their special nature. The mills themselves have apparently, in many instances, failed to report these "unusual" high prices to their secretaries. There seems to be no clear definition of just what justifies raising a price to "meet local competition."

The importance of price reporting to the mills is very different from its value to the general public. The Federal Trade Commission concluded that "in many instances, the information published for the selling public was late, incomplete, or even misleading while by contrast the mills received immediate, detailed, and accurate reports." It even went so far as to intimate that reporting to the public was merely a by-product of the mill's attempt to secure price uniformity. The most conspicuous advantage that the mills had was in the promptness with which they received reports. While the mills received intelligence of price changes immediately by wire from their division secretaries, the general public had to wait a day or two until reports based on this information could be published in the newspapers; and if the mills were somewhat tardy

¹ In fact the quantities of seed sold at reported prices have never been reported.

COTTONSEED

in mailing their reports, the published price was even more out of date. One state secretary even admitted that he published prices in the newspapers merely to conform to assumed legal requirements and that he thought such published prices had no real value for the public.

The mills have not been entirely satisfied with the reporting of actually paid prices and have tried, by one means or another, to publish bid or current prices. They have generally felt that the reporting of paid prices was too slow, and that it did not prevent a mill from stealing a march on its competitors by secretly offering more than the going price of seed. For example, a mill might quietly secure options on seed at a higher price than the market. This would give the mill a decided competitive advantage and enable it virtually to nullify the agreement to publish its prices immediately. Its competitors could learn that it had secured seed through offering a higher price only after it had exercised its option. After 1929, such seed raids, as they were called, were generally considered unethical. It was partly with the purpose of abolishing them that efforts were made to extend the practice of circulating bid prices. However, as a result of the Department of Justice's objections to the interchange of current prices, the general counsel of the N.C.P.A. advised the division secretaries that they could accept and distribute only prices based on "passed and closed transactions."

However, the minds of lawyers and other men are fertile, and the abandonment of the public reporting of bid prices was not so serious for the mills as might be thought. This was because paid prices tended to approximate current prices. Mill men generally reported a certain price as having been paid with the tacit understanding that it would remain as their current or bid price until they telegraphed a purchase at a different price to their division secretary. A second method to give paid prices the effect of current prices was to report wagon-lot prices with the understanding that car-lot prices would be \$3 a ton higher. Since some time elapsed between retail and wholesale transactions, publishing wagon-lot prices was practically equivalent to publishing bid car-lot prices. Moreover, the continuance of the long-established practice of competitors telling each other directly by telephone or in person what they are bidding for seed has obviated the necessity of a great deal of more formal action.

In addition to formal association activity and the casual exchanging of price information by individual competitors, informal conferences have been held from time to time by groups of mills to arrive at certain understandings. Such conferences were held in 1928-1929 in some states to decide what should be the market price for seed at the beginning of the season. Other conferences were held to make sure that in certain highly competitive situations the usual \$3 a ton differential between wagon- and car-lot prices would be maintained. Still other conferences and informal

PRICE AND PRICE POLICIES

discussions were held for the purpose of abolishing seed-market raids and to discourage companies from operating at a loss through paying high prices for their seed.

The price-reporting system as devised by the N.C.P.A. and its divisions depended primarily on the voluntary cooperation of the member mills. In addition, pressure was brought on mills to conform to the system through making them accountable to their competitors by direct telephonic inquiries or by investigations of association secretaries of alleged price irregularities. The general effect of price reporting through trade associations is clearly to achieve that great ideal—price uniformity. It apparently has been assumed and expected that mills would conform to the published prices. It is clear that posted or exchanged prices become in effect the going price in an advancing market because mills offering a lower price would be ignored by sellers. It also appears that when mills are informed by their division secretary that seed has been bought at a reduced price by some mill, especially if it belongs to a large company, they generally gladly adopt the same price.

The great importance of cooperative price reporting to the mills is conclusively indicated by their attempts to have a system of paid and bid price reporting included in the proposed code of fair competition, which they tried to persuade the AAA to accept. In spite of various arguments about the benefits of price reporting to the general public, it seems clear that a system of this sort—in conjunction with the proposed method of grading seed and the standardization of terms of sale—primarily would have the result of making it easier for mills to establish uniform prices for their own advantage. The publication of bid or current prices would make this especially easy and would give them an additional advantage at the expense of the farmers. Since bid prices but not asked prices were to be published, full information would be supplied only by one side of the market. This would be a disadvantage to the seller because he would not know the intentions of other sellers. On the other hand, the buyers' bid price would tend to become the market price owing to the cooperative action and the greater bargaining power of the mills.

The plan to have prices circulated, under the proposed code, by a "disinterested agency" designated by the Secretary of Agriculture would have given this system an unjustifiable aura of impartiality. The whole code was essentially designed to legalize and strengthen old trade-association procedures which are detrimental to the best interests of farmers and consumers, and to forestall threatened prosecution of the Federal Trade Commission's formal complaint. Even if the disinterested agency designated to collect and report prices were a government bureau with the highest standards of honesty, the reporting system would still be of far greater advantage to the mills than to any other group. And the situation would not be changed materially if the government bureau

COTTONSEED

showed the maximum skill at authenticating reports and at releasing reports simultaneously to all interested groups.

It is claimed that government reporting would strengthen the bargaining power of the farmers. And it is true that wider information would make it more difficult for mills and gins to take special advantage of some of the ignorant seed sellers. But insofar as crushers' associations are able to keep mill prices uniform and maintain a differential between wagon- and car-lot prices, it is hard to see how individual farmers or ginners can have any real equality of bargaining power. So long as mills are strongly organized, and ginners and farmers are unorganized or weakly organized, it seems improbable that merely publishing officially reported prices will greatly alter their relative bargaining power. Governmental cottonseed price reporting—especially if the antitrust laws are suspended—will have the effect of strengthening rather than weakening the control that the crushing mills will have over prices. With the rest of the trade association setup continuing in operation, there is every reason to believe that it will be just as easy to maintain price uniformity under government price reporting as it was under private price reporting. In fact if the government goes to the trouble and expense of authenticating reported prices and if it prosecutes mills giving false quotations, it will make it much easier for the associations to keep their mills in line and to prevent clandestine seed raids. In other words, price competition between the mills will be even less prevalent than it was during the most effective days of the cottonseed crushers' trade associations.

PRICES AND THEIR RELATION TO COSTS

The determination of prices by the mills is prerequisite to any system designed to achieve price uniformity through reporting and posting. In the course of its extended investigation, the Federal Trade Commission sent out questionnaires to all crushing mills asking how they arrived at the prices they paid for seed. The typical answer received was that they calculated the current value of products from a ton of seed and deducted from that gross value, a spread per ton which covered their cost of crushing, average freight on seed, and provided a reasonable profit. Many mills, however, stated that prices arrived at in this manner were "subject to adjustment to meet competitive conditions." The term "mill spread" sometimes excludes freight because in calculating their car-lot prices as f.o.b. point of origin, the mills generally assume an average transportation cost which they must pay on all seed which they purchase and which is regarded as part of the necessary cost of getting their raw material to the mill. It also sometimes excludes profits, in which case the amount of profit or loss is noted separately.

It is said that this device for calculating seed prices was initiated for this industry by the wartime Food Administration. It was used in con-

PRICE AND PRICE POLICIES

nection with the government's program to prevent prices and profits from rising too high. The idea of spread caught the fancy of the mills, and when peace came they saw the possibilities of transforming it into a device for guaranteeing themselves minimum operating costs and minimum profits. Many mills began to regard it as an ideal method for pricing seed; and undoubtedly they have frequently used some form of it in practice. The concept of mill spread is based on the curious assumption that the price of each of the four primary products of cottonseed is determined by independent market factors that have nothing to do with the cost of production. These prices are taken as a starting point for further calculations and it is apparently assumed that the mills play no appreciable part in setting them. It is also assumed that the cost of producing seed, including growing and ginning, has nothing to do with car-lot seed prices. The only cost that this method takes into account in setting seed prices is that portion of the total cost of producing cottonseed products that is accounted for by crushing-mill operations.

An example of the method of calculating the farm price of cottonseed through deducting milling costs, or spread, from the total value of the products obtainable from a ton of cottonseed is indicated in the following computations of an officer of the National Cottonseed Products Association and the Southern Cotton Oil Company. In December, 1929, the secretary of the Georgia division of the N.C.P.A. sent them to his membership.

THE VALUE OF A TON OF SOUND, DRY, CLEAN COTTONSEED BASED ON AVERAGE MARKET PRICES

What is a ton of good, sound cottonseed worth? From a ton of good, sound cottonseed an oil mill is going to produce crude cottonseed oil, meal, hulls, and linters.

Oil

An average ton of good seed will produce 315 pounds of crude cottonseed oil. The actual quantity varies from 280 pounds to 345 pounds per ton of seed. The variation in the character of the seed is due to the soil on which the crop is produced and to climatic conditions under which the crop is produced and harvested. The larger yield is obtainable only from certain seed produced in the Mississippi section. The price of cottonseed oil is governed by the market for other oils and fats, such as lard.

315 pounds, at 7 $\frac{3}{8}$ cents per pound..... \$23.20

Meal

An average ton of good seed will produce 950 pounds of cottonseed meal. The quantity of meal which can be produced from a ton of seed varies according to the character of the seed and also according to the grade of meal which it is desired to produce. The market price of meal is also governed by the law of supply and demand, just as the market price of oil is, and depends largely on the market price of other concentrated feeds and ammoniates.

950 pounds, at \$32 a ton, loose (\$33.50 sacked; the sacks
cost \$1.50 a ton)..... \$15.20

COTTONSEED

Hulls

The quantity of hulls produced per ton of seed will vary according to the quantity and quality of the meal that has been produced. The average yield is 500 pounds. The market value is affected by the competition of other products used as roughage in feeding livestock, such as hay.

500 pounds, at \$3.50 per ton..... \$2.12

Linters

The quantity of lint produced also depends on the character of the seed and the kind of lint it is desired to produce. The market price is governed largely by the market price of other bedding materials and the cost of wood pulp, with which linters are in competition in the production of rayon.

110 pounds, at 3 cents per pound..... \$3.30

The total of these products amounts to 1,875 pounds, the loss of 125 pounds in weight being sand, trash, and moisture, and other manufacturing loss.

The total value of the products is \$43.82.

These products to the value of \$43.82 will be produced by the oil mill from an average ton of seed, but a ton of seed in the farmer's wagon or at the gin is not oil, meal, hulls, nor linters.

To the price which is paid the farmer for that ton of seed must be added the commissions paid dealers or gatherers of seed who accumulated the seed in carlot quantities, handling it, taking care of discrepancies in weight, and otherwise.

The average cost paid by oil mill for this service is, per ton \$ 3.00

The seed must then be brought from point of collection to the mill by freight or drayage at an average cost per ton of..... 2.00

At the mill the seed must be unloaded, cleaned, delinted, hulled, cooked, pressed, and the finished products prepared for delivery to the market.

The cost of this is, per ton:

Labor..... 2.10

Repairs and maintenance of running machinery..... .90

Steam and power..... 1.20

Press cloth..... .25

Chemical analyses, cleaning up, and other miscellaneous expense..... .20

Interest on the money invested in seed and in products not yet marketed..... .60

State, city, county, school, and other similar taxes (exclusive of Federal Income Tax)..... .30

Insurance on buildings, machinery, stock, and accidents..... .25

Interest on capital invested in land, buildings, and machinery of oil mill..... 1.60

Wear and tear on buildings and machinery and cost of replacing them when obsolete or worn out; depreciation..... .75

Cost of manager, superintendent, cashier, and other traveling help..... 1.50

Telegraph, telephone, stationery, printing, and other expense..... 1.10

Total..... \$15.75

PRICE AND PRICE POLICIES

It is going to cost the mill, on the average, \$15.75 to turn that ton of average cottonseed into the finished products worth \$43.82. This leaves \$28.07, which is as much as the farmer could expect from his seed if the oil mill operated without a cent of profit.

These calculations apparently greatly impressed the secretary of the Arkansas division, who sent them to his members with the comment: "This is good stuff. I would like to have each of you study it and if you have any comments to make on same, I will be glad to hear from you."

This sample computation for arriving at seed prices through deducting mill spread raises a number of questions concerning the items included in spread or mill conversion costs. In the first place it should be noted that two interest items are included totaling \$2.20, or about an eighth of the total milling costs. The first, interest on money invested in seed and products, is to a considerable extent fictitious and should be considered as profit, while interest on capital invested is probably a profit item. Whether profits should be included in costs, what proportion of the total they should form if included, and even the size of the other items, seem to be rather arbitrary matters. Apparently no uniform system of cost accounting has ever been used by the industry.

The vagueness of the whole concept is indicated clearly in statements made by two of the leaders of the industry in the course of code hearings before the AAA. When asked how he would define "a fair and reasonable spread in terms of cost," the chairman of the crushers' proposed code committee answered, "I could not define it . . . it is a matter of judgment. I will answer that the same as I would answer that I could not define loss." He considered that whether or not interest on investment is considered a part of overhead is just a "matter of accountancy." In fact, he apparently thought that the concept of spread was so lacking in precision that he believed that a "fair and reasonable price" could only be arrived at under the proposed marketing agreement by state committees, subject to the approval of a national committee and the Secretary of Agriculture. In other words, if spread were used at all in price determination, it could be used only as part of an arbitrary system of price fixing by committees. The pragmatic character of mill spread was even more aptly summarized by another member of the industry who said, "Conclusions regarding spread will remain in the end matters of judgment rather than precision of figures."

Not only is the concept of mill spread arbitrary and vague; but even if its definition were fixed and all the items composing it standardized, it would be bound to vary from mill to mill, from section to section, and from month to month. Such items as operating and labor costs and obsolescence, as well as transportation costs and desired profits, probably

COTTONSEED

are not the same for any two mills. Also the spread would vary from place to place because, regardless of definition, the volume of crush in relation to overhead is not the same for any two mills. As a result, if each mill were to determine its seed prices through subtracting a spread based on its own experience from the market value of its products to arrive at the price it would pay for seed, there could not possibly be the price uniformity that exists within the price zones of the cotton belt. One is, therefore, lead to believe that seed prices are actually determined by other factors.

In the same connection it is important to note what the effect would be if seed prices were calculated, over a period of time, by means of a constant spread. The prices of individual products vary considerably from week to week and even from day to day, some going up while others go down. Moreover, they do not move together. This means that their total value is also constantly fluctuating so that with a constant spread the price of seed should fluctuate with equal frequency. This, however, does not seem to be the case in practice.

Actual mill spread, the objective difference between prices paid for seed and the value of products as contrasted with the mathematical sum of theoretical cost items, varies greatly from one mill to another and from one section to another. It also has no constancy over a period of time, not only fluctuating from year to year and month to month but even within a given month. If mill spread were really based on conversion costs, such fluctuations could not possibly occur.

One is lead to believe then that the mills have used the idea of spread for three quite different purposes: to depress seed prices, to achieve price uniformity, and to try to convince the public that their profits are too low. In the first place it should be noted that if prices were calculated by the formula of spread, the price of a particular lot of seed on a given day would not be dependent on the value of the products actually derived from it, but on the current price quotations of products previously manufactured. It is usual for the prices of products to increase as the season advances. Since most of the seed is purchased during the short three-month ginning period and since the products are processed and sold over a longer period, it means that the price of the bulk of seed would be determined by the lower early-season prices of products, rather than by the average or actual price of all their products. This would tend to depress seed prices. Leaders of the N.C.P.A. tried to make this theoretical situation an actuality through advocating early in the season the maintenance of a constant spread and toward the end of the season sending out circulars claiming that it was unfair to farmers to use a narrower spread for buying late-season seed. However, a late-season narrower spread actually has the effect of increasing seed prices.

PRICE AND PRICE POLICIES

A standard mill spread arrived at either theoretically or on the basis of the costs of large terminal mills had been used from time to time in conjunction with price-posting and -reporting systems to secure price uniformity. The use of the spread of terminal mills would largely solve the problem of achieving price uniformity within a district having mills with varying crushing and freight costs and different concepts of a desirable profit. Although the crushing costs of the terminal mills tend to be lower than those of the country mills, their transportation costs are higher, so that on an average the terminal mills do not have as much smaller a spread as might be expected. Some division secretaries have also apparently had the idea that uniform prices might be achieved through circularizing a theoretical spread to their members with the idea that all their members would use this spread in determining their prices. But apparently this system has never been put into operation.

Profits, Spread, and Costs. The crushers have made certain surveys of mill spread with the apparent purpose of proving that the prices they paid the farmers for seed either allowed them a scanty profit or resulted in losses. None of these studies is satisfactory, and their accounting is far from convincing. The inclusion of profit items in conversion costs which are said to leave the mill without a cent of profit has been indicated in connection with the sample calculation of farm prices. A more astonishing computation of profits was made by the N.C.P.A. on the basis of reports received from over 300 mills and on certain government data. The results of the distribution of cost among various groups for the three years, 1927-1928, 1928-1929, and 1929-1930, are as follows:

	Three-year total	Weighted average, per ton	Percentage of total revenue
Amount received by farmers.....	\$499,158,479	\$33.88	66.1
Seed merchants' gross spread.....	76,271,085	5.18	10.1
Transportation.....	29,253,269	1.99	3.9
Conversion cost.....	141,307,961	9.59	18.7
Federal tax.....	2,299,082	.16	.3
Mill profit.....	6,526,129	.44	.9
Total gross revenue from sale of products..	\$754,816,005	\$51.24	100.0

On the basis of these figures, the crushers tried to prove that their profits were very low because over a period of three years their profits were less than 1 per cent of the total revenue received from the sale of their products. Even assuming, for the time being, that a percentage of this sort has any meaning, the percentage here is too low. This is because the weighted average per ton for transportation and conversion costs, federal tax, and mill profit are computed by dividing the three-year total

COTTONSEED

of these items by the United States Bureau of Census tonnage, instead of by the tonnage of the 300 mills and over on which these totals are based. Having used an unjustifiably large divisor, the results for all these items are too small and merchants' gross spread—which is the difference of amount received by farmers and the items just mentioned—is too large. But even if one were judging profits on the basis of total revenue, it would be much more reasonable to make a comparison between profits and value added by manufacture, than between profits and total value of production. On this basis, even using the crushers' exaggerated figures and including transportation and conversion cost, federal tax, and mill profit in value added by manufacture, the crushers for this three-year period would have had a 3.6 per cent profit. It should be further noted that this is an average for an entire industry and that according to the N.C.P.A.'s own figures, there is a wide variation within the industry from year to year, from state to state, and from mill to mill.

Another survey of the association indicated clearly that during the same three-year period, the larger the crush of mills per press, the larger their profits and the smaller their losses.¹ During the period covered by

1
COMPARATIVE OPERATING COSTS OF CRUSHING MILLS REPORTING GROUPED BY SIZE OF ANNUAL CRUSH, THREE YEARS (1927-1928, 1928-1929, 1929-1930)

Mills grouped by tons per press	Number of mills	Number of presses	Average presses per mill	Average tonnage per press	Seed cost delivered, including transportation
1,000 or less	134	716	5.3	740	\$38.99
1,000-1,500	177	897	5.1	1280	40.38
1,500-2,000	204	1215	6.0	1746	41.03
2,000-2,500	173	1082	6.2	2249	41.06
2,500 and over	130	908	7.0	3115	41.21

Mills grouped by tons per press	Number of mills	Total conversion costs ¹	Total cost of products	Total value of products	Net profit or loss after deducting federal tax
1,000 or less	134	\$13.56	\$52.55	\$49.71	\$2.89 loss
1,000-1,500	177	10.78	51.16	50.78	.49 loss
1,500-2,000	204	9.72	50.75	51.12	.24 profit
2,000-2,500	173	9.39	50.45	51.12	.52 profit
2,500 and over	130	8.36	49.57	51.29	1.48 profit

National Cottonseed Products Association, *Economic Survey of Cottonseed Products Industry*, January 15, 1931, Table 6.

¹ Including current operating expenses, fixed and general expenses, and total package expense.

PRICE AND PRICE POLICIES

the survey, the three groups showing a net profit represented 78 per cent of the total crush in 1927-1928, 83 per cent in 1928-1929, and 82 per cent in 1929-1930. The profits of the mills of the group crushing the largest tonnage per press for the three years combined was 2.8 per cent of the total value of their products and 15.3 per cent of their conversion costs (mill spread), excluding transportation. On the other hand, the average losses for the group having the smallest crush were 5.8 per cent of the total value of their products and 21.3 per cent of their conversion costs. These computations of profits in relation to total revenue and manufacturing revenue indicate a considerable variation between different mills and a high rate of profit for mills having the largest crush per press. However, neither method is really an adequate basis for profit determination. Profits after all are justified theoretically on the grounds that they are a payment for capital risked in a business undertaking. Therefore, a rate of profit that would have any meaning would have to be based on the amount of capital invested in the business. The industry has never published such basic figures. In their absence the insistence that seed prices must be kept down in order to keep mill spread large enough to assure a reasonable profit is not persuasive.

Most of the equipment in the industry is very old. In 1933, the editor of *The Oil Miller and Cotton Ginner* stated that of the oil-mill machinery then in use, over 10 per cent was thirty years old, over 50 per cent was twenty years old, and not even 5 per cent had been built in the past ten years. While it is true that he was interested in selling machinery, his description of the situation is probably not greatly exaggerated. In view of the extreme age of equipment, it seems clear that any justifiable system of accounting would base the value of mill property on original cost of construction minus a "reasonable" figure for obsolescence. This would make the valuation of most mills rather low. Therefore, the earnings that most mills consider proper are undoubtedly higher than a conventional return on their investment.

The whole question of calculating the profits and, for that matter, the costs of crushing-mill operation, is made extremely difficult because a great many mills are operated as units of large refining, shortening, meat-packing, or soap businesses and because many carry on supplementary business undertakings. About all one can add in this connection is that in most years such large companies as Wesson Oil, Procter & Gamble, and Swift have paid rather high dividends to their stockholders on their entire operations.¹

¹ Crushers have also tried to prove that their profits have been low and that their mill spread should be greater by pointing out that there has been a high turnover in the ownership of mills. This change in ownership may be explained in two ways. First, a large number of mills have been absorbed by large companies and chains. Second, numerous mills have

COTTONSEED

The consideration of profits in connection with this study of prices is important, not only because mill men have used the concept to justify their car-lot seed prices, but also because they are an indication of how well the price system has worked from the viewpoint of the crushers. According to one of the outstanding personalities of the N.C.P.A., "Business exists for making profits. When profits disappear, business disappears. . . . There is only one sure way to make money crushing cottonseed. That is to buy raw material at a price that takes into account total working costs plus profits."

Overcapacity and Costs. The most important consideration in connection with milling costs, in the minds of most crushers, is the question of meeting overhead costs. This term is used rather loosely, often being confused with current operating expenses; but it generally refers to cost items that must be paid regardless of the quantity of production. The whole question of overhead is generally stated as a problem of utilizing as much mill capacity as possible. It is generally believed that the industry is largely overequipped. A survey made by the N.C.P.A. covering the three years 1927 through 1929 showed that if the 2,731 presses in the ten principal cotton-producing states operated 300 days a year with an average daily capacity of 15 tons per press, they would have been able to crush over 12,000,000 tons of seed. The three years' average annual crush for 1927 through 1929 was in these states only 4,700,000 tons. It therefore concluded that the industry was equipped to process the average available crush in 115 days or 38 per cent of the assumed 300 operating days. This, they concluded, indicated an overcapacity of 62 per cent. They decided that this figure was too high because a yearly tonnage of 4,500 per press was not practical. So after arbitrarily reducing this theoretical crush by 1,000 tons, they found that the annual utilization of press capacity ranged from 39 per cent in North Carolina to 69 per cent in Tennessee. In general they found overcapacity the greatest in the southeastern states, somewhat less in Oklahoma and Texas, and least in the Mississippi Valley states.

The amount of overcapacity depends not only on arbitrary mathematical computations of this sort but on certain other considerations concerning the number of hours per day and the number of days per year that one considers a plant should operate. It is generally assumed that the normal working time for a crushing mill is twenty-four hours a day for six days a week. Since it is necessary for presses and the kettles in which seed is cooked to be kept hot, it has generally been considered a continuous-process industry. How great the losses would be were the mills to operate fewer hours a day and fewer days per week is not clear.

been forced to the wall through bad speculations. However, neither mergers nor a speculative basis for mill operation would seem to justify high profits or a larger spread.

PRICE AND PRICE POLICIES

There is a similar problem concerning the number of days per year an industry of this sort should operate. When seed is pouring in from the gins during the height of the season, most mills run at full capacity; but they generally cease operations entirely within five or six months. And it is claimed that unless seed is crushed before grass comes in on the Great Plains and in time for spring planting in the Southeast, the meal markets for feed and fertilizer in those regions are lost until the following year. Should the industry, therefore, be considered a seasonal one in which capacity is related to an arbitrary normal crushing period? Or should necessary capacity be the amount of mill capacity needed to process about the same proportion of the annual or average seed supply at all seasons of the year? In this case seed-storage capacity would have to be increased but would not be utilized equally throughout the year. Or should existing storage capacity be assumed and necessary mill capacity be defined in terms of crushing capacity required to keep seed warehouses from overflowing in the harvest season? In this case production could not be equalized throughout the year.

The competitive drive of each mill to utilize as much of its crushing capacity as possible is a dynamic force behind most price relationships within the industry. The beliefs that a minimum quantity of seed must be crushed at a certain price in order to cover costs and net a profit, and that prices must be adjusted to size of crush, are basic to the thinking of most mill men. The fact that the definitions of costs and overhead are vague and that there is generally no precise relationship between used capacity and price makes no difference. It seems that the first rule of every mill manager is to get as much of the limited available supply of seed for his mill as he can. It has made price a secondary factor to filling capacity.

One would expect this struggle for seed, especially in bad crop years, to drive prices up in spite of the weak bargaining power of most seed sellers. In fact it is largely because of this tendency that the crushing mills have participated in elaborate trade-association activity to change a potential sellers' market into a buyers' market. The whole program of price uniformity has been predicated on the belief that it would benefit all, by joint action, to hold prices down as far as possible, and at least to prevent any company from stealing a march on its competitors by capturing seed through secretly paying a higher price. If every mill in an area paid the same price at the same time regardless of general price fluctuations, the *status quo* of vested interests in available seed supplies could be maintained. In this same connection a host of trading rules—which ranged from grading, to terms of sale, to defining bona fide commissions—were devised in order to give a quoted price the same meaning to all buyers. This system, designed to avoid a price war in which mills would try to outbid each other in their rival efforts to obtain seed, was buttressed further by that series of devices for controlling gins by which

COTTONSEED

the larger milling interests, at least, maintained some stability in their seed supply over a number of years.

However, the system built up by the crushers has never worked completely or perfectly. Not all seed is controlled and the spheres of influence of mills shift somewhat from year to year. The rivalry for seed, therefore, is always more than potential and is generally very acute. Nor have all mills strictly adhered to posted or exchanged prices, although their prices have tended to move near them. In numerous individual situations mills have at times raided or captured seed by paying higher prices through exercising secret options, through unreported transactions, and by justifying higher reported prices on that vague excuse that they were necessary to meet local competition.

As a result of this situation, the most profitably operated mills have generally paid somewhat higher prices for seed than other mills. In fact a survey of the N.C.P.A. for 1927-1928 through 1929-1930 showed that the larger the profit per mill, the larger the average tonnage per press (or the greater the utilization of capacity) and the higher the price paid for seed delivered at the mill. The mills having the larger crush per press had more presses and generally were terminal mills. This meant that they had larger transportation costs which partly, although not entirely, accounts for their higher cost for seed delivered at the mill. It is further interesting to note that the total cost of products and the total conversion cost, and each of the items composing it—current operating expenses, total conversion cost, and total package expense—declined as the crush per press, the price for seed, and the total value per ton of products increased. In other words the most profitable mills were those getting most for their products, having the lowest costs and paying most for their seed. It is not clear to what extent the greater press utilization of the larger and more profitable mills was due to a wider control over seed supplies and to what extent it was due to a greater-capacity per press. In the second case, the large mills would not necessarily be utilizing a larger proportion of their capacity than the smaller mills.

There is a general belief in the industry that the greater the over-capacity, the higher the costs. Therefore mill spread must be increased to absorb these higher costs, and the way to increase spread is to pay ginners and farmers less for their seed. On the other hand, when over-capacity is at a minimum, the spread—which is always in terms of a ton of seed—can be diminished. Spread then is not a fixed thing but fluctuates with the utilization of capacity. In other words, the farmer is penalized for milling inefficiency insofar as increased spread reduces seed prices. In the case of individual mills, spread—whether or not profits are included—diminishes as the size of the crush per press increases.¹

¹ See table in note 1, p. 257.

PRICE AND PRICE POLICIES

The average utilization of capacity for the whole country is determined by the size of the cotton crop. Every mill, therefore, has to consider the size of the crop and the portion of this that it is apt to secure before it can estimate its crush for the year and determine a desired spread. However, it seems doubtful that spread is calculated in just this way or that costs are the main determinant of its size; because in practice, although a large cotton crop means lower overhead, it is generally accompanied by lower rather than higher prices. Also, when seed and product prices declined from 1927-1928 through 1931-1932 without consistent regard to production, mill spread declined in a manner corresponding to prices. However, the size of spread declined without regard to the size of the cotton crop, which theoretically should have determined the amount of costs resulting from unused capacity. Part of this period was one of generally falling prices, which apparently affected certain cost items as well as seed and products prices. Unfortunately adequate data on spread are not available for other periods.

Mill spread, when it includes transportation costs and profits, will be the same at a given time for all the mills of a district insofar as they receive the same prices for their products and maintain a uniform price for seed. This has little connection, however, with the theory that seed prices are set by mills through subtracting a mill spread based on costs from the market value of products. Several reasons have been noted why it is highly improbable that seed prices are generally arrived at in this mathematical manner. In addition, the fact that total spread changes frequently throughout the course of a season would seem to indicate clearly that seed prices are not actually established by mills on the basis of estimates of unused capacity or total yearly costs. And this is further indicated by the fact that at times during the past few years total spread has not covered total conversion costs. This was because mills were crushing and buying seed, regardless of the prices of the products, on the apparent speculative hope that their value would rise before they would have to be sold. This speculative flare was undoubtedly augmented by the fear that, if seed prices were depressed much further, controlled seed supplies might be lost to competitors.

It is curious, however, that in spite of its lack of precision and its apparently limited use, the notion of spread seems to be firmly implanted in the crushers' minds. As a result, many mills have frequently been willing to purchase late-season seed on a reduced spread at higher prices, which covered only current operating costs, on the theory that their overhead for the entire year had already been met by previous transactions. Once overhead has been paid, any additional use of capacity is considered all to the good.

Overcapacity and the Number of Mills. In addition to attempting to secure as much of the available seed supply as possible, mills have tried

COTTONSEED

to solve the problem of overcapacity by reducing the number of mills and presses. Since 1915, when there were more mills than at any other time, the total number has decreased steadily from 885 to 471 in 1936. And over a longer period, the average crush per mill increased more or less continually, with 1927 as the year of greatest crush.¹ No figures are available to show whether similar things were happening to the number of presses and the crush per press. But it is apparent that the size of mills increased while their number declined either through the installation of more presses or through the production of more tonnage per press.

¹
PERCENTAGE OF COTTONSEED CRUSHED, NUMBER OF COTTONSEED CRUSHING MILLS,
AND AVERAGE TONNAGE CRUSHED PER MILL, 1880-1936

Year ending July 31	Percentage of seed crushed	Number of mills	Average tonnage crushed per mill
1880	9%	45	5222
1890	25	119	7345
1900	53	369	6718
1905	52	715	4678
1910	73	817	4001
1911	79		
1912	70	839	5865
1913	75	857	5344
1914	77	870	5572
1915	80	885	6531
1916	84	844	4979
1917	88	763	5870
1918	84	728	5840
1919	84	727	6160
1920	79	703	5708
1921	68	675	6028
1922	85	560	5371
1923	75	527	6151
1924	73	532	6217
1925	76	530	8639
1926	78	563	9873
1927	79	570	11063
1928	81	557	8356
1929	79	545	9236
1930	76	520	9646
1931	76	510	9245
1932	71	500	10656
1933	62	495	9334
1934	71	493	8432
1935	83	478	7427
1936	81	471	8105

Arranged from the Federal Trade Commission's *Report on Cottonseed Industry*, Part 13, pp. 18705, 18713; and computations based on United States Bureau of Census, *Cotton Production and Distribution*, *op. cit.*, pp. 45 and 54.

PRICE AND PRICE POLICIES

The reason for the decline in number of mills is not entirely clear. Apparently once the proportion of seed crushed reached over 80 per cent, there were no longer many opportunities for building new mills. The percentage of seed crushed reached its maximum within two years of the time that the number of mills reached its maximum. From then on, it was undoubtedly discovered that it was unprofitable to crush seed and operate mills in certain areas. In addition, the greater efficiency of most of the larger mills probably drove numerous cotton-patch mills to the wall. The reduction of mills was especially marked in the southeastern states, where overcapacity became largest because of the diminution of the cotton crop in that area, resulting from exhausted soil, destruction by the boll weevil, and generally higher costs as compared with the West. The number of mills in South Carolina, for example, decreased from 110 in 1910 to 36 in 1933. The number of smaller mills also declined as the larger terminal mills became increasingly important. This was due to the introduction of the truck, which made medium-distance transportation much cheaper, and to the fact that an increasing proportion of terminal mills came under the control of large companies having great financial resources and having the habit of thinking that size made for efficiency and profits.

While some mills were removed from the field as a result of bankruptcy proceedings, others were eliminated through conscious efforts on the part of the stronger mills to diminish excess capacity and competition in buying seed. A number were purchased by the larger interests and dismantled, a few were junked as part of a merger agreement between two companies, and others were kept from producing through the cooperative action of competing mills. During 1929, a cooperative mill-dismantling program, headed by the Buckeye Cotton Oil Company, reduced the number of operating presses in the Arkansas-Tennessee territory by 17 per cent. Similar though less drastic programs were carried out elsewhere. For example, the two largest crushing interests of South Carolina leased jointly and separately a number of mills which were held from operation but were used as seed-gathering and products-selling points. Two of the main objects of these mill-reduction programs have been to eliminate certain mills which buy seed with annoying aggressiveness and to increase the seed supply of the cooperating mills. Presumably, since companies having the greatest financial ability are the main participants in dismantling plans, such activities give the large interests an added control over existing seed supplies.

Costs to Price. Whatever may determine the price of cottonseed, it is clearly not its cost of production. If seed prices were really established by subtracting mill spread from the value of products, this would be obvious enough. It is also certain that fluctuations in the price of seed

COTTONSEED

from year to year have nothing to do with changes in the cost of cotton farming. The outstanding cost of raising cotton is keeping alive cotton growers and their families near the margin of subsistence. This expense varies very little from year to year and, insofar as it does, it is rather the result of price changes than the cause of price changes. If one tried to apply some theory of overhead costs and assume that a small cotton crop would result in greater per unit costs and therefore higher prices, one would have a nice point but it would have little to do with the realities of the cotton culture. Cottonseed prices are generally higher in small crop years, not because of higher costs but because of market factors which are primarily determined by the size of the cotton crop.

Ginning fees may vary somewhat in accordance with ginning costs, but the size of the ginner's spread, made up as it is of an almost constant commission and a variable income from speculative activities, has nothing to do with costs.

The prices of cottonseed products are the total of car-lot seed prices—which have little to do with costs—plus a mill spread which includes profits. As we have previously seen, mill spread seems to be determined by other factors than costs. It appears then that the prices of products also are primarily determined by market factors that have little to do with any reasonable definition of production costs. If seed prices were really determined by mills according to the spread formula, it is obvious that the prices of products, which are taken as an independently determined starting point for such calculations, have nothing to do with their costs of production.

Regardless of how the prices of cottonseed and its products are actually determined, it is interesting to note certain problems that would have to be faced should they be based on costs. In the first place, it should be observed that it requires the identical activities and the same amount of effort to grow cotton lint as cottonseed and that therefore the cost of producing each of these two joint products is identical. Similarly the actual cost of ginning each is the same. Yet in practice the value of lint from a given quantity of seed cotton is five to six times the value of the seed. A difference of this sort has nothing to do with costs unless one considers lint the main product and seed the by-product and assumes that, because cotton would not be grown just for the seed but might be grown—as it was in the past—just for the lint, the larger portion of costs should be allocated to the lint. Or one might make the lint carry the larger part of the costs by arbitrarily imputing costs on the basis of what the traffic will bear. However, these rationalized accounting theories have nothing to do with the actual costs of production.

The problem of dividing total milling or conversion costs among the four primary cottonseed products is even more difficult. It would con-

PRICE AND PRICE POLICIES

ceivably be possible to calculate what portion of the machinery of the mill and what percentage of the total labor cost are used directly for each of the four products. But since linters have to be removed before hulls can be fully utilized, and since it is best to remove hulls before the remainder of the seed is crushed, the problem becomes very complicated. However, it appears that the relative money value of each of these products per ton of seed crushed does not entirely correspond to its relative costs. While it is true that both the value and costs of oil and meal are greater than the value and costs of hulls and linters, the value of oil is greater than the value of meal, although the cost of meal is theoretically higher, and the value of linters is generally greater than that of hulls, although the theoretical production cost of hulls is probably higher.

The whole industry is primarily one involving the by-products of by-products, or rather one in which a series of joint products are derived from a by-product. It is largely a matter of preference whether one considers the four primary cottonseed products as equally important joint products, or whether one considers hulls and linters to be by-products of the other two; or considers meal, hulls, and linters to be by-products of crude oil. Since the oil-refining interests play such an important part in the activities of the crushing mills, it can be argued with much force that cottonseed is crushed primarily for the purpose of securing its most valuable product—oil—and that production of the other products is incidental. The reason for possibly considering meal as a joint product to oil and hulls and linters as their by-products is also based on current practices, under which meal is distinctly the next most important factor to crude oil in determining mill policy. Costs could be allocated, as was suggested in the case of cotton, in accordance with which parts of the total product are essential to making the processing of it worth while. Then there might be some justification, on the basis of costs, for oil and meal to account as they do for over 80 per cent of the total value of cottonseed products. But in practice, insofar as a crushing mill allocates its costs among its products, it generally does so on the basis of the relative value of its products in the market.

LABOR COSTS AND THE WELFARE OF WORKERS

Labor, next to interest and profits, was the largest item—comprising 20 per cent of the total—in the estimate of mill conversion costs.¹ Similarly during the twelve years between 1899 and 1933 reported by the Census of Manufactures, wages, except for one year, ranged from 21 per cent to 29 per cent of the value added by manufacture of the cottonseed-oil, -cake, and -meal industry.² These percentages, which represent labor

¹ See p. 254.

² This census classification includes some refineries but primarily represents crushing

COTTONSEED

costs or labor's share in the value added by manufacture, tended to fluctuate inversely to prices. That is to say, labor's share tended to be least when seed and products prices were highest and greatest when prices were lowest. There was also some tendency, except when the general price level was changing rapidly, for total pay rolls to be least in years of high prices and greatest in years of low prices. But this tendency was not so clear as one might expect considering that high prices generally were in small crop years; that small crop years mean less seed to crush and generally less employment; and that less employment would be expected to result in smaller pay rolls. However, average yearly per capita earnings apparently do not vary clearly with any price or crop factors. It would seem then that high prices resulting from small crops are apt to mean for the crushing-mill workers more unemployment, a smaller share in the value added by manufacture, smaller pay rolls unless general price levels rise, and not necessarily higher per capita earnings for those who work.

Not only does employment vary annually with the size of the cotton crop, but it also varies during a year with the amount of seed crushed each month. Thus, in 1925, 1927, and 1931, employment in the lowest month averaged 22 per cent of employment in the highest. Employment is greatest during the ginning period of October through December, but keeps up pretty well during the six principal crushing months of September through February. It drops off from then until midsummer. Very little crushing is done except during the six principal months, so that most millworkers are laid off for half the year or more. Undoubtedly some find employment as agricultural laborers or in other ways. Most mills keep their managers and some of their more indispensable skilled workers through the inactive months. They employ them on maintenance jobs, in chopping weeds around the mill, in one of their supplementary undertakings such as the ice business, or they just carry them over without even demanding that they go through the motions of work. This means that crushing costs are not only based on having the mill shut down for several months, but also on keeping some of the working force idle for part of each year.

We are not merely interested in mill labor in relation to costs, but also in relation to the quality of living the system of prices in cottonseed gives to the crushing-mill workers. It has been observed that employment is irregular seasonally and from year to year, and that high prices seem to have little to do with the welfare of the workers. It should be further

mills. Value added by manufacture is not identical with mill conversion costs or mill spread as it excludes the cost of fuel, containers, and purchased electric energy. This would make the percentage of labor costs higher than in the earlier estimate. The exceptional year was 1921, when prices took a very sharp drop, resulting in wages amounting to 55 per cent of value added by manufacture.

PRICE AND PRICE POLICIES

noted that for years cottonseed crushing mills operated on two 12-hour shifts for 6 days a week. In return for these long hours, according to a study of the N.C.P.A., workers received in 1929 from \$1.80 per day in the Southeast to \$2.37 per day in Texas and Oklahoma. A Bureau of Labor Statistics study for 1927 showed that cottonseed-oil workers averaged 71 hours a week and 24 cents per hour. This would correspond to \$17.04 a week and about \$2.88 a day. During the season of 1932-1933 wages for unskilled labor dropped as low as \$1.23 for a 12-hour day in the Central West and 76 cents in the Southeast, while \$1 a day was the going rate in many parts of the country.

On December 1, 1933, the cottonseed crushing industry signed the President's Reemployment Agreement with amendments. It provided for a forty-eight hour week, which meant a change from the two-shift to the three-shift system. It also divided the country into three wage zones with a minimum east of the Mississippi of 20 cents an hour, which meant \$1.60 per day and \$9.60 a week; west of the Mississippi (except Arizona and California) of 22½ cents an hour, which meant \$1.80 per day and \$10.80 per week; and in Arizona and California, 25 cents an hour or \$12 a week. These proposed zones paralleled existing wage zones in the industry, which correspond to similar wage zones among agricultural laborers. In fact the low level of living of millworkers seems to be based firmly on the poverty and general degradation of the southern agricultural worker. A key to the situation is contained in a statement made in the course of the ginners' code hearings in 1933 to the effect that "gin labor could not be raised higher than farm labor without creating discontent and probably serious trouble on the farms." Crushing-mill employers rationalized their low wage scales in a similar way. Apparently, the living of millworkers must be kept low to maintain a system of peaceful degeneracy.¹

Within a few months after the President's Reemployment Agreement was signed by the industry, most mills dropped it and wages declined once more. However, the three-shift system seems to have been generally retained in spite of its somewhat higher costs. Leaders of the industry were adamant that they could not pay higher wages on the basis of three eight-hour shifts unless the prices of their products were raised. In fact during the 1933 and 1934 hearings on a proposed code, threats were made that the mills would have to shut down or seed prices paid to farmers would have to be reduced unless products prices were raised enough to

¹ The lowest wage zone was in the Southeast, not only because it reflected the lowest paid group of agricultural laborers, but also because its crushing mills have the greatest overcapacity and because it has the greatest number of small, high-cost mills. In the cottonseed industry, high-cost mills tend to pay lower wages. The smaller mills, with two or three seed-crushing presses, generally have higher labor costs partly because there is a certain amount of idle time between refilling presses that does not occur in the larger establishments. But this is a secondary factor.

COTTONSEED

cover added labor costs. The small concerns, ever fearful of bankruptcy, were especially vocal in their protests.

No code of fair competition or marketing agreement was ever approved for the industry, and the inadequate PRA was short-lived. In the active crushing months of October, 1934, the cottonseed crushing industry had the unenviable position of having the longest hours per week (47.7 hours) and the lowest average per capita weekly earnings (\$10.33) and lowest average hourly earnings (21.9 cents) of any of the 93 different industries included in the Bureau of Labor Statistics' monthly survey, *The Trend of Employment*. Two years later it still occupied this position with an average 52.6-hour week and with average per capita weekly earnings of \$11.34 and average hourly earnings of 21.7 cents.¹

THE SPRAWLING PRICE STRUCTURE

What are the principal factors determining prices? What is the relationship between the prices of cottonseed and its products? It has been seen that the cost of production has virtually no effect on seed or products prices, and that for most crushers the mill-spread myth of price determination is wishful thinking rather than an actuality. What then determines prices?

First of all the size of the cotton crop limits all other considerations in the cottonseed price structure. The size of the crop practically determines the quantities produced of cottonseed and of its primary products—oil, meal, hulls, and linters. Their year-to-year production curves have an inverse relationship to their year-to-year price movements, so that a small crop and lower production generally mean higher prices. The extent to which these inverse relationships between production and price are directly or indirectly causal will be discussed later. But in either case, although they partially explain year-to-year price changes, they fail to account for the exact level of seed and products prices, the relationships between each of these prices, and monthly and daily price changes. The level of a price is its exact amount at a given time. The production situation may explain why a price is higher or lower than that of the preceding year. But it does not explain, for example, why the price of cottonseed was exactly \$31 a ton on a certain day. This is also influenced by the general level and movement of prices outside the industry. For instance, the slump in the prices of seed and of primary products from 1929 to 1933 was largely the result of factors which simultaneously caused most agricultural and industrial prices to decline.

The level of the prices of cottonseed products is also limited by the price and availability of competitive or interchangeable commodities;

¹ These later data are based on the 106 industries in Table 3 of the Bureau of Labor Statistics' *Employment and Pay Rolls*, October, 1936.

PRICE AND PRICE POLICIES

and to the extent that the prices of products or the demand for products affect seed prices, this also limits the price of cottonseed. For example, the price of lard, through competing with vegetable shortening, influences the price of cottonseed oil; the price of wheat protein feeds affects the price of cottonseed meal; the local price of hay affects the local price of hulls; and the price of mill waste affects the price of linters. In each of these cases, if the price of the cottonseed product is too far out of line with its competitor, it will be displaced, provided there is enough of the competitive product available. If a product is displaced in this way, either it will have its market diminished, or it will have to be utilized in other ways, or it will become obsolete. If other uses are found for it, its price will not necessarily be the same as before.

But such factors as the size of the cotton crop, the general price level, and the prices and availability of competitive commodities only fix the limits of cottonseed prices. Inside these barriers, a great many things can happen as a result of the various special conditions within the industry. A price war, for instance, would tend to force up the level of cottonseed prices. In the cottonseed industry, a price war does not take the usual form of progressive price cutting. Instead rival mills competitively raise the prices they pay for seed in order to capture as large supplies as possible. One of the main activities of the cottonseed trade associations has been to prevent an uncontrolled war of this sort from raising prices. In fact, insofar as the associations have succeeded in minimizing such competition through establishing a uniform price, the price of seed tends to be lower than it would be were competition entirely free.

Association activities and custom have created certain fixed elements in the cottonseed price structure that have nothing to do with supply or demand within the industry or the general price level without. Among these are the fixed differential between wagon- and car-lot seed prices, the quotation of seed prices in terms of a whole dollar and linters in a quarter of a cent, the differences of seed prices under grading systems, seed price zones that correspond to the jurisdiction of regional trade associations, identical terms of sale—when enforced—and, in a sense, the dependence of mills on the same freight schedules. In addition there are certain pre-pecuniary barter arrangements which limit all else. Among them are the subtraction of ginning cost from seed returns and the deduction of a definite proportion of seed and cotton for rent. And most striking of all was the old pound-for-pound exchange of seed for meal.

Within the industry, regardless of trade-association efforts to create price uniformity, there are important speculative arrangements that affect prices not only from year to year, but also within a single season. It should be clearly understood that the crushing-mill business, quite aside from its subsidiary undertakings, is not merely one of purchasing a

COTTONSEED

raw material, processing it, and selling the derivative products at a small profit above cost. It is also a highly speculative undertaking in which seed is frequently bought with the expectation that profits will be made from the sale of products at prices considerably above what could be secured on the basis of adding reasonable conversion costs to current seed prices. In addition, many mill owners speculate on the side in cottonseed-oil futures. Seed prices are also affected by the fact that many ginners speculate on the seed they purchase, hoping that they will secure more than the usual wagon-car lot differential on each lot of seed. These speculative factors are to a considerable extent responsible for the frequent changes in price that occur within a given season. There is a tendency for seed prices to rise as the season advances because mills make special efforts to secure seed as the season draws to a close in order to utilize as much capacity as possible, because there are some large seed dealers who hold seed until late in the season and force up prices, and because products prices also tend to rise late in the season. With the partial exception of the seasonal trend, fluctuations within the year are largely of a speculative nature.

Probably the outstanding factor within the industry in determining the cottonseed price level is the constant clash between the mills owned and controlled by the large refining interests and the independent mills and small chains. The large refining companies operate their crushing mills as units of large vertically integrated concerns. It is mostly a matter of accounting for them whether a profit is shown by their subsidiaries or the parent company. On the other hand, the whole purpose of the independents is to operate at a profit. The refiners want low conversion costs; the independents want sufficiently large mill spread to cover their higher costs and assure profits. Both want to secure the maximum tonnage of seed and want seed prices as low as possible. But the refiners are more willing and better able to pay higher prices for seed than their competitors, and are often willing to sacrifice mill profits for tonnage.

All crushers want meal, hull, and linter prices to be as high as possible. But while the independents also wish to secure the maximum prices for their oil, the refining interests are anxious to keep them down. This is because the three largest refiners owning mills—Procter & Gamble, Wesson Oil, and Swift—crush about a quarter of all crude oil produced, but consume approximately 60 per cent of the total output. It is therefore to their advantage to depress prices and take a loss on the quarter of their raw material produced by their own mills, and more than make it up through purchasing the majority of their crude oil at low prices from independents. Not only is it possible for them to take a "bona fide" loss of this kind in open-market sales; they can also take a bookkeeping loss on their intercompany oil transactions and by reporting them to the trade associations as genuine sales have a depressing effect on all prices. Higher

PRICE AND PRICE POLICIES

prices would make the financial accounts of their crushing mills look better; but would make their total crude-oil costs considerably higher. It is suggestive in this connection that officials of the Buckeye company, the crushing-mill subsidiary of Procter & Gamble, testified before the Interstate Commerce Commission that their company had sustained losses in its crushing business in all but three out of twenty-one years.

The refiners tend also to depress crude cottonseed-oil prices through encouraging the importation of copra, coconut oil, and other cheap tropical oils. While coconut oil is not so satisfactory for shortening as cottonseed oil because it tends to sputter when heated, it can be used. It has become the leading constituent of oleomargarine, and has largely displaced cottonseed oil in soap manufacture. Tropical oils, especially those coming duty free from the Philippines, are generally cheaper than cottonseed oil on the Pacific coast. However, their importance as effective competitors depends largely on the freight rates from western ports to refining points. These rates have been fixed by the ICC at slightly over one-half of the freight rates on crude cottonseed oil. The refiners were extremely active witnesses in trying to obtain from the commission these lower freight rates on imported oils. The refining companies, naturally being interested in securing their raw materials at the lowest possible price from any available source, were both willing to sacrifice the prices their crushing mills received for crude oil and apparently even anxious to depress those prices.

To the extent that the refiners are successful in depressing crude-oil prices, they tend to make the other products cover a greater proportion of the crushing costs. And to the extent that the price of crude oil affects that of seed, the refiners' program may tend to depress the whole level of seed prices, in spite of the fact that they sometimes try to pay more for their seed than their competitors. The importance of the refiners' interest in low oil prices and their mixed attitude toward seed prices is magnified by the fact that they play a leading role in trade-association price-uniformity activities. It is the terminal mills, which are frequently the refiners' mills, that have taken the lead in reporting prices. As most independents usually follow price changes initiated by the larger companies, the refiners' price policies are reflected throughout the industry. The independents have, in fact, made complaints to the effect that certain refinery mills were being operated for tonnage instead of for profit and intimated that it was a virtue to run a mill for profits and decidedly unethical to run one at a loss. In 1929 they complained particularly against the seed raids during the preceding year of the Buckeye Cotton Oil Company, accusing it of paying such high prices for seed that it could not possibly cover operating costs. In fact before certain companies agreed to continue their membership in the N.C.P.A., they demanded assurances that these practices would be discontinued. When the good

COTTONSEED

news was passed around that the Buckeye company agreed to operate for a profit everyone seemed to be reassured.

The striking similarity of the year-to-year price movements of cottonseed and each of its four primary products is yet to be explained. It has been intimated already that certain factors affect all of them in common. First, the size of the cotton crop is the outstanding factor in determining the visible supplies of each. That is to say, the amount of seed crushed changes from year to year in about the same way as the amount of cotton grown, and the amount produced of each of the four primary cottonseed products follows very closely the quantity of seed crushed. Also the supply of each of these commodities is the outstanding influence in determining its year-to-year price movement. This becomes apparent in the light of the facts that there is a similar inverse relationship between the production and prices of each of these commodities and that the prices of all of them move pretty much in unison. It would be unreasonable to expect this similarity on the basis of the entirely different and noncompetitive demand situations of cotton lint, crude oil, meal, hulls, and linters. The prices of these five commodities, as well as of cottonseed, are affected in a similar way by governmental crop-production programs which affect the reduction of each, and by governmental crop estimates that have a similar effect on the prediction of future supplies of each of these commodities.

Although the price of seed does not bear a constant relationship to the weighted average value of its products, and although few individual mills use the spread formula for calculating seed prices, undoubtedly most crushing mills take into account how much they are apt to get from the sales of oil, meal, hulls, and linters when they purchase seed. They undoubtedly predict that the prices of their products are going to go up or down before the end of the season and they generally purchase seed with this in view. Thus in 1934 a great deal of seed was bought at prices that could not enable mills to cover their conversion costs on the basis of current products prices. While these purchases were partly made out of habit, regardless of price, they were apparently primarily made in the anticipation of the products markets going up. But this speculative consideration of product prices in connection with determining seed prices is a very different thing from automatically fixing seed prices through a constant spread on the basis of contemporary prices of products.

Products prices undoubtedly play an especially important part in the determination of seed prices early in the season because active sales of products take place for a much longer period than active sales of seed. They give at least some indication of what is likely to happen to seed prices during the coming season. Along with reports and governmental estimates of the cotton crop, which they reflect, the early-season prices of products were undoubtedly taken into consideration in those instances

PRICE AND PRICE POLICIES

when certain state trade associations agreed upon specific opening cottonseed prices for the new season.

There are also important psychological factors that both account for the similarity in the price movements of cotton, cottonseed oil, meal, hulls, and linters and for the inverse production-price relationship of each of these commodities. These psychological influences are quite beyond the physical economic realities of the situation. It has been seen that prices do not affect the production of any of these commodities except cotton and, to a limited extent, linters, and have a limited but not consistent effect upon carry-over and demand. There is little, if any, evidence that when the supply is large the accompanying lower prices cause the supplies to be used up more rapidly; and there is no conclusive evidence to the effect that when supplies are low, higher prices appreciably decrease consumption.

One is practically forced to conclude that in this industry prices have relatively little influence on stimulating or checking physical production or consumption. If prices have some slight influence of this sort, it is certainly not sufficient to account for their marked relationship to production. On the other hand, one is compelled to question then whether there is any economic reason for prices to be so strongly influenced by production. One is led to believe that this relationship between production and price is largely the result of a deeply ingrained psychological attitude that was probably carried over from other industrial situations where it had a greater physical validity. This attitude is developed especially in the cottonseed-oil futures ring, where it is apparently a moral truism that prices of a commodity are set by its visible supplies and disappearance and by the visible supplies, disappearance, and prices of its competing products, and that speculation must be conducted on the basis of this principle. It matters not that a rise in price cannot diminish future supplies; when there is a reported decrease in visible supplies, it is considered only fitting and proper to raise the price. Many of the day-to-day or minute-to-minute price changes in the futures ring do not even have a mythical relation to the physical situation of commodities but fluctuate in accordance with the speculative objectives of the traders. However, in the last analysis traders probably play their games partly on the basis of what they think the relationship will be between supplies and disappearance at some time in the future. Or rather, they guess how opinions regarding this relationship will be eventually translated into price. They apparently feel that it is only right for prices to be lower if supplies will exceed disappearances whether or not lower prices will have any effect on the physical or material situation. Similar attitudes seem to be habitual among the buyers and sellers of cottonseed and its other products.

There is another important psychological factor which tends to strengthen the relationship of the yearly price movements within the

COTTONSEED

cottonseed industry. This is the tremendously important place occupied by cotton in the life of the agricultural South and on most commodity exchanges. It is obvious that cotton ginner, who are the main wholesale sellers of cottonseed, follow the cotton market, and there is little doubt that most crushing-mill men also are aware of the price movements of the South's principal product and probably tend to make their seed prices conform roughly to those of cotton. Similarly cotton prices are posted on the board of the New York Produce Exchange, which is the main market for cottonseed-oil futures, and probably traders in the ring take cognizance of movements in cotton prices. The deference that the cottonseed people apparently have for their noncompetitive joint product has undoubtedly a basis in the thought that both should be influenced by identical crop factors and in the faith that a sudden change in cotton prices might reflect an important production change that should influence cottonseed prices in the same way. In addition, there is always a tendency for a speculative movement in one commodity to be translated into sympathetic flurries in the prices of allied commodities.

THE CASE OF COTTONSEED OIL

The conditions surrounding the sale and the further processing of the four primary cottonseed products after they leave the crushing mill are of great importance in determining the level and character of their prices. Crude oil is the most important of these products, comprising from 50 per cent to 59 per cent of their total value. It is sold either through a nominal transaction between a captive mill and its parent refining company; or by an actual sale between a mill and a refining company, usually through a broker.

Trade-association rules standardize certain terms of sale and state how the quality of delivered oil shall be determined. Most of the crushers' state associations and divisions provide for reporting and exchanging the prices of crude oils, hulls, and linters, in addition to the prices of cottonseed. Insofar as the captive crushing mills report their intercompany transactions, they have an especially good opportunity to depress prices. There is no definite evidence of collusion among crushers or among refining companies in setting crude-oil prices, although it has been rumored that when one of the large companies is buying oil, the others stay out of the market to avoid competitive bidding. There can be little doubt, however, that the mere fact that over 70 per cent of the crude oil is purchased by five large companies, which cooperate for a number of purposes, gives them a strategic advantage. As a result, the crude-oil market is primarily a buyers' market in which five large concerns, whose interest it is to depress crude-oil prices, play the dominant role.

Crude oil is sent from the crushing mill to the refinery, where it is first transformed into certain semimanufactured refined oils. The most

PRICE AND PRICE POLICIES

important of these is bleachable prime summer yellow oil. It requires further processing before it attains any of its forms suitable for consumers; but it is the commodity in terms of which trades are made on the cottonseed-oil futures exchanges. Some of the smaller refineries produce only these semimanufactured oils. The larger refining companies generally produce prime summer yellow oil and similar oils. They use most of these oils themselves in the manufacture of shortening, various edible oils, and other commodities; they sell some to other companies. Approximately 70 to 81 per cent of the total cottonseed-oil production is used in the manufacture of vegetable shortening or compound, 7 to 11 per cent for salad, cooking, and edible packing oils, almost 2 per cent for oleomargarine,¹ and a fraction of a per cent for a number of miscellaneous purposes. In addition, about 9 per cent, which comes largely from "foots" and other "refining losses," is used in soap making.²

The cottonseed-oil refining industry is highly concentrated. Although the census lists forty-nine establishments which manufacture shortenings (other than lard) and vegetable cooking and salad oils from cottonseed oil, only a handful of companies control the whole situation. Swift & Company, Armour & Company, Southern Cotton Oil Company, Procter & Gamble Co., and Wilson & Company together produced 86.8 per cent of all shortening shipped in 1933.³ The three large meat-packing companies involved shipped together about 60 per cent of the total, while the other two largest refineries combined shipped about 27 per cent.⁴

¹ The percentage used in oleomargarine increased to 8 in 1936.

² Foots are the dregs that sink to the bottom of the tank during the refining process.

³ These percentages refer to all vegetable shortenings and compounds; they do not refer to lard.

PERCENTAGE OF TOTAL AMOUNT OF SHORTENING SHIPPED BY INDIVIDUAL COMPANIES IN 1933 AS COMPILED BY THE INSTITUTE OF COTTONSEED-OIL FOODS

Name of Company	Percentage of Total Shipment
Swift & Company.....	33.55
Armour & Company.....	16.09
Southern Cotton Oil Company ¹	15.00
Procter & Gamble Co.....	11.85
Wilson & Company.....	10.32
Cudahy Packing Company.....	4.73
Interstate Cotton Oil Company.....	2.23
Humko Oil Company.....	2.30
Houston Packing Company.....	1.27
Lever Brothers Company.....	1.00
Van Camp Company.....	0.66

¹ This figure includes the shipments of two subsidiaries of the Southern Cotton Oil Company, the South Texas Cotton Oil Company and the Gulf & Valley Oil Company, which shipped individually 3.18 per cent and 1.36 per cent of the total. The Southern alone shipped 10.46 per cent.

Note: Swift, Armour, and Wilson together shipped 59.96 per cent of the total; Procter & Gamble and Southern together shipped 26.85 per cent. *These six distinctly largest companies shipped 86.81 per cent.* The six large and small meat-packing companies combined shipped 66.62 per cent of the total.

COTTONSEED

The big five refining companies also are the outstanding producers of cottonseed salad, cooking, and packing oils. This concentration in ownership is of further significance in that it overlaps similar corporate concentration in the manufacture of lard, the most important competitor of vegetable shortenings and lard compounds. The big four meat packers—Swift, Armour, Wilson, and Cudahy—not only produce together about 65 per cent of all vegetable shortening, but also produce 32 per cent of the total United States lard production and 48 per cent of the total federally inspected lard production.¹ The meat packers have long been inter-

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PERCENTAGE OF TOTAL AND FEDERALLY INSPECTED LARD PRODUCED BY THE BIG FOUR MEAT-PACKING COMPANIES

Year	Percentage of total United States lard production by companies				
	Swift	Armour	Cudahy	Wilson	"Big four"
1920	11%	13%	3%	5%	32%
1921	10	12	3	4	29
1922	11	13	3	4	31
1923	12	14	4	4	34
1924	12	13	4	4	33
1925	11	12	4	3	30
1926	11	11	3	3	28
1927	12	11	4	4	31
1928	13	11	4	4	32
1929	13	11	4	4	32

Year	Percentage of total federally inspected lard production by companies				
	Swift	Armour	Cudahy	Wilson	"Big four"
1920	18%	21%	5%	8%	52%
1921	16	20	5	6	47
1922	17	20	5	6	48
1923	18	21	5	6	50
1924	19	19	5	5	48
1925	18	19	6	5	48
1926	18	18	5	6	47
1927	19	17	6	6	48
1928	20	17	6	6	49
1929	20	17	6	5	48

Supreme Court of District of Columbia, In Equity No. 37623, *U. S. v. Swift Co. et al* (1930), Petitioners Exhibit No. 10 as compiled by Livestock, Meats & Wool Division of United States Bureau of Agricultural Economics.

NOTE: This table has been made on the assumption that in each year the yield of lard per hog slaughtered and the percentage of federally inspected condemnations has been the same for each individual company and for the country as a whole. In other words, it has been assumed that the percentage of lard produced by each company is identical with the percentages of swine slaughtered by each company.

PRICE AND PRICE POLICIES

ested in the lard-substitute industry as an outlet for excess fats and as a means of protecting their lard. In 1916-1917, for example, the big five packers produced 43 per cent of all compounds manufactured and 32 per cent of all cottonseed oil refined. The five largest of the other refiners produced 50 per cent of all compounds manufactured and 52 per cent of all cottonseed oil refined.¹ Procter & Gamble, the soap manufacturers, definitely decided to enter the shortening field around 1912. Cheaper oils were becoming available for soap making, and cottonseed oil was commanding a higher price as food than as soap. Procter & Gamble was therefore faced with the dilemma of disposing of its cottonseed-oil equipment or finding a new use for its oil. It chose the second course, secured patents for the hydrogenization process, and entered the shortening field.

The concentration in the cottonseed-oil refining business has been made more effective through the organization of national trade associations. At first the "big five," along with the dozen or so other refiners of any importance, belonged to the Oil and Shortening Division of the N.C.P.A. It had the same general counsel and executive secretary as the Crushers' Division, and the same individuals in some instances represented companies in both divisions. The main object of the refiners' trade-association activities, as of the crushers', has been to achieve price uniformity. That is to say, they have desired to curb competition through having all refiners quote the same price and identical terms for the same commodity at any one time. However, for a while they went one step further than the crushers and attempted to stabilize the price level of their products in addition to securing price uniformity. That is, instead of accepting the basic annual production-price relationship that plays such an important part in all crushing-mill prices, together with changes in the general price level, they tried their best to maintain their prices at as even a level as possible.

A study of the vegetable-shortening prices of eight leading refiners from July 1 to December 31, 1926, indicates no uniformity or stability in their prices. Thus, prices declined from 17¼ cents per pound to 9¼ cents per pound and varied as much as 1¼ cents, or 5 to 10 per cent, between different companies on a given day. However, when the Oil and Shortening Division's current price-reporting system was put into operation in 1927, the situation changed. A similar study of the prices of shortening reported by the same eight companies from September

¹ These other five refiners were Procter & Gamble, the Southern Cotton Oil Company, the American Cotton Oil Company, the Magnolia Provision Company, and the Portsmouth Refining Company. These 1916-1917 data come from the 1919 Federal Trade Commission's *Report on the Meat Packing Industry* as summarized by G. M. Weber and C. L. Alsberg, "The American Vegetable Shortening Industry," Fats and Oils Studies, No. 5 of the Food Research Institute of Leland Stanford Junior University, 1934.

COTTONSEED

17, 1928, to August 31, 1929, shows that prices ranged from 11 to 12 $\frac{1}{4}$ cents per pound and that all the companies reported price changes at practically the identical time. During the entire eleven and one-half months' period there was never a difference of over $\frac{1}{4}$ cent per pound among the various refineries. In almost every case variations of this sort were removed within a day or two by reported price readjustments.¹ The extent to which the refiners maintained their prices is indicated by the fact that between September 17, 1928, and December 31, 1930, during the period they were actively reporting shortening prices, the price of shortening was maintained at a relatively high level, declining only about 12 per cent over the two and one-half year period. During the same time, the prices crushing mills received for crude cottonseed oil declined 26 per cent, the price of cottonseed declined 32 per cent, the price of lard declined 23 per cent, and the Bureau of Labor Statistics general wholesale price index declined more than 20 per cent.

The refiners' price program was initiated soon after a significant address was delivered—by one of its leaders—to the Oil and Shortening Division in November, 1926. Quotations were made at length from a speech of Judge Gary of the United States Steel Corporation, advocating the need of cooperation among competitors and condemning the practice of going outside one's "natural territory" and cutting prices in order to effect a particular sale. The refiners thereupon formally adopted Judge Gary's cooperative doctrines and to make them a reality resolved to inaugurate a system of exchanging price information. On March 28, 1927, the refiners' division adopted a trade-association code on the basis of which the business of all its members was to be conducted.² It was successively revised on September 17, 1928, April 17, 1929, and October 3, 1930. Although some changes were made in regard to reporting retail and current prices, the reporting system under each of these codes was similar. Each member of the division was to report the prices of all sales of shortening and salad oil to the secretary of the divisions to be published and relayed to all members simultaneously. Members were required to telegraph immediately any changes they might make in their price lists. The competing companies maintained virtually identical prices in the same markets in the same district through this publicity, which was apparently supplemented by customary adherence and gentlemen's agreements.

¹ For the data here and for most of the data on pp. 279-281, the author is indebted to Walter L. Rice, special assistant to the Attorney General of the United States, for use of an unpublished manuscript.

² This code and the succeeding ones discussed here should be clearly distinguished from the semigovernmental codes initiated under the NRA and the AAA. The trade-association codes in this industry, as in others, were merely attempts on the part of businessmen to conduct certain of their affairs cooperatively in accordance with rules of their own choosing without overtly coming in conflict with the antitrust laws.

PRICE AND PRICE POLICIES

In order to make this price-reporting system effective, it was essential to check continually the reported prices of members against their actual prices. This was done through inquisitorial letters written by the secretary of the division to members accused by competitors of deviating from their price lists. The accused member was required to answer the secretary's inquiry satisfactorily. Departures from price lists were generally excused as being made without authority by local managers and assurances were given that this would never happen again. Swift & Company, for example, wrote to the association secretary on December 5, 1928:

Please be informed that our Philadelphia Sales Outlet did sell the Sosangelis Brothers salad oil $\frac{1}{2}$ a pound under the published price.

We have handled this matter so that in the future sales will be made in line with our published price.

Similarly, on May 23, 1930, the Procter & Gamble Co. wrote to the secretary that:

Our Boston organization had no authority whatever for making such a delivery, and now understands quite thoroughly that published prices and terms are to be strictly observed under any circumstances whatever.

The importance of the strict observance of the price-reporting system and its partial dependence on amicable personal relations between the members of the association is indicated by a dispute at the January 27, 1928, meeting, at which a representative of Swift & Company announced that, owing to a lack of satisfaction with conditions in Arkansas, his company would "discontinue selling the retail trades on open published prices and would authorize their branch house manager to thereafter meet competition as they found it." A trade-association official stated at the March meeting that this action on the part of Swift & Company rapidly demoralized price conditions in Arkansas as well as in other sections and that "the work of eighteen months had been seriously impaired if not wholly wrecked in a few short days. To me it is unthinkable that this great industry, made up of not more than fifteen or twenty unrelated units, should be incapable of self regulation." Thereupon the members of the division unanimously reaffirmed their allegiance to the code. There can be little doubt that such regular meetings of the trade associations, which were held twice every month, had an important effect on enforcing and working out the details of the price-reporting system. In addition, they gave informal opportunities to set prices. And the fact that the industry's price prophet was the founder of the notorious Gary dinners is extremely suggestive.

On November 15, 1929, the Department of Justice notified the N.C.P.A. that it considered the reporting of current prices illegal. The

COTTONSEED

refiners, as well as the crushing mills, who were also exchanging current prices at this time, promptly assured the department that in the future price reports would be confined to "past and closed transactions." This presumably meant that any prices published by the association or exchanged by its members were to refer to prices paid for actual sales of goods. However, the assurances given by the refiners soon proved to be meaningless, for they employed the rather obvious device of labeling current prices as past prices. This is indicated by the language of inquisitorial letters and answers by refiners which were exchanged in 1930. Regardless of the obvious meaning, they were drafted so as to include the mystical phrase, "past and closed transactions." For example, Swift & Company answered a complaint from the secretary of the association in May, 1930, in the following manner:

On account of a new manager at Savannah there were some misunderstandings relative to their list and the sale was made as you have outlined, without our authorization. We have gone into this thoroughly with the new manager and since that time our sales have been in line with closed and past transactions.

Although this subterfuge worked for a time, the refiners apparently feared prosecution by the Department of Justice, and before the end of 1931 they began to drop out of the Oil and Shortening Division. In its place they organized the Institute of Cottonseed Oil Foods in July, 1932. Its officers have included representatives of all the big five shortening companies; and its most outstanding officers have also been officers of the Oil and Shortening Division. Three of them have been active in the Crushers' Division, whose executive secretary—formerly on the staff of the Federal Trade Commission—has simultaneously been executive secretary of the Crushers' Division.

The institute was organized to promote "a high standard of business ethics, eliminate uneconomical and unfair trade practices, encourage uniformity and certainty in business customs and practices, and to promote a greater appreciation and use of cottonseed oil foods." It will be recalled that the business customs and practices which the refiners in the old Oil and Shortening Division wanted to have uniform and certain included not only terms of sale and price differentials but also prices. It appears that the refiners have used their institute much as they used their old trade association. In spite of denials, they seem to have adopted trading rules similar to those in the old Oil and Shortening Division's codes, except for the clause specifically providing for price reporting. However, it seems clear that the refiners have continued to exchange price information. As early in its history as August, 1933, the secretary of the institute received an answer from a member company in reply to an inquisitorial letter requesting an explanation of certain prices it had quoted on shortening. The secretary promptly forwarded the explanatory

PRICE AND PRICE POLICIES

letter to the member who made the complaint. Perhaps the formal exchange of price information is less frequent under the institute than under the Oil and Shortening Division. However, in the light of their past history, it is hard to believe that the shortening companies have not discussed their price intentions in an informal way at their regular monthly meetings. This feeling is strengthened by the refiners' avowed desire for open price reporting which they expressed at hearings before the AAA. Since the shortening industry is dominated by five companies, the informal exchange of price information at meetings or over the telephone must be extremely simple. At all events, the prices of all these companies are generally the same at any one time.

The systematic reporting and exchange of basic prices could not have resulted in price uniformity or stability without defining a price quotation. As in the case of the crushers' program, it was essential to make a quoted price have the identical meaning for all members of the association. This was done by the refiners' division in two ways—through standardizing terms of sale and by establishing uniform quantity and quality differentials for each commodity. The basic idea behind the standardization of terms is that the "entire consideration" be included in the price. Therefore, all commissions, rebates, and special allowances to customers were strictly prohibited; and all permissible time allowances were specifically described. When the refiners' price-reporting system was at its height in 1928 and 1929, the basic price was quoted in terms of carload shipments. Uniform differentials were established for less than carload shipments that ranged from $\frac{1}{4}$ cent to 3 cents above the basic price, depending on the quantity shipped and type of container used. With basic prices ranging between the narrow limits of 11 cents to $12\frac{1}{4}$ cents per pound during this period, the importance of fixing differentials is obvious. The refiners also have agreed upon differentials in the basic price between certain parts of the country.

The refiners have made some distinctions between certain broad quality classifications in quoting shortening prices. However, no distinction is made in the quality of most shortening that is sold. This assumption that most shortening is of the same quality is remarkable in that different companies use different processes and even different ingredients in making it. The meat packers generally harden their vegetable oils, so as to form a lardlike substance, with oleostearin. Procter & Gamble hydrogenate vegetable oils—that is, pass hydrogen through them in the presence of a catalyzer—to produce their shortening. Until recently they had a patent monopoly of this method. The Southern Cotton Oil Company has had a process of its own for hardening vegetable oils. Cottonseed oil forms 75 per cent to 100 per cent of these shortenings; its proportions and those of other vegetable oils and of oleostearin and other animal

COTTONSEED

fats vary both from company to company and from time to time. These differences are too complex to make a satisfactory grading system practicable; but they are slight enough for the creation of a hypothetical shortening on the basis of which prices may be reported and price competition may be abolished.

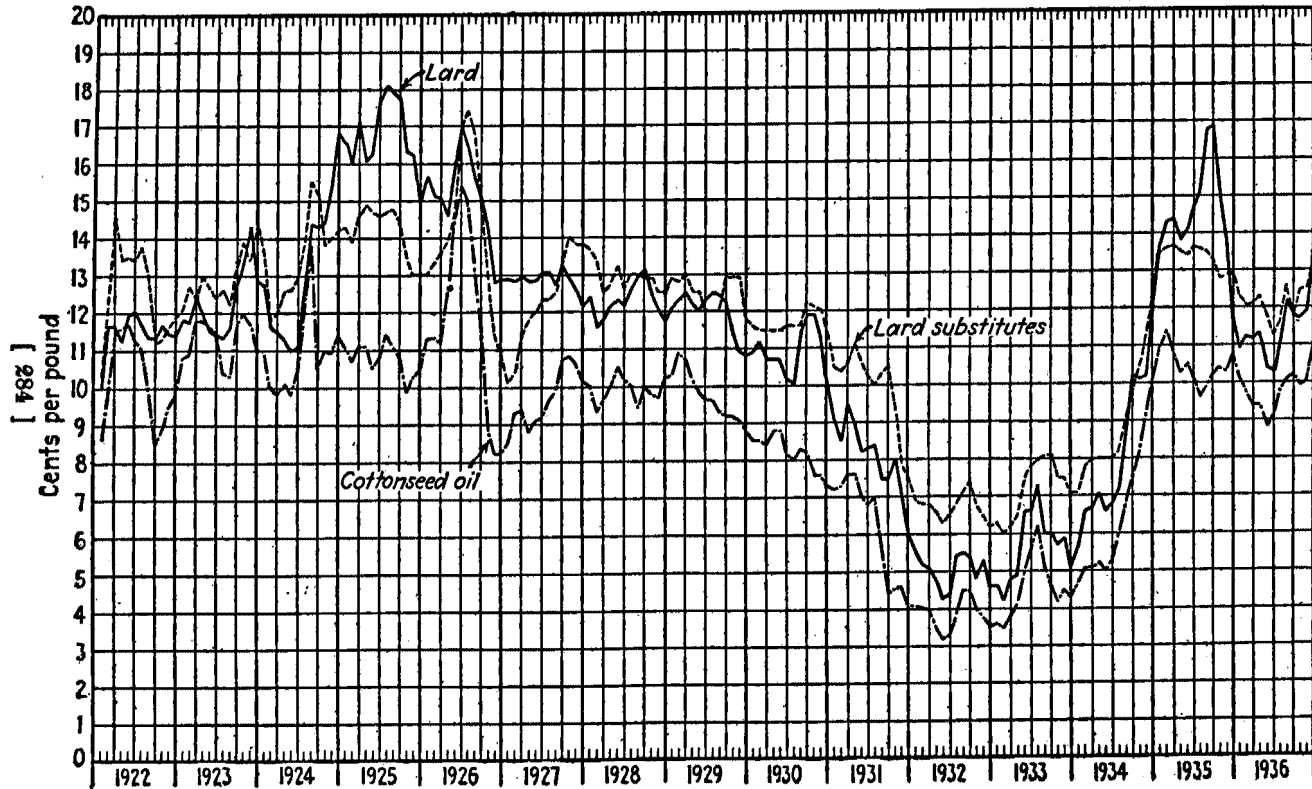
As a part of their program to fix differentials and prices, members of the Institute of Cottonseed Oil Foods initiated a standard-package program. After various preliminary efforts during the late twenties, they agreed in December, 1934, to eliminate all but nine specified types and sizes of containers for shipping shortening. In addition, their institute conferred with the Institute of American Meat Packers, to which several of their members also belong, to get the meat packers to agree to sell lard only in the same standard containers as had been adopted for vegetable shortening and compound.

As part of their system of price uniformity, the refiners have tried to maintain some control over distributors and apparently would like to transform them practically into their own selling agents. The refiners have limited wholesale buyers to those listed in *Thomas' Register of American Manufacturers*.¹ They have also tried to curtail, if not abolish, the practice of companies' buying shortening and oil in wholesale quantities from refiners and repacking it and selling it under private names. With this in view they provided in their 1930 code that "private brands not in existence on April 2, 1927, shall not be packed and no unbranded package shall be offered for sale." This rule was expected to transform the distributor into an agent and to prevent refiners from granting price concessions by packing private brands for distributors. There is some evidence that, during recent years at least, the refiners have dictated the prices at which distributors may sell as well as buy their shortening and oil. In addition the refiners have apparently diminished the differential between the distributors' buying and selling prices. This has made solvency especially precarious for independent oil packers who buy oil in bulk from refiners and repack it under their own name.

In 1929 the refiners attempted to supplement their system of reporting wholesale prices by having each company publish its retail prices. But the plan was soon abandoned because there was no method of indicating whether distributors followed the refiners' retail prices. Although the refiners' plan failed, the average yearly retail prices of high-quality vegetable lard substitutes sold in 1-pound containers have been remarkably steady. From 1924 through 1930 they varied only 1.6 cents (see Chart D). During this period they but faintly reflected the prices of crude and refined cottonseed oil and of wholesale lard compounds.

¹ This is a general reference guide for buyers that lists the names of the manufacturers, exporters, and wholesale buyers of many industries.

CHART F.—MONTHLY PRICE MOVEMENTS OF P.S.Y. COTTONSEED OIL, LARD SUBSTITUTES AND LARD, 1922-1936



For source see page 285.

PRICE AND PRICE POLICIES

COTTONSEED

Most of the important producers of lard substitutes also manufacture a retail shortening. Procter & Gamble was especially successful at breaking down housewives' prejudices against lard substitutes. They put a straight vegetable shortening on the market in an expensive metal container and actively advertised it under the name of "Crisco." By far the most shortening, however, is shipped in bulk to bakeries, restaurants, and hotels. During the past ten years, 60 to 70 per cent of the total output of lard substitutes has been sold in units of over 8 pounds. But since few 8-pound packages are sold by retail grocers, probably less than a fifth of the total output is bought by household consumers. Insofar as it reaches the consumer, it does so as a raw material of bakery and restaurant products. Its price is disguised, along with the prices of other raw materials, in the prices of bread or cake, which change slowly and are limited by custom. But along with the prices of other raw materials, the price of shortening probably affects the level of bakery prices.

Wholesale lard-substitute prices, as has been seen, reflect the year-to-year price movements of cottonseed and cottonseed oil. At the same time they influence and are influenced by lard prices. Lard and lard-substitute prices do not move in the same direction every year, but generally are not far apart; and they move together with even greater unison on a month-to-month basis (see Chart F). Both price series also tend to parallel the monthly prices of prime summer yellow cottonseed oil. Lard and lard-substitute prices have moved together because they are competitive products. However, since 1927, the monthly fluctuations of lard substitutes have generally been less sharp than those of lard. This is largely due to the ability of the shortening manufacturers to exert greater control over lard-substitute production than the meat packers could exert over lard production. The relationship between lard and cottonseed-oil prices has on the whole been even closer than the relationship between lard-substitute and cottonseed-oil prices. This is largely due to the fact that both lard and cottonseed oil are traded on futures exchanges, where it is assumed by speculators that a change in the price of one should be reflected in a change in the price of the other. In addition, one would expect lard-substitute prices to fluctuate less frequently because they reflect contract prices made under a system of price uniformity, while the lard and cottonseed-oil prices reflect more closely the prices of speculative exchanges.

Competitive Commodities and the Future of Oil Prices. The prices of cottonseed oil and the various commodities derived from it are partly

Sources: "Cottonseed Oil, Prime Summer Yellow: average spot price per pound by months, New York," United States Department of Agriculture, *Statistical Bulletin* 59 (May, 1937) p. 80; and United States Department of Agriculture, *Agricultural Statistics*, 1937, p. 105.

"Lard Substitutes: average price per [pound by] 100 pounds, New York, by months," United States Bureau of Agricultural Economics, table.

"Lard, Western Steam: average wholesale price per pound, New York, by months," United States Bureau of Agricultural Economics, table.

PRICE AND PRICE POLICIES

dependent on the character and stability of its various uses. Shortening, or lard compounds and lard substitutes, forms by far the most important outlet for cottonseed oil. In recent years cottonseed oil has comprised around 85 per cent of all raw materials employed in the manufacture of lard substitutes.¹ Its controlling position in the production of these shortenings seems fairly secure in the immediate future. Cottonseed oil is readily available and is of satisfactory quality and its price is in line with rival fats and oils. It has some technical advantages over certain other oils from the standpoint both of making a good shortening and of being readily processed. With the great extension of hydrogenization processes due to the lapsing of certain patent rights this advantage

¹ PERCENTAGE THAT COTTONSEED OIL COMPRISES OF THE TOTAL OILS AND FATS USED IN THE MANUFACTURE OF CERTAIN PRODUCTS

Year	Cottonseed oil			Cottonseed oil and cottonseed-oil foats
	Lard substitutes	Oleomargarine	Soap	Soap
1912	92%	23%	17.8%	29.8%
1913				
1914	92	20	14.5	27.7
1915				
1916	88	27	18.4	29.0
1917	87	23	10.5	20.1
1918	83	10		
1919		10	6.0	17.5
1920	80	10		
1921	87	6	4.9	12.6
1922	85	7	1.8	7.3
1923	85	8	0.9	5.3
1924		7	0.8	6.6
1925		8	0.5	8.3
1926		9	0.3	8.3
1927		8	0.5	9.6
1928		7	1.2	7.6
1929	89	7	0.7	7.1
1930		8	0.5	7.1
1931	77	7	0.1	6.8
1932	86	9	0.3	6.8
1933	88	9	0.5	7.3
1934	87	26	0.2	6.3
1935	64	32	0.1	
1936	57	33	0.1	

United States Bureau of Agricultural Economics, *Fats and Oils*, 1914-1933, Tables 26, 30, and 34, and computations based on United States Bureau of Census, *Animal and Vegetable Fats and Oils*, 1933-1936, p. 86.

COTTONSEED

should be increased. In addition, a possible shift to other raw materials would necessitate some changes in manufacturing equipment and would create the hazard that consumers would not like the taste of a shortening composed of other oils. Refinery purchasing habits undoubtedly also play a part in the continued importance of cottonseed oil.

There are a great many other fats and oils that are also used in the manufacture of lard compounds. Peanut oil is technically as good as cottonseed oil, but it is not nearly so available. Coconut oil, while cheaper, can be used only in small quantities because of its taste and its tendency to sputter when heated. Oleostearin will be of less importance for solidifying oil into shortening as the practice of hydrogenization increases. However, its use and that of other animal fats and oils will be largely dependent on the need of meat packers to dispose of these by-products in this way. There are a host of other vegetable oils and some fish oils that can also be used in making shortening; but at the present time they are not produced in sufficient quantity to displace cottonseed oil. Of these probably soybean oil has the greatest potentialities. In a sense, foreign cottonseed oil should be considered a competitor of domestic oil. Generally none is imported; but as a result of the government's crop- and animal-reduction program, some was imported during 1935-1937.

Cottonseed-oil shortenings, having been developed as substitutes for lard, naturally find lard to be their greatest competitor. Although there are certain differences between the two rivals, their shortening qualities are similar and they are largely interchangeable. Because of differences in taste and in their properties of mixing with other baking ingredients, hog lard is frequently preferred in making crackers, and lard substitutes in making cake. It took lard substitutes a considerable time to break through the time-honored tastes and prejudices in favor of lard. The World War stimulated this process because the government's food-control policy forced bakers to use lard substitutes when possible so that a maximum amount of lard could be shipped abroad. Once bakers discovered the possibilities of compounds, many preferred them to lard. Recently a process has been developed for hydrogenating lard so that it is practically the same as its substitutes. This may have a tendency to weaken the position of cottonseed oil and to strengthen that of lard; it will surely strengthen the position of the meat packers. This situation may be especially serious for the cottonseed-oil interests if the recent tendency continues for lard exports to diminish and if excess lard accumulates in the domestic markets.

Since both lard and cottonseed oil as well as oleostearin, tallow, corn oil, and peanut oil are by-products or joint products, their future in terms of availability and price depend on industrial matters beyond their own control. As a result, changes in the cotton, hog, corn, meat,

PRICE AND PRICE POLICIES

or peanut situation may alter the relative position of these various oils and fats insofar as they are interchangeable. Similarly the development of new uses for each of these commodities and technological discoveries which may create new raw materials and increase the potentialities of old ones would materially change the situation.

Next to shortening, the use of cottonseed oil in salad, cooking, and packing oils is its greatest outlet. Although there are various other fats and oils that can be used for these purposes, there seems little probability that they will replace cottonseed oil in the near future. In the manufacture of oleomargarine and soap, the percentage of cottonseed oil declined materially after the war, being largely displaced by coconut oil. Since the better grades command a higher price for use in edible products, most of the cottonseed oil used at present in soap making comes from inferior cottonseed and from cottonseed-oil foots and refining losses which may be regarded as by-products of the main production processes.

The cottonseed-oil interests, especially the crushers, have been anxious to dispose of a greater proportion of their oil in oleomargarine. This recently became technically more feasible through the development of new processes. As part of their program to increase the utilization of cottonseed oil in margarine, the crushers have tried to discourage the importation of foreign oils, especially coconut oil. They have advocated high tariffs on these oils, as well as on copra, and have favored the independence of the Philippines so that copra and coconut oil from these islands could be put under the tariff. It is worth noting in this connection that the crushers' and refiners' interests have been opposite concerning the importation of cheap oils. Apparently the campaign to have more cottonseed oil used in oleomargarine has met with success. The percentage that cottonseed oil comprises of oleomargarine increased from 9 in 1933 to 33 in 1936. Whether this increase can be sustained depends largely on the continuance of effective tariffs and excise taxes on foreign oils and a continued reduction in the number of animals slaughtered in stockyards. However, with the development of new methods and a growing tendency to manufacture vegetable margarines, an increase in the number of animals slaughtered may have little influence.

Both the crushers and refiners, however, have been among those anxious to increase the total production of margarine. With this in view they have advocated the abolition and reduction of the federal and the various state taxes that the dairy interests have succeeded in placing on margarine. More recently the cottonseed associations have been among those favoring a high tax on margarines made with imported fats and oils and a nominal tax on margarines made exclusively of domestic fats and oils. In addition the N.C.P.A. has fought the taxes that South Dakota and Iowa placed, at the behest of the hog interests, on cottonseed

COTTONSEED

shortenings. Frequently these conflicting groups try to obscure their obvious desire to gain special advantages and resort to the phrases of statesmen. They favor freedom for the Philippines, or insist on the "protection" of the American farmers; they declaim the nobility of the cow and the healthfulness of butter, or argue that inexpensive margarine can become "the food of joy and gladness" for countless lowly American homes. They praise the time-honored virtues of the hog, or speak of the purity of vegetable oils. It is therefore clear that the future price of cottonseed oil partly depends on the relative lobbying abilities of the various agricultural pressure groups within and without the cottonseed industries.

The prices of cottonseed oil, lard substitutes, and lard rose sharply in the latter part of 1934 and during 1935 owing to the government's crop-destruction and reduction programs. The reduction in cotton acreage, the smaller corn crop, and the fewer number of hogs from which lard could be made, together with the supplementary effect of the drought, the tariff on coconut oil, and the 1934 excise tax, all played their part. As the *New York Daily Investment News* put it, "New Deal Plays Santa Claus to Cottonseed Oil."¹ It should be borne in mind that while prices of cottonseed oil, of other cottonseed products, and of cottonseed itself were booming, the situation of the share croppers and small tenants, who grow most of the cottonseed, became worse than ever. Not only did Santa Claus draw up inadequate or irrelevant contracts which frequently resulted in parity payments being kept by landlords or being insufficiently passed back to the cropper and tenants remaining on the farms, but in addition his crop-reduction program forced hundreds of croppers and tenant families off the land and into homeless poverty.

Futures Exchanges and Prices. Cottonseed-oil futures exchanges, on which contracts for the future delivery of oil are bought and sold, stand to one side of the productive process. About 95 per cent of this business is carried on in the cottonseed-oil ring of the New York Produce Exchange, which was founded in 1904, and the remainder on the New Orleans Cotton Exchange. The contract is in terms of a semimanufactured refined oil that is seldom actually exchanged between companies. On the New York exchange the principal unit for trading since 1930 has been a 60,000-pound steel tank of bleachable prime summer yellow oil.

There are three groups who use the futures exchanges. Refineries use them to hedge their purchases of crude oil, which they generally make during the height of the relatively short crushing season. This enables them to protect themselves from possible losses during the manufacturing period resulting from a change in the relative values of crude oil and finished consumers' products. By no means all the crude

¹ November 19, 1934.

PRICE AND PRICE POLICIES

oil purchased by refiners is hedged. If it were, some traders believe that the relatively small futures exchanges would be swamped and break down. The second group using the exchanges is composed of crushers. However, very few of them use the market for hedging their crude oil. Instead of selling oil futures when they buy their seed, they tend to buy futures on a speculative basis when they are ready to sell their oil. Relatively far fewer crushers than refiners use the exchanges. The third group involved are the independent speculators. Crushers and refiners interested in the exchange justify the existence of these speculators on the ground that the volume of their transactions is essential for the operation of a successful hedging market.

The total volume of transactions on the New York exchange generally represents more oil than is actually produced. But only a fraction of the oil traded in on these exchanges is actually tendered for delivery. Most futures transactions merely counterbalance each other. The fact that refiners actually receive some of their oil through the termination of uncanceled futures contracts is generally regarded as an indication of an imperfect hedging market.

It is difficult for cottonseed-oil hedging operations to be precise because they have to be made with two commodities—crude oil and a semimanufactured refined oil. The difference between the prices of these two commodities is generally assumed to be approximately 1.3 cents at any one time, but actually it changes. Thus the difference between the yearly average prices of crude oil in the Southeast and of prime summer yellow oil at New York between 1920 and 1933 varied from 0.8 to 2.4 cents. The uncertain size of this differential leaves a certain speculative element in cottonseed-oil hedging. Variations in the size of the differential are due primarily to shifting local market situations, the greater influence of lard on refined- than on crude-oil prices, and the fact that not all oil reaches the exchanges. Above all, they are the result of the speculative flurries in futures that are far removed from the purposes of hedging.

There is a tendency for crude-oil prices to follow futures prices rather closely, although naturally they do not change so frequently. Although futures prices tend to reflect the prices being paid by refiners for crude oil, they frequently lead rather than follow crude prices owing to their greater speculative freedom and their wide publication. There is no doubt that both crushers and refiners keep informed on futures prices and tend to be influenced by them. There is some evidence that in certain years the refiners have manipulated the futures markets to depress oil prices at the time they were purchasing crude oil. It is claimed by the proponents of the futures markets that, if a hedging market were not available to refiners and crushers, their additional risks would result in lower seed

COTTONSEED

and crude-oil prices. It has been seen that few crushers use the futures exchanges for genuine hedging purposes and insofar as they speculate in futures they add to their total risks. It is probable, on the other hand, that the refiners reduce some of their risks through hedging on the futures exchanges. But it seems extreme to maintain that if the futures markets were abolished, any added risks of the refiners would of necessity be shifted to the crushers and farmers or consumers. The principal effect of the futures exchanges seems to be to make oil prices change much more frequently and much more irregularly than those of the other three cottonseed products and than would be the case for crude-oil prices were these exchanges abolished. One is inclined to believe that the futures exchanges through stimulating uncertain price flurries cause many of the risks that make hedging seem desirable.

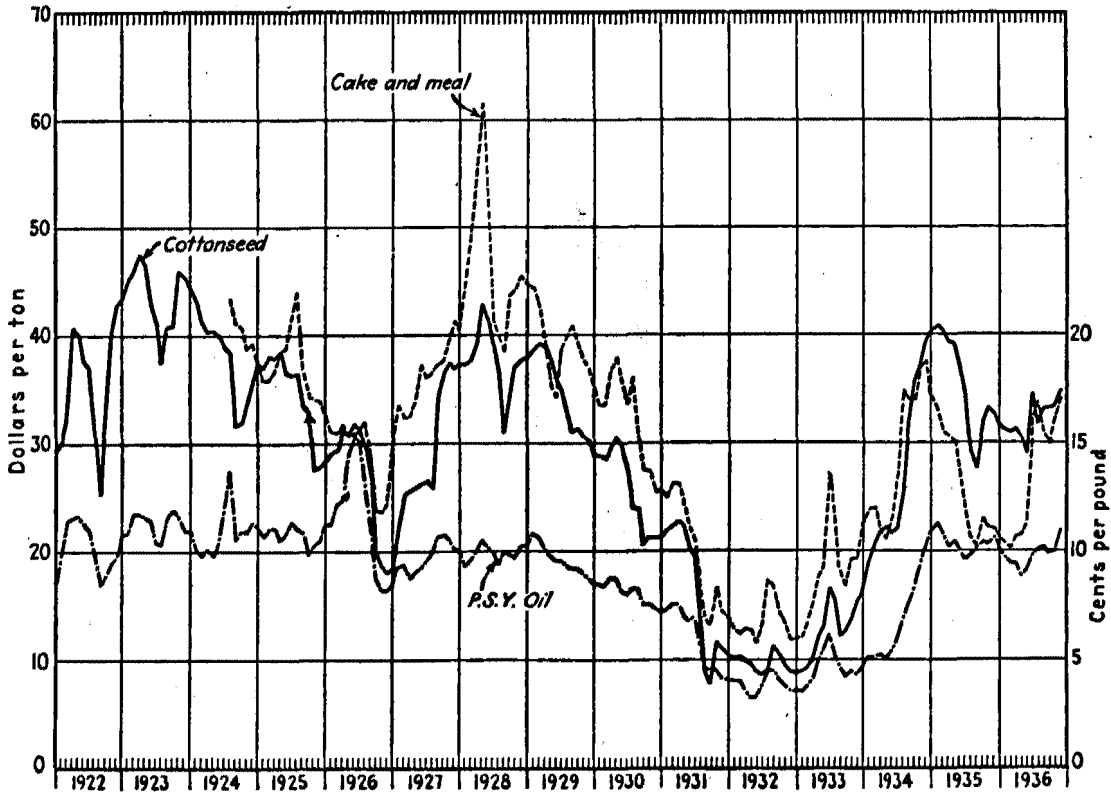
THE CASES OF MEAL, HULLS, AND LINTERS

Cottonseed meal and cake are sold by crushing mills in a variety of ways. Some are sold or exchanged directly to farmers, some are sold directly on contract to large cattle raisers, but most are sold through brokers to wholesale feed dealers and mixed feed houses. The greater portion of cake and meal is used as animal feed; but a considerable amount, especially in the Southeast, is still used as fertilizer.

The prices of cake and meal have been affected by two types of trade-association activities. As has been noted, crushers through the N.C.P.A. have prohibited the ancient practice of mills exchanging meal for seed on a pound-for-pound basis. Where meal is still bartered for seed, it must be done on the basis of the going market prices of these two commodities. This has been equivalent to raising the price of meal. The crushers of Texas and Oklahoma have used their state associations for posting car-lot meal prices, f.o.b. Dallas and Houston. This in effect became a basing-point system because interior mills generally followed these posted prices. Beginning in 1928, a number of mills in these two states, in cooperation with meal and cake dealers, not only maintained the same basing-point prices but also established a uniform differential between the Dallas and Oklahoma City mills. The effect of this plan was to establish uniform wholesale prices surrounding each basing point regardless of different freight rates. This made it easier to establish uniform prices, and cattle raisers located near the interior mills had to pay higher prices than they would have if the basing-point system had not been in operation.

In the country as a whole, cake and meal prices have tended to follow cottonseed prices very closely on both a year-to-year and a month-to-month basis (see Chart G). Although most of their major monthly movements correspond, not all their fluctuations are the same and the

CHART G.—MONTHLY PRICE MOVEMENTS OF COTTONSEED, P.S.Y. COTTONSEED OIL, AND COTTONSEED CAKE AND MEAL, 1922–1936



Sources: "Cottonseed: estimated average price per ton received by producers by months," *United States Agricultural Year Book*, 1935, p. 437; and *United States Department of Agriculture, Agricultural Statistics*, 1937, p. 104.
 "Cottonseed Meal: 41% Protein at Memphis, average price in dollars per ton by months," *United States Agricultural Year Book*, 1935, p. 438; and *United States Department of Agriculture, Agricultural Statistics*, 1937, p. 104.
 Cottonseed Oil, Prime Summer Yellow: same as Chart F.

COTTONSEED

differential between their prices varies. It is of interest, however, that the monthly price curve of cottonseed corresponds much more closely to that of cake and meal than to that of cottonseed oil. This would seem to indicate a greater dependence of meal prices on the cotton situation and greater freedom of oil from the cotton crop. This is probably due to the more active speculative market and the greater corporate control from the top in the oil industry. The increasing number of futures transactions in cottonseed meal on the Memphis Merchants' Exchange is apparently not important enough to alter these relationships appreciably.

Cottonseed cake and meal have become relatively much more important as animal feeds than their total volume would indicate. Although these cottonseed products account for only about $1\frac{1}{2}$ per cent of all feed concentrates in terms of feeding value, they are used very widely. In fact, probably most beef and dairy cattle are given cottonseed meal at some time in their lives. It is the most important of the concentrates used in mixed feeds and has a very high protein content and feed value. Farmers generally mix small quantities of it with less highly concentrated feeds. The proportions used depend upon the availability and cost of other commercial concentrates and of corn, and the availability of pasture and other types of feed. They are also determined by the season of the year and whether animals are being fed for maintenance, fattening, or milk. If cottonseed meal were no longer available for feed it would not be disastrous but would be extremely inconvenient. This former waste product has gained for itself an important place in the now customary feeding procedures of cattle raisers and dairymen.

It is curious that the outstanding concentrates used in commercial mixed feeds that compete with cottonseed meal are also joint products. The most important of these are bran, middlings, and shorts—by-products of wheat milling; tankage, a by-product of meat packing; linseed meal, a by-product of flax raising and linseed-oil crushing; and a number of miscellaneous cakes and meals that are the by-products of producing various other vegetable oils. The prices of these different by-product concentrates have tended to follow the prices of cottonseed meal; and to some extent cottonseed meal has followed their prices. Similarly the prices of beef cattle and of dairy products both influence and are partially influenced by the price of meal. However, the availability of rival feeds and special sectional market conditions have more to do with the price of meal than have the prices of similar feed concentrates or the prices of beef and milk.

Crushing mills sell most of their hulls to farmers or feed dealers within a relatively short distance from their mills. The slight value of hulls compared with their weight makes it unprofitable to ship them great distances. As a result there are numerous local price zones for hulls

PRICE AND PRICE POLICIES

in which prices are largely determined by the prices and availability of equivalent feeds. These zones have tended to become larger in recent years as terminal mills have frequently resorted to trucks for the direct delivery of their feed products to farmers and local dealers.

Cottonseed hulls do not fall exactly within any one feed classification, but fall somewhere between roughages and stovers. As a result they most frequently come into competition with hay and straw. Hulls are sometimes ground in with meal to produce a meal with a lower protein content. Insofar as this is done, the proportions of feed sold as meal or hulls may be varied somewhat from year to year. Most states require that the quality and content of feeds sold within their jurisdiction be clearly indicated. They generally also levy a registration fee on each brand of feed and an inspection fee or stamp tax on every ton of feed sold. Meal and hulls are also subject to the federal pure-food laws. Some states have legislated against the use of hulls in mixed feeds. Meal, which is generally sold according to its ammonia content, may also be chemically analyzed for settlement purposes under the rules of the N.C.P.A.

Meal and hulls, as has been intimated, are used for contrasting feed requirements, and their effectiveness as feeds is by no means the same. According to the *Agricultural Year Book* of 1923, the feed value of meal and cake was, in terms of units theoretically required to support an animal for one year, five and one-half times that of hulls. On the basis of other hypothetical feed valuations, the result would undoubtedly be somewhat different. But it is suggestive that between 1921 and 1936 the price of meal per ton was from three to five times the price of hulls. In other words, the price relationship of meal and hulls was out of line with their feed value relationship.

If the difference in the level of the prices of meal and hulls does not correspond with their effectiveness as feeds, what determines this difference? It is clearly not the relative weights of the two recovered from a ton of cottonseed, nor their relative production costs. Nor is it the relative importance of concentrates to roughages as items of diet, because both are necessities. The difference in their prices can be partly explained in terms of relative difficulty of fulfilling each feed requirement; but there is no evidence that concentrates are three to five times as scarce as roughages. The price differential between meal and hulls must be explained largely in terms of contrasting market situations. Although meal and hulls have their birth together and may even meet again inside some animal, they belong to divergent worlds. Meal competes primarily with feeds that farmers generally buy from distant producers. Hulls are more subject to the influence of local situations and compete primarily with feeds that farmers raise themselves. Each of these worlds has its own vague habitual process for translating value judgments into pecuniary

COTTONSEED

terms. And, similarly, the levels of cottonseed oil and linter prices, in the last analysis, are not set so much by considerations of cost and scarcity as by customary valuation. This, however, is not static since new uses appear. Oil changes from a soap stock to a shortening; meal changes from a fertilizer to a feed or to a human food. When a new use becomes dominant, a commodity generally moves into a new realm of evaluation.

The level on linter prices is primarily influenced by two noncompeting markets. The older one is for mattress- and furniture-stuffing material. Here linters compete with cotton-mill waste and some other miscellaneous commodities. The newer market for linters is for cellulose raw materials. The war gave a great impetus to this use. For its duration the government required crushing mills to make all their linters in a form suitable for munitions. Since then an important part of the linters production is used by cellulose manufacturers. In this field it competes primarily with wood pulp. The larger establishments are equipped so that they can use either raw material, depending upon which is cheaper. In spite of their interchangeability, the prices of linters and wood pulp—except during rapid changes in the general price level—do not move together from year to year. The export market also has an important influence on the demand for linters. It generally absorbs from 10 to 25 per cent of the total domestic production.

There is no organized market for linters. Most are bought ungraded, subject to the buyer's inspection and acceptance. However, standard government grades have become increasingly important in recent years for guiding production control and sales. Crushing mills sell their linters through brokers and dealers, and directly to factory agents. There is considerable concentration on the buyers' side of the linters market for cellulose because only a handful of corporations dominate cellulose manufacturing. In fact in 1931 there was only one buyer purchasing linters for the cellulose industry in a territory comprising at least the entire state of Texas.

SUMMARY

The price structure of the cottonseed industry has been surveyed in some detail. An attempt has been made to analyze the underlying economic and social factors behind these prices. This analysis has led to a number of conclusions. Various business groups have tried to organize the industry for their own advantage through making mutual agreements concerning trade practices and prices. These activities have had to be carried on within the limits of factors beyond the bounds of the industry. There is a constant struggle going on throughout the industry between conflicting groups, and particular price situations may affect each group differently. Custom, the broader market situation, trade-association

PRICE AND PRICE POLICIES

activities, and relative bargaining strength determine prices, and pecuniary forms are sometimes used to disguise the nonpecuniary reality.

It has also been observed that the price system in the cottonseed industry has provided the overwhelming majority of cottonseed growers and millworkers with a miserable standard of living, that the crushing part of the industry is overequipped, that the solvency of the smaller oil mills is uncertain, and that a small number of refining and meat-packing companies are the chief beneficiaries of the whole process. But their advantage is not necessarily gained so much through the direct profits resulting from their control over the cottonseed industries, as from the control itself of products which are of vital competitive importance to them in their struggle in the higher politics of industry.

The consumer of cottonseed-oil products is at present partially subsidized by the low standards of living of southern cotton growers and Philippine coconut workers. Nevertheless, he is probably forced to pay more for his cottonseed products than would be necessary if the cottonseed and allied industries were efficiently organized and were operated for social ends. And he is certainly forced to consume his cottonseed-oil products without knowing their exact ingredients or quality.

The question remains, can the major problems of the cottonseed industry be solved by means of some price policy, or must other methods be sought? Can the industry be made to yield a high standard of living to all who work in it, and can it be made to supply good, inexpensive products to consumers through price manipulation alone?

At the outset, it is clear that no single price policy would satisfy the interests of all the various conflicting groups. One would clearly have to choose which groups should be given priority. However, it is difficult to see how any price policy at all can solve the essentially nonpecuniary problems of the share cropper. It is hard to imagine how price controls could affect a production which is independent of price. Nor is it clear just how the problems of an industry which depends at its base on cotton growing and at its top largely on meat packing can be solved within the narrow limits of cottonseed itself. Poverty that is a function of a cultural setting, the overcapacity and general inefficiency which result from free enterprise, the battles for existence between large and small concerns which characterize a competitive system, and the subservience of all human and consumer considerations to solvency and private profits—these cannot possibly be ended merely through a program of price manipulation or control.

One must look beyond price and beyond cottonseed to find an answer to the major problems of the industry. It seems clear that an adequate solution can be found only by a thorough economic and social transformation of southern agriculture and a thorough reorganization of the cotton-

COTTONSEED

seed processing industries and the principal industries which compete with them. It must include the major industries of which both cottonseed and its derivatives are joint products and of which the principal commodities that compete with them are by-products. In other words, the reorganization must extend all the way from the share cropper through the giant meat-packing companies.

This is not the place to describe the form of this transformation; but two points should be clearly understood. First, that just as the problems of the cottonseed industry cannot be solved through price policy, neither can they be solved through a reshuffling of the competitive and monopolistic institutions of private enterprise. And second, the conditions in allied and rival industries and broader causes which make for general depressions and industrial inefficiency are important factors in determining the welfare of those who work in the cottonseed industry. The solution of their problems, therefore, cannot be found unless some better procedures are developed for coordinating cottonseed with other industries through socialized planning and for incorporating social ends within its scheme of control.

SECTION VI

DRESSES—THE IMPACT OF FASHION ON A BUSINESS

BY HELEN EVERETT MEIKLEJOHN

WHAT IS A DRESS WORTH?

EVERY woman who buys a dress makes a judgment in regard to its value. No matter in what price range she may buy she looks upon her dress as a "fair value," "an excellent bargain," or "not worth what she paid for it." These judgments are made in terms of a standard of what constitutes a "right price." If we wished to explore the basis for such a norm, we should probably find in it a host of conventional and personal preconceptions as to what constitutes good material and style, built up out of past buying experience and modified by scattered information about existing market conditions. Such judgments may be vague and fanciful—in our buying of most commodities they are bound to be—but the universal presence of some kind of standard is worthy of notice. When a woman buys a dress of certain quality she believes that it *ought* to sell for a certain price. If the price seems high, "someone" is making too much profit. If the price is so low that it constitutes a bargain there may be an uneasy curiosity as to who is bearing the loss—failing manufacturers, underpaid labor, or dress departments in the red.

As individual consumers we know that our standards of value are shadowy and lack substance, but we know also that the passing of judgment is a deeply prized human prerogative. It is therefore a matter of no little concern that these judgments of ours shall be as informed and relevant as possible. It is that concern which prompts the undertaking of this study. The questions we wish to ask are all implicit in the question of whether a dress is "worth" more or less than is paid for it. And if the inquiry seems to lead far afield, into such matters as how capital is recruited or how style piracy may be controlled, it is only because the idea of what a thing is worth turns out to be one of the haziest notions in the realm of everyday experience.

Let any woman who buys a dress or any man who views it with an appraising eye try to set down the "right price" or a "fair value" and the difficulties become immediately apparent. Is a dress at the "right" price if everyone concerned in its making and selling has earned no more than a

PRICE AND PRICE POLICIES

reasonable living—if, in other words, no one has made an undue profit from it? Such conditions we know might be fulfilled and yet the price might reflect a laggard technology, ineptness in the labor force, an inefficiency throughout the workshop, a disordered organization of industrial units, or wasteful buying and selling practices. There is evidently more to a “right price” than the negative demand that no one shall take undue toll at any point. Or again what of a price that fails to carry the full cost of maintaining the workers? That such prices have existed for many commodities over long periods of time cannot be denied, but as consumers we have been slow to recognize the full implications of the situation. Wages which mean bad living conditions, undernourishment, and overstrain may be partially translated into community costs of increased medical care and relief, but to a large extent they are borne by the workers whose loss of stamina and vitality is transmitted to future generations—an economic loss whose incidence never finds its way into our ledgers, nor comes readily into the reckoning of what a dress is worth.

It thus appears that price is more complicated than the money returns to those involved in getting the commodity into the hands of the ultimate consumer. A price is a reflection of a host of social arrangements and by an inexorable logic the study of price leads to an assessment of the arrangements by which the industry is carried on. Such an approach is more human and more complicated than a barefaced statistical analysis. An industry is really nothing more than a group of men behaving in a certain way, caught under the immediate pressure of earning a living, associated in structural relationships in a situation where tradition and convention, inertia and sheer accident, all play their parts.

No one of these items is irrelevant to price. The price of a dress is a function of the odd arrangements existing between jobbers and contractors, of a technology in which modern machine skill is ingeniously blended with a surviving handicraft, of colorful merchandising practices intended to accentuate aesthetic values, and of the institution of fashion within which, like a matrix, the activities of the industry are carried on. Compare the arrangements for getting dresses made and sold with the arrangements for getting steel, or matches, or cigarettes on the market and it becomes apparent that a blanket description of how price is made has little relevancy to the complicated realities of our industrial life. All that these industries have in common is an organization of effort around a given product from which profit is to be won. In each case the structure, traditions, and habits of the industry will tell a different story in terms of price.

A word of warning may not be amiss at this point. Not too much can be expected from the enterprise. What is true of industry today will not be true tomorrow. In our dynamic world industrial arrangements and

DRESSES

economic values shift as you write them down. And industry is like a juggler, "it is always contriving that we shall watch the hand with which the trick is not being done." In the uncluttered world of the Middle Ages, when custom and tradition, technique and the market, remained relatively stable over a long period of time, men could talk in terms of a "just price" and the term had authoritative implications. A just price insured a customary living to the makers of a commodity, which must be of customary quality. But how futile to look for help to this concept in the dress industry! A moment ago, in the history of time, the industry did not exist. Now thousands are dependent on it for a living, turning out a product never the same on any two days, catering to a demand which shifts with every wind of change. What the industry will be ten years from now no one knows. It is only safe to predict that time will turn every current statement in this study—some speedily, others more slowly—into a historical fact.

The dress industry, as commonly defined, has as its chief product a one-piece dress for women, misses, and juniors; but it is also responsible for the production of blouses, skirts, ensembles, and even such outer garments as are worn with afternoon and evening gowns, thus overlapping to a certain extent the cloak and suit trade. It does *not* include the "house dress" or the cotton wash dress made by the house dress industry. What might be termed an "industrial fault line" separates the "dress industry proper" or the silk-dress industry¹ from the making of house dresses. The line is not clear-cut; they are not actually two separate industries. Yet they may be differentiated, as they were by the National Industrial Recovery Act, under which there was a "dress manufacturing code" and a "cotton garment code," the latter including the manufacturers of the cheap house dress. Like most definitions, this one has been arrived at by the rough logic of working arrangements rather than by a priori considerations.

The house dress has a lowly origin and was the last to leave home and submit to factory production. It is descended from "the wrapper," or Mother Hubbard, which women donned in the morning and wore until the housework was done. Some years ago it appeared that meals could be cooked and dishes washed in a dress suitable to the task, yet not bearing the special imprint of housework. The style of the house dress improved so greatly that it can now appear on the street, and at its best moments is quite indistinguishable from the dress made by the low-priced firms of the dress industry. The product of the two industries cannot always, therefore, be differentiated by style, though practicality is the dominant note of the house dress. Nor can they be designated by the material used, because house-dress manufacturers, though nine-tenths of their

¹ So-called because of the high proportion of silk dresses manufactured.

PRICE AND PRICE POLICIES

dresses are cotton, work also with silk, rayon, and jersey at certain times of the year. Despite these resemblances, the house-dress industry has distinguishing characteristics—a more highly mechanized production, a scattered location of its plants with four-fifths of them in small communities, a steadier and less seasonal demand for its product involving relatively low risk, a more unskilled type of work, and an absence of labor organization. The range of price in the cotton-garment industry begins as low as \$2.75 for a dozen dresses at wholesale; and wages are typically much lower and hours longer than in the silk-dress industry.¹ Throughout the following pages our concern is with the making of the "silk dress." The two industries cannot, without confusion, be subjects of a single investigation.

One obvious omission must be briefly mentioned. A study of dresses should properly begin with the materials from which the dresses are made. Since materials constitute the largest item in the cost of a dress, it is pertinent to inquire whether their costs are unnecessarily high or disastrously low. But an answer to the question leads into a series of further studies. Dresses are made from hundreds of materials although chiefly from silk, rayon, cotton, and wool. Here are four separate industries, each of them with a price structure of its own. To appraise these prices would involve beginning with the vagaries of the raw silk market, with the technique and organization of cotton growing and sheep raising, and with the processing of wood fiber. As these raw materials find their way into a mill, they are caught up into a complex technological process and later into a distributive system unparalleled in its intricacy. Accordingly, for the sake of clarity, it has seemed wiser to maintain a rather ominous silence on the subject of materials.

The reader will find in this study little in the way of compilation of new data. For the gathering of such data, a staff of investigators and an abundance of time would have been required. Information from such written sources as were available has been supplemented by many conferences with manufacturers, contractors, workers, union officials, executives of the manufacturers' associations, staff members of resident buying offices, managers of retail stores, fashion experts, as well as many friends of the industry and government officials who participated in the administration of the dress code. Without these conferences this

¹ As an illustration of the difference in labor costs between those operating under the cotton-garment code and the dress code the following figures were submitted at the *NRA Hearing on the Dress Manufacturing Industry*, June 22, 1934, pp. 1038-1225. The labor cost on \$3.75 merchandise was 60.9 cents under the cotton garment code and 70.5 cents under the dress code. On a \$2.50 to \$2.75 dress the labor cost under the cotton-garment code was 49.4 cents and under the dress code 62 cents. These figures represent only a rough average. The lower cost of living in small communities offsets—to a disputed extent—the lower wages paid in the cotton-garment industry.

DRESSES

study could not have been written. And for the friendliness and patience of all those subjected to "interviews" I wish to express my gratitude—and my apologies for any misinterpretations.

For misinterpretations there will surely be. No matter how zealous one is for the truth, to attempt to capture an industrial picture within the brief compass of a few pages is inevitably to fall into error. No one student can get the right focus at every point. I may speak the same language as my fellow students in the industry but my accent and emphasis will be different. Moreover, no one who has even a superficial acquaintance with the chaos of dresses will deny that of all industries it lends itself least to neat and exact formulation. There are few unqualified facts which can be confidently presented as a basis of analysis and almost none that lend themselves to trustworthy statistical formulation. Neither within the trade nor by public agency has the collection of adequate data ever been made. And nothing in the industry is as it appears to be. The study of the documents of the dress industry conceal as much as they reveal of the thick actuality of current practice. Behind every paper agreement lies a host of defaults; behind every custom, exceptions that deny rather than prove the rule. The orderly ways of mechanized large-scale production impose on many industries a certain uniformity of practice. But the ways of the dress industry are as unstandardized as the dresses it produces. No two manufacturers see the same picture because no two make just the same product. It is to give point to the fickleness of industrial procedure in the industry that, as a way of advancing the argument, we digress to consider the matter of style.

THE INSTITUTION OF FASHION

Style, in the dress industry, is the factor of overshadowing importance. It is more than a description of the product—it is the very essence of the industry. It determines the industry's geographical concentration; it dictates the structural scheme of jobber-contractor arrangements by which materials are transformed into dresses; it determines the size of the producing units and has more than a little to say about whether they shall compete or combine; it is largely responsible for the high rate of business mortality; it influences the capital investment and the nature of the financial organization; it decrees the existing "state of the industrial arts" and fixes limits beyond which the machine process may not go; it dominates conditions in the workroom and the relationship of worker to employer. It ordains when there shall be unemployment and for how long; it presides over merchandising practices and creates a market with laws all its own; it is not without significance in shaping the character of trade association and labor union. Finally, style, like a magnet, exercises a selective influence upon those who enter the industry.

PRICE AND PRICE POLICIES

The dress industry has no monopoly on style. The style element penetrates every industry from electric light fixtures, kitchen utensils, and books to bath towels, toys, and paper napkins. Before the days of swift communication new styles were accepted more slowly and old ones took longer to die. Moreover, when living arrangements were more stable and a home was passed on from one generation to another, the emphasis in buying was on utility and durability. But modern homes are mobile and impermanent and the disappearance of that important institution, the attic, took with it much of the desire for goods that will last. Household furnishings today, like clothes and automobiles, are likely to outwear the pleasure they give. To stimulate a restlessness which tires of commodities before they wear out is the art of modern salesmanship. It is grounded in the knowledge that scarcity is a relative thing and that a scarcity in the mind constitutes as promising a field for sales promotion as a scarcity in "fact."

In the widest meaning of the term, style extends to every sphere of our life. Style in obstetrical practice determines whether we are born at home or in a germproof operating room, whether we are milk-fed until we are two or at the age of three months begin to cope with orange juice and spinach. As we grow older the fashion of the day decides what words we are going to use, how we shall dance, whether we shall strive for slimness or plumpness, and what kind of courtship we shall enjoy. Even the career we adopt will be a matter of fashion, illustrated by the fact that well-born Englishmen during the nineteenth century did not enter trade. Even the ways we take with explanations, now called research, the ideals we strive for, and the way we worship will be a matter of the current mode, as will the sort of illnesses we permit ourselves and the diseases from which we die.

Although the problem of style is universal, the style turnover in dresses is greater than in other industries.¹ This turnover is accentuated and sustained by the simple fact of the changing seasons. Were the days of winter, spring, summer, and fall all alike style changes would be less marked and less frequent. Moreover, out of the total year's budget a single dress is a relatively small item, permitting experimentation without too great disaster. And clothes are so intimate, obvious, and omnipresent

¹ The distinction between style and fashion might be usefully noted. Style is a characteristic and distinctive mode of expression in any medium. When enough people have adopted a given style it becomes the prevailing fashion of the day; see Paul H. Nystrom, *The Economics of Fashion*, pp. 3, 4. Thus colonial architecture, French Empire furniture, and streamline automobiles are definite styles which may or may not be in fashion ten years hence. Popularly, style and fashion are often used interchangeably. Thus we say a dress is in style when we mean it is in fashion. In the dress industry a "new style" is loosely used to indicate a new design in the current fashion. Manufacturers do not speak of the number of new designs which they put on the market each week but the number of new styles, even though they may all be in the same general style.

DRESSES

a part of our personality that no other expenditure of equal amount can contribute so much to the satisfaction of our deep desire for personal recognition and to the sense of personal security always under threat in this uncertain world. Like players on a stage who know their parts badly we feel that "we might improvise a little if only we knew that we looked all right." The dress industry serves deep and fundamental impulses.

Why women have come to place such importance upon clothes, and why women rather than men bear the burden of style changes are alluring questions. Psychology, history, anthropology, zoology, biology, ethics, and sociology—all these branches of knowledge have something to say on this subject. The whole matter of women's clothing rests, we are told, upon a host of elaborate conventions rather than upon differences in germ plasm between the sexes; the satisfactions which women derive from clothing today are conditioned by every force in our complex civilization. It is quite possible that the time will come when the energies of women will be canalized into more purposeful activities than the intricacies of personal adornment. On that day they may say with Bergson, "The head comes before the hat. Allow me to furnish the interior of my head as I please and I shall put up with a hat like everybody else's." But the dress manufacturer lives in a world of here and now. He is not asking what women might be, but how far, for the purposes of his profit, they can be persuaded to become the vehicles of swiftly changing fashions. His interests demand ever greater volume of production, ever more rapid style obsolescence and consequent turnover. If women were all militant "dress reformers," or if, under other institutions and ethics, the creation of a new style were a matter of jail sentence, the question of fashion would come to a very different focus.

But where and how do specific styles originate? Are they as mysterious as the tides? Are women the passive victims of fashion or active innovators? A current point of view maintains that fashion is capricious, arbitrary, swift, freakish, and despotic. Another asserts that fashions are not arbitrary but reflect definite and predictable trends in our social life, and that women themselves exercise a powerful selective influence in determining what fashions are to be. It denies that styles arrive "out of the nowhere into the here." There is much evidence to support this latter point of view. A long look backward makes it apparent that costume is an important clue to life and that fashions are intimately informed by the common spirit of the day. Contrast, for example, the classic folds of a Greek costume, perfect in its simplicity and proportion, with the exuberance of the dress of the Renaissance, which flowered for both men and women into heavy silk brocade, elaborate collars and cuffs, laces, and heavy trimming. Visualize the Greeks in this latter-day attire and it becomes impossible to imagine Praxiteles at his sculpture or Socrates

PRICE AND PRICE POLICIES

bidding his pupil Agathon, "Know thyself." Coming nearer to our own day, it requires no great exercise in logic—even without the aid of the Victorian novel—to interpret the manners and morals of the "ladies" of the nineteenth century from the disguising fashions of the tiny, tight-laced waist, the "grotesque proportions of the crinoline," the bustles, flounces, and long trains.

Fashion in dress is deeply akin to other forms of expression. The Victorian costume fits into the cluttered nineteenth-century interior and harmonizes with the cupolas, vestibules, wings, and railings of the nineteenth-century house. Through the ages this kinship can be traced. How close is the feeling between the short stiff tunic of the Egyptian, his formalized headdress, and the pyramids he built. And how much at home in the early Gothic were the madonnas in their one-piece robes clasped at the waist by a girdle, with long "angel sleeves" pointed over the hand. It has even been suggested that the pointed arch of early Gothic and the pointed toe of the selleret advance together, the one "making a second floorless church above the capitals," the other being looped up to the knee, until finally the four-centered Tudor arch—blunt in construction—is reflected in the broad-toed "sableton." Headgear too has an affiliation with architecture; witness the resemblance between the Turkish turbans and the domes on the mosques, the American Indian headdress of feathers and their wigwams, the conical hat of the Puritan and the steeples of the early New England churches.

The close view of our own time is not so easy to achieve. Yet a convincing evidence of dress as a reflection of an age of dynamic industrialism is to be found in the overaccelerated tempo of our style changes. Curiously enough, the nature of the styles themselves discloses a marked trend toward simplicity and economy. In the early fifties, "a typical outfit for women consisted of long drawers trimmed with lace, a flannel petticoat, another under-petticoat, then a wadded petticoat, wadded from the waist to the knee with frequent additions of whalebone and horsehair cloth to secure extra stiffness and extension. This garment was followed by still another white starched petticoat, and then two muslin petticoats and finally the outer dress."¹ By 1921 the winter costume worn by most women had come to a mere union suit, bone corset, camisole, bloomers, petticoat, heavy lined wool dress, lisle or heavy silk stockings, and high shoes. In 1931 further cuts had reduced the total to an all-in-one girdle and chemise combination, a slip, light wool dress, chiffon stockings, and pumps.² Roughly speaking, the total yardage of everyday wear must in this period have shrunk from around fifty to five. The contrast becomes more

¹ Nystrom, *op. cit.*, p. 272.

² Cherington, Paul T., *The Commercial Problems of the Woolen and Worsted Industries*, p. 51.

DRESSES

dramatic if we take note of the dresses worn by ladies of fashion. In the reign of the Empress Eugenie it is recorded that 1,100 yards of material were ingeniously combined into the flounces, tucks, and trimmings of a dress worn at a court function.

The gradual simplification of women's dress bears effective witness to one of the great social movements of our day—the steady emergence of women from many of the restrictive taboos of the past into a freer, more active life. As educational barriers have fallen and women have taken their places in the working life of the community, women's clothes have become more practical. The World War did much to hasten this transformation. Like soldiers going into battle, superfluous equipment was left behind. Hair was bobbed, hats were small, the slim straight silhouette came into vogue. But the elimination of the irrelevant in clothing has other roots than the new freedom of women. New patterns of thinking and new technologies have joined to leave their imprint on clothes. Take, for instance, the translation into costume of the modern notion of hygiene, which makes us look upon the sun and the air as friends to our bodily well-being.¹ Or note the wider philosophy of which hygiene is itself a part, which recognizes a new validity in bodily values and which marks the passing of the theological precept to "keep the body under." The emphasis on sports and outdoor life is an expression of this philosophy in which our kinship to the Greeks has often been noted. Sports today, however, have become more widely available for the masses of people by way of the shorter working day and the breakdown of some of the cruder notions of status. The new habits and customs demand new kinds of clothes. No one could enter the automobile in hoops, nor drive behind the wheel in crinoline, nor play the fast game of modern tennis in a trailing skirt. It is uncertain as to how far dress follows and how far it stimulates new modes of activity. Certainly the scant one-piece bathing suit has done more to promote actual swimming than did the bulky flannel suit all-complete with corset, skirt, shoes, and stockings in which women took their "dip" a generation ago.

It is a nice question as to how far an advancing technology is alone responsible for the transformation in our way of life. Those who believe that our philosophies wait upon our technologies might argue that the clothes of our era reflect only "the onward sweep of the machine process." They would maintain that it is the efficient, reliable furnace that has made heavy clothing superfluous; that it is the automobile that has awakened a widespread interest in out-of-doors. They would argue that the new position of women in society has resulted less from the passionate

¹ It is interesting that hygiene together with a revolutionary change in our attitude toward children has at last achieved what Rousseau demanded—that their clothing should be loose and free, allowing for unhampered physical development.

PRICE AND PRICE POLICIES

pursuit of the ideal of freedom than from the mechanical devices which have freed her from much domestic drudgery. How much freedom is there for a woman who must polish and replenish the coal stove, sweep with a broom that raises more dust than it removes, wash over a board, iron with flatirons that grow cold every few minutes, bake all the bread, and do all the cooking with never a carton or can to open even in an emergency? There is much truth in the point of view. But the interrelationships of thought and technique are too manifold and subtle to admit of a sharp dogmatism as to causal sequence. The way we dress reflects a single process in which thinking is continually modified by the impact of technology, and technology is forever adapting itself to changing patterns of thought.

Yet to state the thesis that dresses are faithful reflectors of the life of an age is not to explain the minor caprices of fashion. To discover precisely how and where a given fashion is born we should have to find our way to one of the great dressmaking houses of Paris—to Vionnet, Lanvin, Chanel, Patou, Lelong, Poiret—or to the office of a New York or Hollywood designer. It is still held that the French genius for design is supreme, and it cannot be denied that Paris decrees the basic silhouette. How far this is a matter of convention and prestige it is hard to say. If all communication with Paris were cut off for five years it is more than likely that American clothes would suffer little. The American designer who goes to Paris once or twice a year is, in the parlance of the trade, "inspired" by Paris fashions, although the trip rather than the collections may be the basis of the inspiration. On their return American designers "edit" the Paris styles for the American figure, climate, and mode of life, since Paris tells the story in another language. But many models are created without benefit of Paris and many styles which have originated in New York or London or Vienna have at a later date been authoritatively launched in the rue de la Paix merely because the public has come to expect the Paris decree to be final. Until Paris put its stamp of approval, a bit reluctantly, on the vogue of sportswear which originated in England, it was likely to remain an insular indiscretion. That Paris merits the prestige it has won in style creation is not to be doubted. Paris has a small elite, conspicuous in the public eye; it is close to Lyons, where hand weavers produce the rarest, most beautiful textiles in the world. But all prestige is dangerous and superstition is likely to follow in its wake. No one in the trade would deny that the importance attached to a Paris mode may be quite out of relation to the intrinsic merit of the mode itself.

But wherever the style is born, the question remains as to why the designer adopted a particular design—why sleeves with a flair at the shoulder instead of the cuff, why an uneven hem line, why a slit in the skirt? Surely here if anywhere is sheer caprice. But like the sonnet

DRESSES

form which sets limits upon the poet, the designer is bound by the limitations of her craft. The materials that come into her hands dictate to a certain extent what she may or may not do. In the design itself she must start with the basic silhouette. A designer in 1935 would be unlikely to revert to a hobble skirt or a high-boned collar. She must keep very largely within the tradition of her day; and she must learn with care the lessons from the successes of the past season. Every purchase is a vote in favor of a trend, and to understand and to interpret the trend, as well as to guide it, is the role of the successful designer. By this voting power, women exercise a slow selective pressure on styles. Yet those who dislike the fashion of the day or any change in fashion at all are likely to see the whole process as evidence of ruthless dictatorship.¹

The designer is an artist who works within a trend. But before she is through, the dress must in its details bear some imprint of novelty. These details are likely to reflect what the designer has been seeing, hearing, reading, and talking about. If prosperity is in the air she may be more lavish with material or may add an ornament; if rumors of war are on the horizon her mind runs to double-breasted effects and braid. If the Persian Art Exhibit at Burlington House has filled the current magazines with illustrations, some Persian detail will find its way into her design. If a successful movie star has created a sensation in a full-length velvet cape, or a notable personage has worn white pleated chiffon evening dresses, these facts register themselves in her consciousness. She has also been watching the fashions for men, and discovers that the jacket of a pattern and skirt of plain material—the effect prized by men in their sport clothes—will make an effective costume for women. As the cocktail party emerges as a recognized social function or the tango becomes the most popular dance of the season, she cuts her dresses accordingly. Whatever young people are doing is important to her for she knows that “accent on youth” is the dominant motive of the day, even for grandmothers.

And so it goes. Styles furnish a colorful running commentary on life. Many features are achieved which are accidental and underived—as a cook experiments with the ingredients of a dish, or leaves out something by chance and finds the dish transformed into something better than the original. Out of thousands of new features some are destined to die unnoticed, others win immediate popularity. Still others seem to have failed only to reappear several seasons later. There is often a lag between the first appearance of a fashion and its translation into the lower price ranges where the mass sales take place. In these volume fashions the basic silhouette changes even more slowly than in the high-price ranges. To the trained observer, sensitive to every slight shift of fold or pleat, prediction

¹ This dictatorship has its limits. When, after the era of short skirts, designers tried to impose long skirts for daytime wear, women refused to acquiesce.

PRICE AND PRICE POLICIES

of fashions for the coming season can be made with uncanny accuracy and detailed precision.¹ It is to the untutored eye that it all appears chaotic, arbitrary, and sudden.

It is the paradox of fashion that with its emphasis upon novelty and its swift changes, to be in style means to look like everyone else. Individual variation must be in detail only. The craving for conformity appears to be stronger than the craving to be different. Dress is today, as it has always been, a bundle of vetoes. The one universal nightmare is the dream of appearing improperly clad in the midst of a crowd. Anyone who would brashly dispose of changing fashion as stupid slavery is reckoning with impulses older than civilization itself. Some measure of preoccupation with personal adornment is an authentic part of the life process.

Yet for all that, the whole game of fashion as it is played today should be viewed with a critical eye and appraised for what it is worth. From every point of view the rules of the game need revision. Fashion racing has gone beyond the bounds of common sense, and the tragedy of waste is everywhere apparent. In the passion for novelty the essential criterion of beauty has too often been overlooked. The poet Yeats wrote that "the wrong of unshapely things is a wrong too great to be told," but he seems not to have been heard in this industry. The bizarre and adventitious still wins in the race. The birth rate of dresses rises daily but few of the products survive. It has been roughly estimated that 75 per cent of the profits are made on 5 to 10 per cent of the models, but the significance of that fact has been lost. The death rate of dresses is needlessly high. While still in the prime of life most dresses are relegated to oblivion. Such wastes are apparent enough, but who can compute the wastes of time and energy for women whose shopping for clothes is never done and who, irrespective of whether or not they want to play the game, must submit to invidious comparisons with other women? Criticism, however, is easy and the way of reform difficult. A direct attack on the excesses of fashion is more likely to fail than a flank attack at many specific points. In the very structure of the industry forces are at work which nurture and foster this turbulent influence. The technology itself makes possible a continuous experimentation with new forms, with less of a penalty than in an industry such as textiles, where high-cost machines impose sharp limitations on the creation of new products.

A COMPROMISED TECHNOLOGY

In ways dramatic and obvious style has largely determined the mechanics of dress production and distribution. In less obvious ways it

¹ As an illustration of this one may cite the Amos Parrish Company, which operates an advisory service for retail stores, interpreting fashion changes and suggesting merchandising and production plans. Since 1928 they have held semiannually a Fashion Clinic, in which they predict trends for the coming season.

DRESSES

has cut deeply into the technology of the industry; the multiple chaos of patterns varying from week to week has intercepted the drive toward mechanization with its promise of lower costs. The result has been a "compromised technology" savoring in many ways of the handicraft era of home production. The process of transforming a domestic rite into a commercial activity was accompanied by no far-reaching change in technical processes; yet the shift in geographical locale of the machine from home to factory has been responsible for the employment of thousands of garment workers and the outpouring of over 170 million dresses a year.

The dress industry is the latest comer of importance in the large family of industries that make up the needle trades. Each branch of the family has its own peculiarities, each its own special problems; yet the family resemblance is strong. The very name—needle trades—indicates the basis for the resemblance. The needle, for all that it may be driven by power, is still the symbol of handicraft, outside the "great industry," and the term "trade" carries with it the suggestion of something not quite in the "big business" tradition. Whether we look at the branches of the trade which have to do with furs, millinery, lingerie, infants' wear, or kimonos, or the larger branches of men's clothing and women's coats and suits, or at the making of women's dresses, we may trace beneath their differences the features and the problems common to the "needle" and to the "trade."

The first branch of the family to pioneer in factory production was men's clothing—suits, overcoats, shirts, and overalls. The need of standardized uniforms during the Civil War lent such impetus to quantity production that at its close the factory making of clothes for men had become firmly established. Compared to women's clothing, the male branch of the family is steadier and less racked by style and seasonal fluctuations. For this reason it has bigger establishments—50 per cent of all the workers are employed by 6 per cent of the manufacturers; it has more invested capital; and it uses more mechanical power in proportion to the value of its product. Its greater standardization allows a finer subdivision of labor; it has made wider use of trade names and of advertising. It is, in other words, the most modernized branch of the family.

The conversion of dressmaking from domestic occupation to industry has happened within the lifetime of women who are now forty. At the beginning of the century almost every woman was her own dressmaker. She bought piece goods and patterns, chose the trimmings, and, with the possible aid of a "style book," exercised an enormous amount of ingenuity and imagination in planning and designing.¹ In the actual sewing, women

¹ It is interesting to note the passing of this widely diffused skill as the making of dresses has been removed from the realm of a "priceless" economy. In the record of the changing status of women, other facts may be more startling, but none is more deeply revealing than the loss of this constant preoccupation with the making of clothes.

PRICE AND PRICE POLICIES

who could afford it were assisted by a peripatetic seamstress who came to the house, sewed and gossiped comfortably for ten hours and, in the childhood of the author, was paid \$1.50 a day. The "best" dress, a category lost in these latter days, was more likely to be made at the home of a dressmaker. The dressmaker's establishment, single room though it may have been, was something of a luxury, patronized much by the women of wealth, sparingly by the women of average means, and hardly at all by the great neighborhood of women. During the eighteenth century, and more during the nineteenth, women of wealth and fashion were in the habit of importing their clothes from abroad. If this was not possible, dolls were sent from London or Paris dressed in the latest modes, and these modes, long-lived according to present standards, were copied by tailors or dressmakers.

Although dresses for those of average means were long kept within the household economy, the making of women's heavier outer garments, with the lag of only a few years, followed men's clothing into manufacture. It is recorded that some "ready-made" cloaks and mantillas were sold in retail stores as early as the forties. When the women's clothing industry was first mentioned in the census of 1860, the most thriving and colorful part of the trade was in hoop skirts made in factories suggesting "an iron and steel mill" which "converted steel rods into finished skirts."¹ The steel was imported from the Krupp Works in Germany. In the eighties and nineties suits and coats began to be manufactured in great numbers while dresses were still made at home. But after 1895 dress and shirtwaist factories were established, until by 1920 this branch of women's garments began to press for first place. But around 1915 a partial eclipse in style took from the shirtwaist its primary status, and the manufacturers focused their attention on dresses. As factory production made rapid headway, numbers of seamstresses and dressmakers withered away. And there has been no turning back. From 1926 to 1930 the sales of dresses increased 80.6 per cent² and even during the depression, while the value of the product, exclusive of wash or house dresses, decreased from nearly \$900,000,000 in 1929 to somewhere around \$450,000,000 in 1935, the unit volume—the number of dresses actually bought—steadily increased. Women have not bought fewer but merely cheaper dresses.

The transfer from home to factory was not the result of a technical revolution in dressmaking. The equipment of the shop was, it is true, superior to that of the home in terms of the variety and speed of machines; and more mechanical power was used. Yet the census of 1900 reports that 64.8 per cent of the women's garment industry used foot power, and as

¹ Levine, Louis, *The Women's Garment Workers*, p. 6.

² Research Department of the National Credit Office, *The Development of the Dress Industry*, p. 1.

DRESSES

late as 1911 some 20 per cent of the factories relied on human muscle to run the machines. There was nothing comparable to the technical transformation which took spinning and weaving out of the housewife's domain, to be done by power looms which increased the efficiency of labor many fold. The explanation of why dresses left home is to be found not in mechanization but in organization of processes and a subdivision of labor. It marked the triumph of specialized and routine cooperation over individual effort.

Since around 1850, when the sewing machine was first brought to market, there has been no "cataclysmic jerk forward" in technical processes. The cutting machines, by which many layers of cloth could be cut at one time, did much to increase output at a strategic point in the routine of production, but they were already in use when dresses began their factory career. It is astonishing that the 176,000,000 dresses¹ in 1936 were made by processes in essentials the same as when the industry began. The span from 1895 forward, the approximate life of the dress industry, has witnessed revolutionary changes in every one of our mass-production industries. The visitor to a steel plant, an automobile factory, a paper mill, a tool-making shop, a meat-packing establishment in 1895 would hardly recognize the physical reality of plant and process today. But the visitor of 1895 returning to a modern dress factory would today find his old friend the sewing machine—alone indispensable to the making of a dress—still there and easily recognized. It would, it is true, have undergone many improvements. The machine of 1895 may have been run by power, but it did not have the fineness of a machine today, which can make from 4 to 34 stitches per inch; nor did it have a speed ranging from 2,500 to 5,000 revolutions per minute. Our visitor would find in some shops additional machines for special processes—snap stitching, felling, blind stitching—but the underlying construction of these is the same as the sewing machine, and with their differences he could soon come to terms.

To present concretely the compromised technology it may be useful to follow a dress through the factory. So little esoteric are the processes of production that any layman may grasp them. When a given style has been chosen—which may have been designed on the premises, bought from a firm which specializes in the making of models, or copied from a more expensive dress—a sample maker creates a single dress in accordance with the model. From this sample the pattern maker cuts paper patterns for each part of the garment in as many different sizes as have been agreed upon. The fabric out of which the dress is to be made is then examined for defects and laid out, in perfect alignment, on long smoothly finished tables, in several layers, according to the number of dresses to be cut.²

¹ This figure includes dresses made by both the silk-dress industry and the house-dress industry.

² A cloth-laying machine which runs along a steel track, fastened to the sides of the table, is now on the market costing around \$400. This labor-saving device, however, is

PRICE AND PRICE POLICIES

The cutter next arranges the patterns on the "lay," an exacting task if the many small parts are to be placed with a minimum loss of material. In the actual cutting he may use shears if one or two dresses are to be cut, but the bulk of his work he does with electric cutting machines. Two types are in general use, one with a circular or rotary blade, the other with a vertical blade. Both types have motors mounted on top with a guiding handle attached to the back. The circular type is used for finer work and where the layer is not over 3 inches. The vertical blade that cuts with an up-and-down motion can accommodate itself to 6½ inches, and in cheaper lines to as many as 9 inches. Both machines are easily portable from one part of the table to another and cut with amazing power. To the observer who watches a cutter guiding his machine swiftly through many layers of cloth around a pattern of a small collar, sometimes held in place by nothing more than a flatiron, it seems a miracle that such accuracy is achieved. The cutters, who constitute 7.5 per cent of the workers, are all men; the writer heard of only two exceptions in New York. They are the highest paid workers in the industry, for upon their skill depends the fit of the garment and to a certain extent its cost. A careless cutter can easily consume the profit of a dress in wasted material. Cutters are paid not by piece rates but by the week. The cutting machines are relatively expensive, a new one costing from \$200 to \$350.

The dresses, when cut, are assembled into "bundles" and given to the operators, the workers who sew the garments together on a machine. In the cheaper lines a single operator—or a team of two—does all the stitching on an entire garment without preliminary basting.¹ The dress operators work at machines which bear a strong resemblance to the one-needle, lock-stitch home machine; but they are attached to a long bench and the power is regulated by pressure with the knee instead of with the hand or foot. The machines have a large number of attachments to suit different kinds of materials and stitching. The operators, who in Manhattan number 56 per cent of the total workers, are mostly women and are paid on a piecework basis. The sewing machines now cost \$70 with standard

seldom used because the number of garments cut from any one fabric is small and "the time required to change the materials on the machine might counter-balance any saving in time that its use would effect." See Mabel A. Magee, *Trends of Location in the Women's Clothing Industry*, p. 27.

¹ In some cases the dress is hung on a dummy figure and fastened with pins. The girls who do this part of the work are called drapers.

A contrast appears at this point between the dress and the house-dress industry, where we find a greater division of labor. From ten to thirty girls may share in the making of a dress, each repeatedly performing a single function. This system has been called "power-machine sectional work" and while it prevails predominantly in the manufacture of house dresses, it is also used by some low-price manufacturers in the regular dress industry. Specialization of function is carried still further in the making of a man's coat. Processes are divided into many minute operations, one firm, according to reports, having carried this subdivision into 200 operations.

DRESSES

motor, but excellent rebuilt machines can be bought for \$35 and old ones with strange assortments of spare parts may be had for as little as \$5. Pinking machines used in nearly all the shops for a zigzag cutting of the seams to prevent raveling cost \$40.

When the parts of the dress are joined together it goes to the finishing department. The finishers baste the hem; sew on buttons, snaps, hooks and eyes, and sometimes trimming; tack on separate collars and cuffs; adjust the belt buckles; and clip the threads. In the finishing of the dress there is wide variation in the amount of work involved. Some of the work must be done by hand, some of it *can* be done by machine if the dress belongs to the class where machine finishing is tolerated. The finishers are women; they are paid by piecework in the manufacture of cheap dresses and by the week in the making of expensive garments, where care is more to be prized than speed. They account for some 19 per cent of the workers. From the finishers the dress goes to the examiner, whose task it is to note defects and to see that the seams are smooth, that the measurements are correct, and that the goods have not been pulled out of shape. Finally the finished dress passes to the pressing department. The pressers use small irons heated by gas or electricity for the detailed work, and in some shops they use large pressing machines for the body of the dress. About 79 per cent of the pressers are men and are on piecework.

This very rough sketch is perhaps sufficient to indicate how much "handling" of material there is at every stage of the manufacturing process. Not only are all the machines hand-guided, but the product is conveyed by hand from one machine to another. In contrast with many other industries, the workers dominate the technique of production and the machine plays a secondary role. It is the custom in the Western world to speak of an "advanced technology" in an industry when human labor has given way to the machine. In industry after industry what seemed yesterday to be "inevitably" a hand process has today become the province of a machine which excels the skill and nimbleness of human hands. But the dress "untouched by human hands" is as yet unrealized. It is the workers in this industry who are in control of tools and machines and processes. It is the workers that determine the speed of production. It is the workers in whose fingers lies the skill. Feed molten glass into a machine and watch it transform the substance into bottles; but bring yards of fabric and a sewing machine together and nothing happens save by the adroit intervention of the human mind and hand. The dress industry knows no mere machine tenders whose mastery of their job is a matter of days only; it knows no assembly line where repetition of a single movement breeds uncanny speed and accuracy. American industry today presents no united front. As all industries are not giant corporations, so all factory goods do not flow through machines connected by conveyers and fed by loading

PRICE AND PRICE POLICIES

mechanisms, with the product inspected by the photoelectric cell. Primitive and advanced practices exist side by side, forbidding easy generalization and confounding our passion for clear-cut categories.

The dress industry is not the point where science has done its most spectacular work. Nor are the techniques of dressmaking the techniques of scientific method. The difference may be dramatized by a distinction between a pattern and a blueprint. The standards of accuracy in a machine shop require the fine precision of a micrometer, measuring to a thousandth of an inch. The cutting of a pattern or the sewing of a seam is in these terms mere wild approximation. It is safe to state that by the measurement of a micrometer no two dresses were ever alike.

Students of technology have noted that the incidence of inventions falls where processes are reduced to typical mechanical movements which can be emulated by the machine. In its simplest form the sewing machine itself might be interpreted as an imitation of the human hand placing one stitch after another. The machines that sew on snaps or buttons, make buttonholes, or baste a hem do it after a human fashion. But where is the machine that could know where to put a snap, how wide to make a hem, how large a buttonhole is required? It is at these points that workers must substitute for machines not yet invented and possibly never to be invented. It seems beyond human ingenuity to compass a machine which can deal with a wide variety of styles. If all dresses were alike from year to year, we might expect that a machine could be devised which, with gauges set for different sizes, would know where to sew the buttons and how the neck should be finished. But at present the element of variation in design makes it difficult to foresee a time when a dress factory will be one great machine made up of interlocking mechanisms.¹ Yet it would be

¹ How little, to date, the dress industry has availed itself of the use of inanimate energy is indicated by the following table:

AVERAGE HORSEPOWER CAPACITY PER PLANT IN ALL INDUSTRIES AND MEN'S AND WOMEN'S CLOTHING, IN 1925, 1923, AND 1919

Year	Average horsepower per plant in specific industries		
	All industries	Men's clothing	Women's clothing
1925	190.9	11.2	4.0
1923	169.0	11.4	4.0
1919	157.1	7.6	4.2

The census gives "capacity," but in the men's and women's clothing industry rented electricity composes practically all the power that is consumed, so that for these industries horsepower capacity equals horsepower consumption. In all industries there may be a

DRESSES

folly to assert that the dress industry has reached the zenith of its technological development. A new concatenation of processes may be devised in which the old hand techniques will disappear forever. If it comes, job opportunities and production costs will likely be cut and the size of the industrial unit increased.

The drive toward mechanization is intercepted by other currents no less powerful. There is a strong consumer preference for handwork. Here we find the remnant of a battle which has been fought and lost on many another industrial front. The lure of craftsmanship still prevails in the field of dresses, reinforced by the practical fact that in case a dress is made over, hand sewing is the easier to take out and by the aesthetic fact that machine work is not yet able to compete in the invisibility of seam and hem, tuck and buttonhole.

But the technical progress within the industry must not be underestimated. The special machines devised to do various kinds of sewing are amazing in their cleverness. The Singer Sewing Machine Company, which supplies the dress trade with nearly 90 per cent of its machines, produces more than 200 adapted to that trade alone.¹ Some important machines of the trade, such as the cutting and blind-stitch machines, are not made by them, but by other companies. The variety of work done on these special machines is partially suggested by the following list: button sewing, buttonholes, snap sewing, seaming and hemming, zigzag stitching, hem-stitching, picot edging, tucking, air tucking, cording, tacking, barring, shell stitching, scallop embroidering, edge stitching, ruffling and shirring, eyelet work, smocking, blind stitching, drop or moss stitching, and spiral braiding. Not all these machines are found in any one shop, and the ratio of special to basic machines in shops of given sizes is quite unstandardized. Embroidery machines, for example, are seldom found in dress shops. Relatively few dresses are embroidered and some of the embroidery machines require special skill in operating. So if a dress requires embroidery it is commonly sent to an outside shop that specializes in the work. It is, however, hard to understand why certain other machines capable of more regular use have not been more widely adopted.

The degree of mechanization bears a definite relation to the price range of dresses.² The custom of the industry that the better grade of dresses shall be finished "by hand" is a convention open to challenge. As things

considerable amount of capacity in excess of actual consumption. Only establishments with yearly production of \$5,000 or more are included. Magee, *op. cit.*, p. 26.

¹ This company is said to have over 3,000 different machines on the market adapted to such a medley of uses as stitching artificial limbs, mail bags, bicycle saddles, books, carpets, mattresses, electric wire, pocketbooks, awnings, couches, and automobile cushions and covers—to mention but a few.

² The following table gives a picture of the extent to which some of the special machines

PRICE AND PRICE POLICIES

now stand a \$3.75 dress¹ has typically perhaps 10 per cent handwork; a \$19.50 dress may have 50 per cent; and a \$39.50 dress as high as 90 per cent. In some expensive dresses the only work done on the machine may be the sewing of the seams. It has been shown that shops making dresses above \$3.75 employ two and a half times as many finishers as do the shops making dresses below \$3.75.² Why is it that shops working on dresses below \$3.75, where custom permits machine finishing, have not made wider use of special machines? Many dresses are of a style that do not require the use of the machines; not every dress, for instance, requires a buttonhole or buttons or snaps or a rolled edge. Every shop must have a certain quota of finishers for sewing that cannot be done by machine, and they have to be kept employed whether the particular dresses of the day or week lend themselves to machine work or handwork. And the saving in time by the use of special machines may easily be overestimated. The time for sewing on a snap by hand is .8 minute on edges and 1.4 minutes on areas. The machine is more than twice as fast.

But the contrast is deceptive. A long series of time studies conducted by the union in the cheaper line shops showed that 43 snap fasteners are needed to do the work of 100 handworkers. This is due to the controlling fact that much time is consumed in getting a machine "set," changing bobbins for colors, and marking snap locations. The eye is deceived by the speed of the actual sewing operation and tends to form an exaggerated idea of its net saving. The same would be true of button-sewing machines. It is illuminating to contrast the sporadic use of this machine in the dress industry with its use in men's shirts, where an experienced operator in an 8-hour day can sew 7,200 buttons, 9 buttons per shirt on 66.7 dozen shirts. As a laborsaving device, the work of the button-sewing machine is

are used in shops in the metropolitan New York area.

Machines	Wholesale price of dresses	
	\$3.75 or below	Above \$3.75
Pressing machines.....	28.3%	5.9%
Snap machines.....	37.9	13.9
Felling machines.....	40.9	19.5
Button-sewing machines.....	2.6	
Rolling machines.....	9.8	

Union Census of Dress Industry, 1934.

¹ Prices quoted are always wholesale unless otherwise indicated.

² *Union Census of the Dress Industry, 1934.* The union investigations are made by the Research Department of the New York Joint Board of the Dress and Waistmakers Union. The Joint Board is the "creature" of the International Ladies Garment Workers Union to whom it is answerable for its actions.

DRESSES

hardly comparable in the two industries. Even if dresses have buttons, their location on the garments lacks the regularity of the button location of shirts. The economy of installing special machines is a function of the extent of their use. A button-sewing machine would soon pay for itself in a shirt factory, but the dress contractor who must pay \$285—complete with stand and motor¹—makes an uncertain investment. His balance sheet is more complicated. How many dresses will have buttons and of these how many, because of the construction of the button, must be sewed by hand? Since he requires a certain number of finishers, will the time saved by a machine be an actual saving in cost? Strange cancelings would appear on the contractor's books if he were given to the subtleties of cost accounting.

It is often said in the industry that the chief force working against a wider use of the special machines is the opposition of the workers. No one would deny that a dynamic technology has been a luxury which workers have been ill able to afford. In the struggle between the machine and the wage they have acted as "necessitous men." In the dress industry the threat is there as a grim reality. It has been estimated that if all shops used finishing machines, 55 per cent of the finishers would be displaced. Investigation, however, fails to reveal union opposition as an important factor. The union has attempted to guard the workers from loss caused by displacement, by writing into the "agreement" that if such displacement occurs "the workers shall receive not less than two weeks' wages for loss of time." This in itself is no barrier to technological advance. Pressures may, of course, be applied in other ways. But in the period before 1933, when union control was at low ebb, there was no widespread installation of the machines. A more significant cause has been the inertia of the manufacturers. Their interest has focused less on technology than on marketing; they have been inclined to accept rather than to explore the role of the machine.

If the dress industry has not accommodated itself wholly to the machine, it has none the less secured—particularly in the medium and lower price ranges—the advantages of quantity production. Yet in the cost of every dress there is a concealed item of a nonmechanized technology which is none the less real for not being computable in financial terms. We women, every time we buy a dress, pay a fine for not wearing uniforms. That most of us pay it gladly indicates only that the "economic woman" is as difficult to find as the "economic man." And here there emerges for industry and buyer another dilemma. The uniformity which quantity production imposes is not matched by any corresponding

¹ Snap-sewing machines also cost \$235 when new. Buttonhole machines cost \$435. Whether the cost of these special machines is unwarrantably high is a matter which might bear an investigation of its own.

PRICE AND PRICE POLICIES

uniformity in the figures of the buyers. The dresses which leave the manufacturing shops are only inchoate items which must undergo further manipulation before they are ready for wear. The manufacturer's costs are accordingly not the only costs of "making" a dress. To borrow a term, the "cost of installation" must be added. How large an item this is cannot be deduced from statistics of alteration rooms, since many women do their own "fixing" at home. This limitation on quantity production may be inherent and permanent or its outwitting may be a challenge to the ingenuity of the industry.

THE STAGE AND THE ACTORS

Although dresses are sold in thousands of shops from Maine to California, almost 90 per cent of them are made in the metropolitan area of New York. Here is an arresting bit of industrial geography—that a product that finds its way into every home and requires no proximity to natural resources should be concentrated in a single great market at one end of the country. Chicago and Philadelphia, once centers of great importance, still rank second and third but, together with Los Angeles, Boston, Cleveland, St. Louis, Baltimore, and San Francisco, they produce today less than one-tenth of the dresses worn by American women.¹

As swift style changes have become dominant, the size and wealth of New York and its proximity to Europe have made it the center of all the apparel industries. It is the consumer's Mecca of America toward which from every city and town the pilgrims of fashion make their way. The prestige of a New York model is to the rest of the country as the prestige of Paris is to New York. A fresh shipment of dresses from a New York house brings to the customer "in the provinces" a sense of authority impossible to achieve from nearer sources of supply. The presence of a great labor market contributes to this strange concentration of the trade. New York has always been the first port of call for those who have made our clothes. From the reservoir of a vast immigrant population there has always been a plentiful supply of workers who could be drawn into the

DRESS PRODUCTION IN THE UNITED STATES BY AREAS, 1934

Area	Per cent of total production
Metropolitan.....	89.7
Remaining East.....	3.9
Midwest.....	3.5
Far West.....	1.5
Southwest.....	1.2
South.....	0.2
Total United States.....	100.0

Dress Code Authority, N.R.A.

DRESSES

industry, particularly at the peak season. The irregularity of the trade has become with them almost an accepted tradition and the lack of such a tradition has been a distinct handicap in establishing the industry in other communities. Secondary factors favoring New York have been excellent transportation, credit facilities, and proximity to the New England textile mills.

Even more interesting is the geographical concentration within the confines of New York City itself. It is a strange thing to find the garment trades located within the very heart of the city. The crowding of the industry within the area from 20th Street to 40th Street, between Broadway and 8th Avenue, with the heaviest concentration between 34th Street and 40th Street, is one of the most spectacular of industrial phenomena. This movement into the congested district of hotels, theaters, and railroad stations has been made possible by the industry's small requirements for space in relation to the value and volume of its product. It has been estimated that *all* branches of the women's garment trade, if concentrated into fairly large units of production, could be housed in eight city blocks, each containing eight buildings, twelve stories in height.¹ The dress industry alone would need less than half this space.

The influence that drives men toward such crowding is again style. The dress manufacturer must be where others are—in the very center of things—to catch the winds of fashion as they come and go. But why should not all manufacturers congregate together in some less hectic corner of the city? The answer is the buyer. He stays at centrally located hotels, he may go to the theater, he arrives and leaves at a railway station. And the dress manufacturer must be near at hand. So keenly competitive is the industry, so crucial are the daily marketing operations, that accessibility to buyers is of greater financial concern than the difference in rent between a central and a peripheral location. Years ago, when the traveling salesman, carrying his samples, went on his appointed rounds to near and distant markets, manufacturers could locate where they pleased. But now the market comes to New York. With the influx of buyers, arriving for a few hasty days, their convenience and pleasure have become the "key-note of the selling policy of most garment houses." The tradition of according the buyer certain courtesies while waiting hopefully for his order is a legacy from the days when buyers were few and their trips infrequent. As far back as 1856 it was written, "The country merchant is booked on his arrival, is captivated by courtesy, is attracted by appeals to each of his appetites and passions, is coaxed, decoyed and finally ensnared or captured."²

¹ Selekman, B. N., H. R. Walter, and W. J. Couper, *The Clothing and Textile Industries in New York and Its Environs*, p. 61.

² Freedley, E. T., *United States Mercantile Guide*, p. 204.

PRICE AND PRICE POLICIES

But the result of all this is a New York City area crowded beyond capacity. An already congested street and subway traffic are further congested by the myriad comings and goings of the thousands engaged in the trade. No less than 41 ten-car subway trains carrying 1,700 people each are required to bring the workers to the garment district.¹ Here throughout the day contractors' "push boys" with hand trucks shove their way through the streets, or deliver dresses by Fords or taxis; express companies leave goods and call for outgoing packages; fabric merchants attend upon jobbers; jobbers rush in and out of offices; and buyers continually come and go to the showrooms. At five o'clock in the afternoon workers pour out of the buildings and jostle the crowds coming from the matinee. A neater illustration of the complex interaction of social forces could hardly be found than that the fashion racing of the dress industry should result in a subway jam.²

In the midst of this crowded confusion are the men who carry on the trade—jobbers, inside manufacturers, and contractors. These terms suggest the curious and unusual distribution of responsibility which characterizes many branches of the needle trades. In the New York area some 80 per cent of the dresses are made under the jobber-contractor system, while the rest see the light of day in the shop of an inside manufacturer.³ Who are the jobbers and the inside manufacturers and what role do the contractors play? The inside manufacturer operates an establishment most easily identified in terms analogous to manufacturers in other fields. Dresses are made on his own premises by his own employees. He buys materials, designs the styles, and sells directly to the retail trade. Thus the manufacture and the selling of dresses is lodged in the same hands. The clearness of the picture is somewhat blurred by the fact that many inside manufacturers use contractors for a part of their work.

In the needle trades the term jobber is used in a special sense, to the confusion of the uninitiated. In other trades he is concerned with buying and selling goods at wholesale and has no connection with production. But in the dress industry a jobber is responsible for production, although he does not himself produce. Like the inside manufacturer he buys piece goods and trimmings and usually selects his own styles. But unlike the inside manufacturer he has no factory of his own, is only an indirect employer of labor, and delegates the responsibility of production to the contractor. He gives to his contractor either bundles of dresses already

¹ Selekman, Walter, and Couper, *op. cit.*, p. 20.

² Granted that showrooms must be centrally located, it is doubtful if the advantages of geographical separation of the various functions such as storage, receiving, and shipping, as well as manufacturing, have ever been adequately studied in terms of cost. Inertia and the natural gregariousness of the trade tend to perpetuate the existing pattern.

³ Outside of New York the situation as between inside manufacturers and jobbers is approximately reversed.

DRESSES

cut or piece goods, and when the garments are finished he sells them. As a specialist in merchandising he and the inside manufacturer function alike. They both have showrooms where, with or without benefit of models, their dresses are exhibited to the retail buyers. As businessmen, manufacturer and jobber are faced with the same essential problem. For this reason, in the common parlance of the trade, the jobber is more often than not spoken of as a manufacturer.¹

The contractor faces in two directions. He is part worker, part employer. In relation to his jobber he stands as worker, in relation to his workers he stands as employer. He is not responsible for the purchase of materials and has no connection with sales. His task is to manufacture the dresses from materials supplied him, for a price agreed upon in advance with the jobber.² out of his receipts he pays his workers. A contractor may work for more than one jobber and a jobber may use several contractors, in some cases as many as forty. Thus the "manufacturing" unit is not conterminous with the "industrial" unit. The difficulties of the jobber-contractor system are of such importance as to merit a section of their own. Here it is enough to suggest that in an industry that takes the buffets of style and season the flexibility of the contracting system has offered the manufacturer relief from certain risks of production and the burden of recruiting labor as every new season begins.

The peculiar fact that the manufacturer of dresses is not always their maker is closely linked with another odd feature of the industry. In striking contrast to the general movement toward concentration, the dress industry has gone the way of littleness. In Manhattan the shops have an average of only twenty-five workers, although for the country it is somewhat higher. This multiplicity of small working units is due partly to the nature of the machines, which are small, mobile, and relatively inexpensive; but the full explanation carries us into the whole jobber-contractor relationship. As either "cause" or "effect" these small units of production are the focal point of many of the most salient problems of the industry.

It was around 1867 that Karl Marx looked upon the "decisively revolutionary sewing machine" and prophesied that it would convert into a "factory system proper" the production of wearing apparel.³ "The

¹ We shall adopt this common usage and reserve the term jobber for those occasions when we wish to differentiate him from the inside manufacturer.

² The jobber gives the contractor a memorandum listing the materials and trimming charged to him. If the dresses ordered take $3\frac{1}{2}$ yards of silk at \$2 a yard, and \$1 worth of trimming, the total cost is \$8 for material. If the contractor is to make 100 dresses the jobber's memorandum will charge him with \$800. If the labor cost has been \$2 per dress and the contractor's item for overhead \$70, the contractor charges \$1,070 back to the jobber when the dresses are returned. From this the jobber subtracts \$800, thus giving the contractor \$270. See *NRA Hearing on the Dress Manufacturing Industry*, February 28, 1935.

³ Marx, Karl, *Capital*, Part IV, Section 8c (Modern Library ed.), pp. 515-516.

PRICE AND PRICE POLICIES

competition of steam with human muscles which hastens on the concentration of work people and machines in large factories" would, he thought, sweep away the last vestiges of handicraft production. And further, the limitation of hours would iron out the seasonal aspect of the trade. He pointed hopefully to the investigations of the Children's Employment Commission, which had shown that limitation of hours "was the first rational bridle on the murderous meaningless caprices of fashion," caprices which he says "consort so badly with the system of modern industry." In respect to dresses the prophecy of Marx has not yet been fulfilled, although in the making of men's clothes the "factory system proper" is more in evidence. In women's apparel the caprices of fashion have proved stronger than the trend toward mechanization. That the two consort badly together is a bit of industrial wisdom that cannot be denied.

Such then is the setting of the stage on which the drama of dresses is played. The leading roles are taken by the jobbers and the inside manufacturers, who decide what kind of dresses shall be made. We now turn to the exploration of some of the hazards which face them as businessmen.

THE RISKS OF ENTERPRISE

The fur trade was recently described as "a business of little candor, less security and no statistics." There is probably more candor—since there is less mystery—about dresses than furs, and perhaps a little more statistical information. But in terms of security there is little to choose between the two industries. Indeed the dress industry has often been compared to gambling on the stock exchange. The dress manufacturer, like the gambler who buys for a rise and sells short, lives in an uncertainty which lends a dramatic intensity to day-to-day operations.

There are few industries in which the turnover of firms is so high. In 1929, for instance, according to the National Credit Office, there were some 2,000 dress manufacturers. In that year 709 new firms began and 478 old ones discontinued business. In 1930 some 621 entered and 504 departed. Discontinuance must not be read as failure; it may mean a reorganization or the departure of the manufacturer into other spheres of influence. In Manhattan alone, from 1927 to 1935, the percentage of firms which retired each year was never less than 22.2 per cent of the total, rising to 44.9 per cent in the period from the spring of 1932 to the spring of 1933.¹ Although the business life of the average dress concern is said to be about five years, a fair number of firms have enjoyed continuity of existence. The files of the National Credit Office show that of 1,580 dress

¹ These figures were secured from the Fairchild Publishing Company. A manufacturer reports that of nine concerns which he knew in 1929, each of which made from \$100,000 to \$350,000, together representing from 18 to 20 million dollars' worth of business, not one exists today.

DRESSES

manufacturers who are in business today only six firms were established before 1900, some 190 firms before 1920, and 615 before 1930.¹ Of this total 965, or 61 per cent, are only five years old.

The speculative character of the business is not due to an unsound economic basis. The demand for the product has been steadily growing. No scarcity of fabrics renders the supply precarious. No obscure geological reasons make it doubtful if dresses will be "struck" tomorrow. There are, however, unpredictable conditions that make every separate dress a gamble. Conservative or daring, there is no infallibility about a given style. In this field, as in many others, public taste is arbitrary, capricious, and hard to assess. If a manufacturer "hits on a good line," a dress may have a "run," sell to the number of 100,000 or more, and become known as a Ford. So lucky a model makes history in the trade. But if a dress "doesn't go," no amount of salesmanship can save it. Moreover, successes are short-lived. Every winter and summer the game starts again. The good will built up in a fortunate season counts for little in the compact world, where the rumor of a "poor line" can within a day travel the few city blocks where dresses are made. The building up and losing of reputations is a swift and never-ending process. Few firms in the trade have a good will that could be sold.²

In the whole panorama of our industrial life there are few goods upon which time lays a more destructive hand. Obsolescence "sets in" before the dress is out of the hand of the finishers and dogs its footsteps every inch of the way to its final destination. There is no building up of a surplus of dresses, no possible storage against a time when "market conditions are more favorable." Dresses, like milk that spoils and citrus fruits that decay, must be sold now or never, though the workmanship will suffer no deterioration and the cloth no wear and tear from a sojourn on the showroom racks. Nor can slightly outmoded goods be disposed of in the small towns and villages as advantageously as formerly. The country cousin, the subject of mirth in our mothers' generation, has become almost indistinguishable from her city relatives.

The threat of obsolescence is on the retailer also. He can no longer purchase for three or four months in advance. He places his orders at the last moment, to assure the widest possible selection of the latest

¹ If data were available it would be interesting to indicate why these older firms have survived the vicissitudes of the years. Neither the size of the firms nor their present price range nor their form of organization—whether corporation, partnership, or individual—show any uniformity. One can only surmise that a close scrutiny would show that their executives were of the "promotional" as well as the "routine" type, with more than average financial acumen, and with that most indispensable of all attributes, a flair for style.

² A business run by two partners closed its doors after sixteen years of activity. Each of the two partners left with over a half million dollars. One of the manufacturers concerned told the author that "neither one of us would give the other \$2 for the good will of the concern."

PRICE AND PRICE POLICIES

styles, and presses for immediate delivery. The manufacturer must respond since the race is to the swift. As a result the recurring seasons impose feverish periods of activity, when every manufacturer works under the threat of being too late. So important is it that a store make a first showing of a new style that a delay of even two weeks in a delivery may destroy a large part of the value of a shipment. No wonder the manufacturer speaks of his industry as one in which "time is of the essence."

The uncertain nature of the market offers only partial explanation of the tenuous existence of dress firms. Two other closely related factors are of importance. The industry requires only a small capital, and entrance through its hospitable doors is not conditioned by arduous apprenticeship in business or technical training. The largest industry of America's financial center harks back to an era of small-scale capitalism.¹ The activities of the dress manufacturer lie outside the great network of big business, outside the organized security market, and outside the sphere of the investment banker. As the technology of the industry lags behind the advanced sector of mechanization, so the financial organization is innocent of many of the sophistications of modern financing. Although there has been a steady increase in the corporate form of organization, it has been used less to raise large amounts of capital than as a means of escaping personal liability. In 1914, businesses organized under the corporate form were responsible for only 28 per cent of the total value of the product of the women's garment industry. In 1935 a study of 1,715 firms in the dress industry showed that 70.4 per cent were corporations, 12.2 per cent were partnerships, and 17.4 per cent were individual firms.² The individual firms are on the whole engaged in businesses of small size; but as large a proportion of the partnerships have high sales volume as the corporations.

Of greater relevance than the legal form of ownership is the manner of raising the capital. When the dress manufacturer goes into business he does so without the aid of the investment banker. As little as \$10,000 in cash or even less can give a man a start, and on this capital his yearly sales volume may run into more than \$100,000. Since his needs are small he uses his own savings and that of his family and friends, which means that he escapes objective tests as to financial soundness or competence of personnel. He is moreover no party to that "major industry"—the buying and selling of securities. The business is too personal, the values of dresses too volatile and intangible, and the amount of capital required too small to justify listing on an exchange. The total capital of dress firms doing a business of \$500,000 to \$1,000,000 is typically, perhaps, between \$50,000

¹ The "largest industry" of New York includes other branches of the garment trades, which, however, are all financed in much the same way as the dress industry.

² Figures compiled from the files of the National Credit Office. The figures contradict the statement repeatedly made that the individual firm has disappeared.

DRESSES

and \$75,000. Few firms have a capital of more than \$200,000. This falls far short of the demands of even the small local exchanges, where issues must consist of a minimum of 50,000 to 100,000 shares, and run to an aggregate value of perhaps \$1,000,000.

There has been little disposition to extend control beyond the boundaries of the individual concern. The engulfing of small by large concerns, the establishment of subsidiary branches, the amalgamation of firms under holding companies, has not been characteristic of the trade.¹ In 1929, of the total number in the women's clothing industry, 96.5 per cent were independent, single-unit establishments.² In 1931 some 171 manufacturers representing the largest firms, each of whom did a business of over a million dollars, were collectively responsible for only 38.7 per cent of the trade. It has been reported that the single largest firm does a business of \$6,000,000 a year, a negligible proportion of the total. In the garment trade one's rivals cannot be identified and fought or brought into agreement, but must be treated as part of an "impersonal environment."

As a result of small-scale and private financing the dress industry has been delivered from many of the evils which today beset large-scale business. Capital is sought only in response to actual industrial need. There is no drive toward overcapitalization.³ It is rather from the anemia of undercapitalization that dress manufacturing suffers, bringing with it a flock of minor symptoms obscured in good times by the capacity of dress capital to yield high interest, but at times of stress leading along the path to insolvency. The industry is, however, free from the pressures which arise from a clientele of investors. Their interests do not have to be protected by bankers sitting on "dress boards" trying to shape price and production policies to meet the demands of "the widow and the orphan who cry for 10 per cent." Furthermore, though the industry is speculative, there are no distortions of value through stock-exchange manipulation. If a technical revolution should take place, if high-cost machines were to be installed, such changes would be immediately reflected in the financial structure and the industry would be subject to new and different pressures from those which now exist. The "absentee owner" and the high-cost machine would enter hand in hand.

Although the original capital is raised privately, the concern is dependent upon commercial banks for meeting current obligations. The granting

¹ A recent survey conducted by the Twentieth Century Fund to determine the relative importance of big as against little business found that one of the "widest open" fields was the ladies' garment industry, in which the six largest companies employ only 3.7 per cent of all the workers. *Big Business: Its Growth and Its Place*, p. 42.

² Marsh, C. F., *A Brief History of the Dress Manufacturing Industry*, reprinted in the appendix of the *History of the Code of Fair Competition*, prepared by the Division of Review in the National Industrial Recovery Administration.

³ Unless the overcapacity of the industry in terms of machines, fostered by the jobber-contractor relationship, may be called overcapitalization.

PRICE AND PRICE POLICIES

of credit, as in other fields, depends upon the length of time the dress manufacturer has been in business, his standing and past experience, the showing of the financial statements, and the reputation of the accountant who drew it up. It depends also on the type of people to whom the firm sells, whether chain or department store, or small neighborhood retailer.¹ Another important source of credit is the fabric manufacturers and the converters who for the most part have their credits checked for them through the factors. Credits are granted, as by the banks, according to the financial rating of the potential debtors, but it is the general impression that "the majority of dress manufacturers are permitted to overtrade." Failure to pay bills promptly is met by the curtailment of all credit from responsible suppliers. In such cases a dress manufacturer is forced to pay a higher price for merchandise purchased from the secondary suppliers, or to discount his accounts receivable with finance companies at a high rate, either of which increases his cost of doing business and puts him at a competitive disadvantage. The importance of credit in day-to-day operations—the aggregate of a manufacturer's credit often being more than his capital—accounts in part for the continual reorganization of dress firms. A man's reputation for soundness is so vital that at the first threat of disaster he takes steps to avert the consequences of insolvency. He changes the name of the firm, takes in a new partner, changes his price line, moves to different quarters—in other words, he does something to present a new appearance to the world. In 1930, 683 firms changed their price range and 353 sought new locations.²

The actual insolvencies of the trade cannot be wholly explained by the hazards of dressmaking. Many failures are due to outside speculation. With little to start on, a manufacturer may find himself in short time possessed of more money than he, or his father before him, has ever seen. It must be remembered that the turnover of working capital in the dress industry is very high, the average being 7.6 times compared to 4.4 for men's clothing and 3.5 for the wholesalers of dry and knit goods.³ In firms making cheaper dresses the turnover is from 10 to 12 times a year. With unaccustomed funds at his disposal, the manufacturer is lured into forms of speculation other than his own industry. He seems to have been much attracted by real estate ventures and he is to be found in large numbers on the Seventh Avenue Exchanges. Two cases came to the knowledge of the author which, properly clothed in anonymity, may be cited. A man who

¹ It was stated by a bank official who has had many dealings with the dress trade that: "Banks usually accommodate companies with a working capital of under \$25,000 to the extent of about 20 to 25 per cent. Companies with a working capital of \$100,000 have been known to get, and still do, loans of between 75 to 100 per cent of their working capital. These loans are practically always for only 60 to 120 days at most."

² National Credit Office, *op. cit.*, p. 1.

³ R. G. Dun & Co., *Twelve Discussions on Fundamentals of Credit*, 1931, p. 84.

DRESSES

felt the call to become a dress manufacturer borrowed \$20,000 from a friend. In five months he had made \$175,000. In the second case, an uncle stood bond for the purchase of materials and his nephew made \$250,000. in two years. Within five years outside speculation had reduced both concerns to bankruptcy. Despite the high incidence of insolvencies the lure of the trade is powerful, for every year a hopeful group takes the places of the departing manufacturers. It is unlikely that the newcomer, as he enters the arena, ponders in cool fashion upon the statistical probabilities of his future. He does his tricks of calculus through rose-tinted spectacles which brighten the promise of gain and dim the danger of loss. Although our textbooks have it that talent flows unerringly into those channels where it can be most "productive," there is some difficulty in showing that men choose the dress industry in the light of even approximately perfect knowledge or of rationality. The general spirit of the venture seems to be more in line with the popular song, "We don't know where we're going, but we're on our way."

In New York City alone some 1,200 manufacturers are on their way, engaged in a "razor-edged" struggle to survive. For the most part they are Jewish and although some hardy figures survive to old age the majority in the business are nearer forty than sixty. The manufacturer comes to the industry by various routes. He may possibly have started life as a worker, become a contractor, and then taken the final steps toward emancipation or a new form of bondage. It is much more likely that he was once a designer or a salesman, or a jobber's "production man," whose function it is to negotiate with the contractor for the making of dresses. The language of dresses may well be the only language he knows and becoming a manufacturer represents success in the province of life to which he has called himself. As manufacturer, he can be his own master, and he has a preference for a small, though risky, business of his own as against the certainty of existence as an underling where no prizes are to be run for. When he sets up his own firm, it is for him not merely another concern; his enterprise is unique. Only the exceptional manufacturer has had the opportunity or sees the necessity for adequate business training. In most cases "they learn as they go." A salesman may take in a designer as partner or production man, but their knowledge is usually limited to their particular vocations. No one of them is likely to have been schooled in the ways of finance and business management. The National Credit Office, after long experience of credit ratings in the industry, says, "The outstanding criticism of the Dress and Ensemble Trade is that concerns when organized are not well-balanced from the standpoint of the diversity of the ability of their members."¹

¹ *Ibid.*, p. 130.

PRICE AND PRICE POLICIES

As a result the dress manufacturer runs his business on what has been aptly termed the "handicraft idea of cost." He is often innocent of the simplest of the accountants' conventions. Moreover, the uncertainties of style, the capriciousness of the dress market, and the seasonal exclamation points which punctuate business dealings discourage him from the systematic computation of outgo and income. Such habitual negligence has prompted the occasional line that "the use of a planned budget in the garment industry is impractical."

The common indictment of their business methods—as one hears it from their critics and from themselves—runs somewhat as follows. A large proportion of manufacturers are ignorant of their true costs of production. Items such as the loss on nonsalable goods, entertainment of buyers, depreciation, designing, and sample costs are often overlooked or not properly figured. There is a tendency toward expansion of loft space, high rentals, and impressive equipment. These and other overhead expenses are frequently too high in relation to sales volume and are not adjusted quickly enough when the volume suffers a decline. It is also overlooked that some thirty-five weeks of activity must cover the overhead of fifty-two. Risks are not carefully evaluated and the book records of "accounts receivable" may contain a disproportionate number of bad debts. There is not sufficient diversification of risks between large and small accounts, resulting in disaster when a large retailer transfers its buying to another "resource." "Chronic returners" are dealt with leniently and "slow payers" given too much grace. Stock records are hazy and inventory is often excessive in relation to working capital, so that if sales fall below the expected volume the business is not sufficiently liquid to meet its obligations. The dress industry also suffers peculiarly from obsolete personnel, particularly relatives of doubtful acumen hospitably received into the business but difficult to retire.

It might be argued that the private financing should make for business efficiency, that capital closely held should effect careful management. Since the same person is alike manager, risk bearer, and profit maker, the incentive to effort ought to be direct and powerful. So it might be if the dress manufacturer knew *how* to translate desire for profit into terms of efficiency. Actually his only managerial resources may be driving harder bargains in the purchase of material and the sale of wares. This is a week-to-week efficiency aimed at a profit upon every transaction. It has little to do with a long-time business policy, which aims at improvement in business methods, the choice of a better personnel, the bettering of the quality of the product, and the ultimate reduction of costs. In contrast to this personal management, a board of directors who must meet fixed obligations over a long term may exert a more powerful pressure toward true efficiency. The assumption that prices made under conditions of

DRESSES

competitive stress are shorn of all irrelevance fails to reckon with the inertias of a conventional business procedure.

These shortcomings of the manufacturer as executive contribute to the high turnover in the trade. He "gets by" as well as he does on his hit-or-miss system because a designer with a spark of genius will atone for a multitude of petty business sins. Dressmaking is only partly an industry—the rest is art. And all artistic effort has about it an intractable quality, difficult to bring within the compass of economic rules and regulations. Although the cost of designing a given dress may be roughly computed, it bears no fixed relation to the intangible item of style which determines its value. It is style that makes it possible to amass profits out of all relation to capital investment or business standing or the kind of efficiency of which cost accounting tells the story.¹ As the "scientific method" and the "engineering ideal" are not applicable to the making of dresses, so the pedestrian and orderly accounting routine of big business "comes hard" to the dress manufacturer. He is caught halfway between the business world and the unstandardized sphere of artistic invention.² Many firms are "shy" on artistic talent. The number of atrocities—or "lemons" or "pups" as they are called in the trade—which are still-born bears evidence of this fatal deficiency. All manufacturers inevitably make wrong guesses, but some are guilty of such elementary errors as making "stout" dresses with horizontal stripes or using "off" shades that would mar the radiance of the most beautiful of women. The vital importance of the artist should be recognized in building the personnel of a firm. But the fact remains that an unhealthy proportion of manufacturers are extremely poor artists, lacking both the native capacity and the training for any distinctive creation whatever. Although statistics are not to be had, here undoubtedly lies the cause of many failures.

But the industry is no homogeneous thing nor are industrial risks all alike. These risks depend somewhat on the price of a manufacturer's dresses. It is of striking interest that the prices of dresses have gradually tended to crystallize into definite price ranges and concerns have increasingly become specialists at given price levels. This tendency has been summed up in the adage that "houses are known by the prices they keep." The more important of the wholesale price-range divisions run as follows: \$1.87½, \$2.25, \$3.75, \$4.75, \$6.75, \$10.75, \$16.50, and \$22.50 up. A \$10.75 house may make an \$8.75 and a \$12.75 dress and even a \$16.50 dress, but

¹ Two cases from Dun and Bradstreet reports may be cited in illustration of the unpredictable relation between capital and profits. A jobber with \$17,000 invested in his business had a sales volume of \$575,000. Another jobber with \$15,000 capital did a business of \$375,000.

² Even when dress manufacturers do not themselves design, their success depends to a large extent on their ability to pick out the "hot numbers" of other manufacturers and copy them, a process which might be described as artistic creation "once removed."

PRICE AND PRICE POLICIES

buyers do not shop in such a house for a \$2.25 dress nor for one at \$39.50. A large number of houses make dresses at only a single price. This narrow specialization does not hold in the higher price ranges; a house that makes a \$29.50 dress may also make one at \$250. But the volume of sales at so ethereal a level is a very small part of the total and its exclusiveness is quite untypical of the trade. The concentration of effort around a limited price range has been prompted largely by the promise of economy. The manufacturer who makes dresses at \$2.25 becomes skilled in buying materials for this price range and can guess more accurately the styles his customers will demand. The manufacturer of a \$16.50 dress must meet a different set of conditions and satisfy a different clientele. To become an expert in both price ranges is time consuming and leads to inefficiency. But the reasons for this specialization lie partly in the conventions of retail selling. The retailer carries a limited number of price lines, and the manufacturer has been under pressure to produce goods to fit his categories. Thus do the practices and pressures of one institution modify the procedures of another.

The high-price house, on the advanced sector of the fashion line, incurs the risks of the innovator. It caters to the trade that prizes the new rather than the tried, and it stakes all on its designers. Since few dresses of any one style are cut, the design expense of each model is relatively high, compared with a \$3.75 dress cut in larger quantities and probably a copy. The expense of showrooms and models is also high. The most expensive dresses are more likely to be made in the manufacturer's own shop and the work requires more careful supervision than the making of cheaper dresses. The sizing of dresses, for instance, increases in accuracy as the price rises. Wages earned in the inside shops are higher than in contracting shops, and the labor cost of a given dress is more variable than in the cheap lines. Less stock is carried since the risk of making up expensive models in advance of orders is too great.

During the depression business failures were somewhat more numerous in high- than in low-price lines. Of 186 insolvencies in the first nine months of 1931, 26 occurred in the price range of \$3.75 and under, and 46 in the range of \$22.50 and over.¹ This was of course due to the shift in demand to the cheaper lines. In 1929, 5.1 per cent of the dresses sold at retail were sold at \$25 and over. By 1931 this figure fell to 1.4 per cent. Dresses, chiefly of cotton, retailing for \$1 and under, constituted in 1929 14 per cent of the total and this increased in two years to 20.3 per cent. In more normal times the higher price firms, which are still likely to be more heavily capitalized, have a cushion to fall back upon in an unsuccess-

¹ National Credit Office, *op. cit.*, p. 24.

DRESSES

ful season. High-price firms do not, however, have a greater sales volume than those in the cheaper lines.¹

It is often said in the trade that the worst "chisellers" are manufacturers who come in on a "shoestring." In other words, a definite connection is asserted between the "ethics" of a firm and the amount of its capitalization. The theory that accretions of capital breed responsibility may be true; but it is probably more true that irrespective of the amount of capital, business practices tend to be a little sharper in the low-price "volume" range where profits are seen in terms of pennies per garment. The high-price firms, specializing in the intangible element of style, may charge all the traffic will bear; but their success will not depend on haggling over small amounts nor driving sharp bargains with their workers.

The division into price ranges leaves within a highly competitive industry areas of noncompetition. The \$3.75 manufacturer does not compete with his neighbor who sells at \$16.75, except as he offers copies of \$16.75 dresses. He competes directly with all \$3.75 houses, somewhat with those at \$2.25, and is always trying to encroach on the \$4.75 domain. The zone of competition is further limited by specialization of product. Many firms make only evening dresses or sportswear or "stouts." The dress industry is therefore a group of "industries" intimately related yet each having its own problems.

Out of such conditions has emerged the individualism that has made difficult common action on the problems of the industry. In the face of a

¹ The relationship between sales volume and price range is shown in the following table compiled from the files of the National Credit Office. Not all firms reported both price range and sales, so that it was possible to get data from only 1,370 firms. They included businesses both in and outside of New York, but far the greater proportion were of course in the metropolitan area of New York.

DISTRIBUTION BY SALES VOLUME AND SELLING PRICE

Price range	Sales volume in thousands of dollars												
	5 to 10	10 to 25	25 to 50	50 to 100	100 to 200	200 to 300	300 to 400	400 to 500	500 to 750	750 to 1,000	1,000 to 2,000	2,000 and over	Total
Up to \$3.74	3	10	33	72	49	34	23	12	22	10	11	7	236
\$3.75-\$6.74	..	9	29	54	90	51	30	13	33	15	7	4	335
\$6.75-\$10.74	3	10	32	56	75	44	26	19	27	9	6	1	308
\$10.75-\$16.74	2	9	38	59	44	17	20	18	27	10	8	1	253
\$16.75-\$22.49	..	2	9	10	13	9	6	1	12	2	2	1	67
\$22.50 and over	..	6	12	21	29	18	10	8	10	2	2	3	121
Total	8	46	153	272	300	173	115	71	131	48	36	17	1,370

PRICE AND PRICE POLICIES

host of trade practices which have racked the industry—unfair returns of merchandise, advertising allowances to retailers, unjust cancellations, consignment selling, excessive discounts, secret rebates, carrying too much stock—the dress manufacturers have gone their separate ways instead of taking vigorous common action to end the abuses. Sporadically an effort toward organization has appeared, but the morale of the industry has inspired little confidence that even when action is taken the members will live up to the agreement.¹ Once caught in the maelstrom of activity the manufacturer's entire energy has been focused on the attempt to survive. His judgments are immediate pecuniary judgments, unconcerned with the wider issues of industrial efficiency. The dress manufacturer, despite his wayward individualism and traditional failure to live up to agreements, has about him a certain gallant quality. He adventures into a field where defeat is as likely as success and he lives under pressures which most men would find intolerable. He slaves harder than most of his subordinates. He does not draw a salary for riding to work in a limousine and sitting apart in an office waited upon by secretaries. He is in the thick of the battle, taking the risks—and the profits—but in either case working for what he gets. He is a gambler, but he gambles on his own work. It is small wonder that he is known to doctors for his "dress stomach" and his frequent nervous breakdowns.

We cannot escape the query as to the cost of this exaggerated competition. The individual manufacturer who, after a brief life of stardom, loses his investment, pays in ways too obvious to need comment. An estimate in financial terms of the high turnover in the industry, if such figures could be compiled, would be highly significant. The estimate of the total dislocation costs would have to include the individual savings left behind each year by the departed executives and the unpaid debts to creditors.

¹ A story was told the writer of a meeting of manufacturers who had come together to deal with the question of carrying stock. This practice had become a burden because of swift style changes and it was universally felt that if all decided to sell from samples only, the losses of the industry would be greatly reduced. The resolution was under discussion when a manufacturer at the back of the hall arose and said, "Well, what would happen if we pass this resolution? I should go quietly downstairs, get the first taxi I could find and tell the taxi driver to go to my offices as quickly as possible. And when I arrived I would tell everyone in the office, 'Take all the material off the shelves and have it made up right away. They've just passed a resolution that manufacturers shall carry no more stock, so we'll be the *only* firm with stock on hand.' And what I would do, everyone here in the hall would do." The resolution was not even put to a vote.

It should be pointed out, however, that the National Dress Manufacturers' Association, representing the jobbers as well as some inside manufacturers, and the Affiliated Dress Manufacturers' Association, representing inside manufacturers, are fairly vigorous spokesmen for their groups. Membership in these organizations was greatly stimulated by the NBA. Faced with the necessity of agreeing to a code, members came in "as rapidly as election returns." The Schechter decision did not break down their membership. In 1935 the Popular Dress Manufacturers' Association was formed to deal with the special interests of manufacturers making dresses wholesaling at \$4.75 and below.

DRESSES

Statistics of bankruptcy would have to be translated into terms of contractors and workers and machines left idle. The tangible as well as the intangible items involved in opening and closing of establishments, changing locations, hiring and firing staff, would have to be reckoned. If cost accounting took in the wider interests of the commonwealth, the losses from this continual reorganization would be stupendous. Cost accounting is most relevant to the profit and loss calculus of individual firms and is not easily applicable to the problem of the incidence of costs upon the community in general. Thus the rent of crowded, unsanitary tenements may appear as an asset on the books of the landlord and as a liability on the books of the community, which must pay for greater fire hazards, increased medical care, and the depreciation of human capacities. The state, through housing standards, has attempted to mitigate these costs. But in the realm of industry, the costs of dislocation incident to an exaggerated competition have been assumed to be incidental. All that attends bankruptcy is set down as necessary to the operation of free enterprise.

What of the dress consumer? Is she not the happy beneficiary of this disorder? If manufacturers fall by the wayside in the struggle, is she not thereby assured of goods made by the lowest cost firms? Only if the inefficient perish and the fit survive. Survival means only the ability to meet expenses, and its process does not inquire too nicely into how the profit was made. Strategic bargaining power, indulgence in unfair trade practices, may be as effective as productive efficiency. It is certain that in the past many firms have survived by giving an inadequate standard of living to their dependents. But such devices aside, too many adventitious elements enter into the question to warrant the assumption that the inefficient alone go to the wall.

This is not to say that the trade would not benefit if the inefficient should "cease and desist." To prevent overcrowding by the incompetent is a major problem of the industry. A leaf might be borrowed from professional practice in the requirement that the dress manufacturer prove his qualifications before entering the trade. He might present to a responsible and impartial board a statement of his available capital and an account of his prospective personnel in terms of their artistic and managerial talent. There should clearly be no stereotyped and rigid criteria as to qualifications. Evidence of talent might, for instance, be allowed to cancel capital deficiency and a solid financial endowment would go far toward condoning commonplace ability.¹ The idea of an admissions board is

¹In an oral quiz the applicant might be given a chance to exhibit his understanding of the "economics of the trade." The situation has many picturesque possibilities. One can imagine that there would be one member of the board more interested in the applicant's imaginative faculty than in his grasp of objective fact, who would break in at some point

PRICE AND PRICE POLICIES

doubtless fanciful. It would be quickly branded as an unwarrantable interference with a man's natural right to earn—or fail to earn—his livelihood as he pleases. But is the separation which we make between business and the professions a justifiable one? Is a man's ability as a lawyer a matter of public concern and his qualifications as dress manufacturer of no concern whatever? The difference is commonly taken for granted. But the social waste involved in allowing the underfinanced and underqualified to jostle each other into bankruptcy remains a stubborn challenge to the traditional ways of doing things.

A NOTE ON STYLE PIRACY

The speculative aspect of the dress business has been greatly complicated by the pirating of styles. So lavishly have dresses obeyed the divine injunction to be fruitful and multiply that no sooner does a model catch the public fancy than its copy, usually in inferior material and workmanship, appears on the market. The copyist capitalizes on the originator's design; and the original dress, by a kind of Gresham's law, is driven from the market in favor of its cheaper rival. The original manufacturer is likely to receive no reorders on what may have been his best "number" and the retailer may have to resort to a markdown to clear it from his stock. This warfare among models is incessant and swift. A \$6.75 kills a \$10.75 dress and in turn is slaughtered by one at \$4.75, and the whole process may take only a few days.

No one—not even the manufacturer who practices it—denies that copying exists. And few will deny that it increases the uncertainties of the trade. But there is sharp divergence of opinion as to whether a cure is possible and whether a dress design is a fit subject for a "property right." The affirmative is usually taken by the high-price houses whose styles are copied, the negative by the low-price houses who do the copying. There is thus no immaculate impartiality in the viewpoints expressed in the trade. The problem of design protection deserves long and careful scrutiny, but it leads far afield. Here we can only suggest the motley of confusions and disagreements which confound every phase of the issue. Perhaps clues enough will emerge to serve as starting posts for those who desire to adventure further.

Is there a clear-cut moral problem involved in style copying? Some believe that there is. That the designer should be robbed of the fruits of his labor is unjust and unwarranted. To steal another man's style is not different in kind from stealing the dress itself. This absolutism appears at first blush simple and satisfying. But on second thought the moral issue is not so clear. The protection of a property right has validity only if it

to ask, "And what, Mr. Candidate, is your own solution of the seasonal problem of the trade?"

DRESSES

serves the general interest. Whether private property be lodged in a dress design, a news item, or the right to pay less than a living wage, it waits for its justification upon the interests of society. In the case of style protection, as with other property rights, the moral issue becomes clear only after an examination of social implications and consequences. Those who plead for the right to plagiarize often assert that the copying of dress styles gives legitimate aid and comfort to the underprivileged. Roughly some 75 per cent of the business is done in dresses selling at wholesale at \$6.75 and below. It is in this price range that the copyist does his "best" work. His freedom to imitate the latest, the cleverest, and the most popular innovations in the higher price ranges has, it is claimed, given to the majority of American women clothes which have blurred all class distinctions. If the dresses of Judy O'Grady have not been so fine as those of the Colonel's Lady, they have—thanks to freedom in the copying of style—resembled them. The likeness has been close enough to give Judy a sense of satisfaction and to obscure her economic status.

A thesis is yet to be written, from the most promising of material, upon Democracy and Style Piracy. Few would overtly champion styles for the rich and styles for the poor, a situation not unknown in the annals of history. If all copying could be strictly prohibited, would dress again become a badge of class distinction? Concretely, would Judy like her \$6.50 "original" model as well as the copy of a dress she has seen in an exclusive shop—and in her imagination worn? It has been suggested that if the dress were designed with an eye to *her* needs she might be the better served. Yet there is danger in a dress that bears, however subtly, the stigmata of suitability for a lowly station.

The assumption that inexpensive dresses are necessarily better when they are copies of higher priced models may be challenged. If all copying were eliminated, a wealth of designing talent now dormant might be released. The aesthetic values of the copying era have not been high. They might be raised if design were taken more seriously and increased opportunities afforded the designer.¹ In the lines of volume dresses, where improvement is most needed, the cost of design per garment would not be high. And designing, if universal, would not damage the competitive opportunity of any firm. Even today, with copying rampant, firms which have abandoned the copyist for the designer have testified to good results. And if copying were completely controlled, cheap and expensive dresses would probably continue to bear a strong resemblance. Expensive styles if not copied would be adapted by designers in the cheaper materials.

¹ That the French have surpassed us in artistic talent is often attributed to the style protection which they have enjoyed in their own country, but such an argument neglects other significant social factors. Moreover, designers enjoying protection in other European countries have not attained the pre-eminence of the French in dress creation.

PRICE AND PRICE POLICIES

It is this close relationship between copying and adaptation which suggests that the property right inherent in a dress design is difficult to establish and to protect. The difficulty centers around the problem, "When is a copy not a copy but merely an adaptation?" Dress designs conform to fashion trends and the most brilliant of designers are "adapters." They are the "midwives rather than the mothers of fashion."

Moreover, within a fashion trend there is the possibility of "spontaneous generation" of similar details. After the discovery of the tomb of Tutankhamen, when the pencil and scissors of every designer "went Egyptian," to whom could be awarded a "copyright"? If a dress varies from the original by virtue of different buttons or a distinct neckline, is it a copy? There are obviously blatant copies of dresses which do not vary by a tuck's breadth from the model, and others where the variation is so slight that the essential characteristic of copy and copied are the same. But there are many borderline cases. If the copyist has borrowed significant details not from one dress but from several, has the copying turned into creation? There is in the dress industry only a small amount of genuine creation, a great deal of adaptation, and some copying; and these shade into each other by imperceptible degrees. A protection is a monopoly, properly bestowed upon originality, but is a monopoly on an adaptation so clearly justified? Sharp divergence of opinion would be expressed at this point by those who claim that there is only creation and copying. If one adapts with skill sufficient to conceal what is being done and to preserve the market for the copied dress, it is argued that one is a creator and the creation merits protection.

What constitutes plagiarism in dress design is not a matter of importance if all styles are "free." But when these designs are labeled "private property" and penalties attached to infringement, the possibilities of confusion and even injustice appear. Many believe that public interest is best served by the frank acknowledgment that all dress designs are public property, since their origin is so deeply imbedded in the common currents of our social life and their inspiration derives so obviously from the swift interplay and exchange of ideas.

That dress manufacturers should accept piracy as a normal hazard of their calling would be reluctantly admitted, certainly by houses manufacturing at \$10.75 and above, and even by many of the most stable of the lower priced concerns. Yet the economic effects of pirating are disputed even by members of the trade. On the one hand, it is urged that, since contractors must try to produce a \$2.25 dress which looks like one at \$4.75, a business based on stolen styles is of necessity a hectic high-pressure outfit with cutthroat competition rampant and a tendency to chisel on wage provisions. On the other hand, it is pointed out that imitation means the rapid obsolescence of design which stimulates invention,

DRESSES

assures to the designer a market, and brings to the industry accelerated business all along the line.

It is almost impossible to assess the effects of style copying. If piracy accelerates style turnover—and there seems much justification for the belief—some measure of control would seem desirable. Certainly style turnover is now excessive. It is a harassing waste to manufacturers, contractors, and labor—even apparently to retailers; for their records show that pirated-style departments are less profitable¹ than protected-style departments. If there were fewer and more durable styles, the seasons might be lengthened and the industry stabilized. Labor might fare better since the continual shifting of styles is costly in terms of the speed upon which the worker depends for wages above the minimum. The swift turnover of firms might also be somewhat decreased. An ability to originate styles would become a business asset of consequence and the established house would tend to prosper.²

Regulations might well be devised which would stimulate creativeness. They might also help to stabilize the industry without eliminating the needed and valuable imitation which allows women of lower income levels to participate in the fashion cycle. But—as one would expect in a situation where the basic facts are so vehemently disputed—there is little unanimity about methods of control. The prevention of copying in an industry dotted with so many small ephemeral firms is clearly a difficult matter. During the NRA, hearings were held before the code authority to formulate measures of control. But before agreement was reached, the episode unluckily was over.

The government by means of "design patents" now affords some protection to style originators; but few avail themselves of this shelter. No separate figures are available for women's dresses; but in 1935 the total of design patents in *all* fields was only 3,437. Whether it is the delays of procedure, the hazards of litigation, or the failure of manufacturers to create designs original enough to warrant legal protection, design patents have had little effect on piracy. It has been suggested that by amendment the law could be made a more effective instrument. Some believe, however, that the whole matter of style registration should be transferred from the Patent Office to the Copyright Bureau.³ Since the Copyright

¹ This is interesting in view of the claim that retailers are themselves responsible for a great deal of copying—sending out a promising model to their own contractors to have it made up in cheaper materials or with less expensive trimming. The claim is difficult to substantiate but several retailers have admitted that others indulge in the practice.

² Trowbridge, Sherman, *Some Aspects of the Women's Apparel Industry*, Industry Studies Section of the Division of Review, National Recovery Administration.

³ This was incorporated into the Vandenberg Amendment, S. 3047, 74th Congress, 1st Session, an act to amend the act entitled, "An Act to Amend and Consolidate the Acts respecting Copyrights, Approved March 4, 1909, as Amended and for Other Purposes."

PRICE AND PRICE POLICIES

Bureau undertakes to perform no search to substantiate claims for originality, registration is swift and inexpensive. Even so, it is a question how far it would be used by manufacturers in the haste of their work and whether if it became universal the bureau would not be overwhelmed with the burden of registering thousands of swiftly passing dress designs. And since any design would find as warm a welcome as any other, would an avalanche of litigation follow in the wake of registration? Friends of the plan stress the record of the Copyright Bureau, against which fewer legal cases are scored than the Patent Office. The mere fact of copyright, they maintain, has served as a deterrent to copyists in other fields and may be expected to do so in dress design.

Whether permissive schemes of control can ever effectively deal with day-to-day pirating is yet to be seen. Meanwhile there has been set up within the industry itself, in the offices of the Fashion Originators Guild, a vigorous antipirating organization. The guild was established by a group of higher priced manufacturers who have attempted to eliminate copying by rules and regulations. It is not representative of the will of the industry as a whole,¹ and its work has met with strong resistance from the manufacturers of cheaper dresses. Upon retailers too the guild imposes a heavy hand so that some, though not all, have fought its activities as being "ruthless and opposed to the public interest." Despite the hostility it has aroused, many manufacturers are loyal supporters, maintaining that the better dress houses would not be in business today without the guild.

The guild was organized to establish fair trade practices among its members and to carry out a style-protective program. Many of its trade practices, directed at the elimination of abuses between manufacturers and retailers, are of obvious value and were adopted by the code authority under the NRA. In pursuance of its purpose the guild has instituted a system of "registration," labels being affixed to every registered dress. Members of the guild are allowed to do business only with those retail stores which pledge themselves to refuse to deal in styles which by an impartial committee have been adjudged copies. If the pledge is broken, the store is "red-carded"; and thus the guild institutes a boycott. A store carrying both low- and high-priced dresses cannot accept copies in the low-priced field without forfeiting the right to buy their better dresses from members of the guild. This has proved to be a burdensome restriction.

The Federal Trade Commission has filed complaints against the Fashion Originators Guild. It pleads "restraint of trade" in the coercion of manufacturers to purchase textiles only from houses approved by the guild and to sell only to retail stores cooperating with the guild; it charges

¹ Although recently the important group of dress houses selling at \$10.75 was admitted to the guild, and \$6.75 houses were being "approached," it remains to date an "*imperium in imperio*."

DRESSES

coercion of retailers to become affiliates of the guild, to return copies of guild garments under penalty of boycott, and to refrain from buying from manufacturers who have copied garments "adjudged to have been designed by guild members."¹ The taking of testimony has required several months, and no verdict has yet been rendered. Whether the Fashion Originators Guild is discovered to be "legal" or "illegal" is of secondary importance. What is of consequence is that the issues involved in style piracy have not yet been brought to clarity and are not yet within reach of a solution upon which all groups in the trade can agree.² Piracy is, of course, no mere "local issue" among dress manufacturers. It is an issue in every style industry here and abroad. One has only to unearth the many bills introduced into Congress for style protection and to read the hearings before congressional committees to perceive how widespread is the incidence of piracy and how deeply it cuts into industrial activity. The dress industry, a single case among many, is one of the most difficult of all. It would be heartening to see a clarifying of issues and a fresh attack upon the problem.

THE JOBBER-CONTRACTOR PUZZLE

To manufacture or not to manufacture is the strange question that presents itself to every executive of a dress firm. It indicates the curious separation of the commercial from the productive activities of the industry. Why do the larger number of manufacturers answer the question in the negative? Why do they give into the contractors' hands the actual making of dresses rather than have them put together in their own workshops? Is this division of responsibility and risks, which in most industries are united, an ingenious and economical device neatly suited to the conditions of the trade? Or is it inefficient and wasteful, giving rise to abuses impossible to control?

The contractor faces two ways in the industry. He is at once the employee of the manufacturer and an employer of labor. He employs three-quarters of the labor in the New York metropolitan industry, for whose productive work he is responsible. Yet at one of the code hearings he was described in the following terms: "Contractors are not business men, they have no investment, they are foremen, they are workers, they are employees . . . they have no responsibility and should be given

¹ From text of the complaint issued by the Federal Trade Commission.

² An interesting suggestion recently made by the manager of one of the dressmakers' locals emphasizes the necessity for a support wider than the guild has so far achieved. He states that their union "is ready to become the police force of the industry in such matters as style piracy," "but the union cannot be put in the position of protecting style creators in the higher brackets at the expense of the bulk of manufacturers in the low end." "Provided, however, the entire industry can agree on a program the union would be glad to undertake the job." *Womens Wear*, December 8, 1936. Whether the International Ladies Garment Workers Union has officially endorsed this suggestion the author does not know.

PRICE AND PRICE POLICIES

none." The contractor is responsible for the making of dresses but "should be given no responsibility"—this suggests the difficulties and anomalies of his position.

There are two kinds of contractors. Usually the jobber cuts his dresses on his own premises and gives the "bundles" to the contractor—often known as a bundle contractor—to make up into finished garments. But sometimes the contractor does the cutting himself and in that capacity is known as a submanufacturer. The latter term has somewhat passed out of current usage and the term contractor has come to be applied to both groups—those who cut, sew, and finish, and those who only sew and finish. Why some jobbers cut the dresses on their own premises and why others do not seems to be a matter of personal preference. One jobber will tell you that he saves a lot of waste in material when the cutting is done in his own plant. Another will say that the saving is more than absorbed by the extra space and equipment required for cutting. A third cuts because he was once a cutter and knows the business; a fourth "can't take the time to bother about it." In general it is the jobbers selling the cheaper lines of dresses who cut on their premises—the possible saving of material being greater when large numbers of dresses of one style are cut.

Contracting is an expediency grown up into an institution. It is the technology of the industry which has made it feasible. Sewing machines are small, mobile, and inexpensive; they require little space and no permanent abode. Nor is a wide variety of machines necessary. It is an adage of the trade that with \$50 a contractor's shop can be set up. More than this is needed today, although machines can be bought on the installment plan or rented, and no outlay for materials is needed. In New York City the average rent for a shop with a capacity of 20 machines is about \$75 a month. Advertisements, however, offer a 20-machine plant, including a pinking, blindstitching, and cutting machine for as little as \$35. Recent figures gathered by brokers show that the equipment of an abandoned shop of 12 machines could be bought for \$300, and one of 25 machines for \$500. It is likely, however, that such abandoned shops would be taken over only by a novice who would soon find repair costs overwhelmingly high. The equipment of one contractor's shop visited by the writer—consisting of 56 machines and several of specialized kinds—had cost \$7,800.

If a shop may be rented for around \$75 a month, with materials all furnished by the jobber, the capital requirements of the contractor's business are clearly not onerous. In many of the heavy industries the incentive to produce is fostered by high overhead costs which must be met; in the dress industry it is the very fact of low-cost machinery which accelerates the competitive process and entices the unwary and ambitious worker to take the next step upward in the trade. Some 1,800 contractors are now

DRESSES

taking their chances in the metropolitan area of New York. Low overhead unites with small investment to produce the contracting system and the constant oversupply of contractors.

The turnover among contractors is even higher than among manufacturers. At the close of a poor season so many are served with dispossess notices that moving their factories is almost institutional with them. Many go through bankruptcy proceedings and return to the workers' bench—only to be lured another year by the bright hope of a better season. An investigation of 927 contract shops from 1926 to 1933 indicates that in 3 years 68.2 per cent and in 7 years 81.7 per cent were discontinued.¹ The contractor's lack of managerial training is partly to blame. He has to be handy man and mechanic, do the hiring and firing, keep his books, act as foreman, examiner, and errand boy. He spends a considerable part of his time soliciting work from jobbers. In general his knowledge of how to put a garment together is his only asset. As with manufacturers, there is each year a shift of personnel and a turbulent reorganization in the hope of escaping insolvency. No "natural" economic forces appear to limit the number of contractors to those who can make a living. If figures were available it would be illuminating to show the cost of this competitive confusion in terms of lost savings, bad debts, and demoralization of personality.

The contractor has always been most at home in New York. In the early days contracting served the special needs of the Jewish immigrant and was greatly served by him. The contractor's function then was largely that of an organizer of immigrant labor. Someone was needed to search out the newly arrived immigrants, someone who could speak their languages, help them to learn American ways, and train them in the processes of production. The contractor, with his small personally supervised shop, answered the need. Though today that task is gone, the contractor still assumes the responsibility of assembling and supervising the workers in his plant.

This need of close supervision has often been argued in behalf of the contracting system. Dresses are created in a large number of styles and a small number of each style is cut; on each of these dresses a varying amount of handwork is required. The managerial function in such a non-mechanized industry presents special problems. The ability of the individual worker is of prime importance and the personal oversight of the contractor who knows each worker is held to increase shop efficiency. It is argued that if in a single plant an assortment of 5,000 dresses a week are produced by 100 machines, several styles will be produced simultaneously with resulting confusion to workers, supervisors, and managing staff.

¹ This investigation was conducted by the Research Department of the New York Joint Board of the Dress and Waistmakers Union.

PRICE AND PRICE POLICIES

If these 100 machines are distributed among 5 different plants, 20 machines to a plant, the unit becomes manageable. The speed of production will be increased, the quality of the work will be improved. If this is true, it is obviously an argument not for the contractor but for the small shop. Because the two have usually been found in association, the one has seemed to imply the other. Yet the issues presented by the two must not be confused. Contracting cannot be wholly accounted for by calling it a feasible expedient or by reference to its origin. It is more illuminating to ask in whose interests it is perpetuated. The answer is the interests of the jobber. Not that the jobber has consciously tried to preserve the system; rather the contractor, in view of the peculiarities of the trade, has been an answer to the jobber's needs. His distinctive usefulness has centered around three separate but related phenomena.

1. The contractor has relieved the jobber of concern with the processes of dress production and has enabled him to concentrate on the problems of style and sale. The selling of dresses is an exigent, intricate, and time-consuming affair in which specialization is requisite for success. It has been greatly to the advantage of the jobber to free himself from the technical aspects of dressmaking and from the detailed shop adjustments known as labor problems. In the rapid growth of jobbing it is significant that the evolution of production has been very different from the development of marketing practice. No change in productive technique parallels the emergence of a national market. Under the stress of widening demand and the accelerated rhythm of style the manufacturer found that his best hope of survival lay in making a small unit profit on a large sales volume. By increasing the scale of his operations he could also profit by wider credit facilities and more liberal discounts from fabric houses.

In the course of specialization the jobber might easily have severed connection with production altogether and have become a middleman who buys and sells. But this would have been to relinquish whatever profit he could make from the buying of his materials. In addition the selling of dresses depends upon an unerring response to changes in style and it was vital to the jobber to keep the threads of production control within his own hands. A seller wholly divorced from production could not register accurately or quickly enough the vagaries of demand. The market in dresses is a hard taskmaster dominating inexorably from day to day the productive process.

The separation of marketing and production has resulted in a chaotic lack of integration.¹ In most industries the various departments, each in

¹ Another form of specialization is to be found in the manufacturing concerns who "deed away the control of their selling." Thus in the textile industry, although many mills now have a merchandising or marketing department, more typically the mill sells its product through commission merchants, factory jobbers, brokers, or converters. Many other industries have found it advantageous to concentrate on producing, giving to the

DRESSES

the hands of specially qualified personnel, are integrated into a single system and each branch is in intelligible relation with the others. The left hand that sells knows what the right hand that produces is doing. But in the dress industry, the production department, *i.e.*, the contractor, is an independent unit. His costs, his profits, have not been intimately interwoven with either the buying of piece goods or the selling of dresses. The manufacturer pays what he must for the making of the garments, but whether the payment enables the contractor to survive or to pay more than starvation wages has not, until the 1933 reforms, been his concern.

2. The contractor assumes the burden of the overhead of production equipment. The investment in rent and equipment sufficient to carry production at peak seasons must be carried without return in slack times. Of all burdens this is the greatest, since only half the number of weeks in the year are worked at the peak rate.¹ The contractor's responsibility for overhead has made it possible for the jobber to expand his business at peak seasons without expanding his space at all or his organization permanently. But the overhead cannot be made to disappear like a rabbit in a hat. The jobber may pass on the responsibility, but the contractor is no more fitted to bear it. The question is whether the overhead should not be met by the group which has the better sporting chance at a profit. Contracting does split up the overhead among many persons, giving to each a small portion—but "small" is a term relative to the capacity to bear. Even though a contractor has low rent, a small number of machines, and small expectations of anything beyond a bare subsistence, the "small loss" of a period of idleness is likely to take him over the verge of solvency.

The scattering of the overhead has obscured the issue of whether it is not greater than it need be. At the peak of the season a large portion of machines are idle—in 1934 it was 26.7 per cent. The average number of machines to a shop is about 24 in New York City and 45 in the Manhattan area. It is difficult to specify an optimum unit for a dress plant; some would say 50, others perhaps 75, and there are cases where 200 machines are

wholesale house the task of selling. It has been suggested that the manufacturer who farms out his selling does not have his ear to the ground and disregards the power he has to regularize production by regularizing demand. This separation of the selling and manufacturing ends of a business thus makes for unemployment. It is equally true that the farming out of production to the contractor tends to accentuate seasonal fluctuations.

¹A recent computation has shown that the women's apparel industry is the most seasonal of the large number of industries studied. The range measured by the difference between indices for the high and low points of the season is 55 points in women's apparel. Automobile manufacturing has second place with 35 points, and cement manufacturing comes third with 25 points. Boots-and-shoes and automobile-tires-and-tubes tie for fourth place with 23 points. On the basis of production only, fruits, vegetables, and cottonseed oil show a wider range. On the basis of employment, fruits and vegetables, cottonseed oil, butter, and ice cream are the only industries showing a greater degree of seasonality. See Simon Kuznets, *Seasonal Variations in Industry and Trade*; National Bureau of Economic Research, pp. 23-29, 209-210, 414.

PRICE AND PRICE POLICIES

operated successfully. It is generally agreed that the smallest of the present shops are uneconomical. If the industry were properly organized, the amount of floor space and the number of machines could both be reduced. So long as contractors bear the cost of overhead during slack times there is little incentive to jobbers to shape their selling policies to flatten out the peaks and valleys of seasonal fluctuations. And the contractors are not in a position to exert any direct control over the flow of demand. As a device for getting nothing done to regularize the industry the contracting system has worked admirably.

An important step to mitigate the irresponsibility of jobbers in respect to overhead was the agreement of August, 1933, between the International Ladies Garment Workers Union and the jobbers, inside manufacturers, and contractors. Among other things this provided that manufacturers should pay contractors a "reasonable amount" to cover overhead. The NRA code implemented this by allowing to the contractor in the New York area, as a minimum, 35 per cent of his actual labor costs.¹ Contractors are not much given to accountancy and, failing adequate cost data, the figure of 35 per cent was chosen as the best possible approximation and later won through inquiry a justification in practical fairness. The greatest dissatisfaction with the regulation came from contractors working on the more expensive dresses. Much of their business comes in "piecemeal lots" and the execution of those small orders involves much planning and a large amount of supervision. Accordingly, in 1936 it was agreed that contractors working on dresses above \$10.75 should receive 40 per cent.

The most serious difficulty with fixed overhead has been that in many cases it is not paid. "Kickbacks" are given and received in secret through collusion between contractors and jobbers, particularly in the low-price ranges. Although the United Association of the contractors attempts to protect its members by prompt prosecution, kickbacks flourish underground and resist detection. Contractors claim that they are forced to bring the rebate in cash, that jobbers charge for material never supplied, that jobbers cash checks and refund only part in cash, and that they even resort to the keeping of separate sets of books to conceal their devious practices. The jobbers are doubtless mainly responsible, but contractors eager for work have themselves often suggested rebates. As has been suggested, "It is hard to have intestinal fortitude when you have no capital to back it up."

¹ On a \$3.75 dress wholesale, the approximate labor cost is 74 cents, of which 35 per cent is 25.9 cents. This is 6.9 per cent of the wholesale price and of course a much smaller percentage of the retail price. On a \$2.25 dress labor gets about 49 cents, and 17 cents (35 per cent of 49 cents) is added for the contractor's rent, light, heat, insurance, interest on investment, and profit. It was agreed by all the associations and the union that the provisions regulating contractor-jobber relations as written in the NRA code would automatically become the corresponding provisions in the collective agreement.

DRESSES

3. The surplus of contractors has enabled the jobber to play off one against another, thus ensuring to himself the lowest possible cost of production. As it is to the advantage of an employer in bargaining with labor to have a pool of unemployment on which to draw, so it is to the advantage of a jobber to have a surplus of contractors. Even when existing contractors have been unemployed, jobbers have set up new ones in business. But the fault does not lie wholly with the jobber. As has been suggested, ambitious workers are likely—particularly at the peak of the season—to be lured into the contractor's game, with little knowledge of the actual opportunities available throughout the year.

The juggling of contractors has translated itself into the juggling of one group of workers against another. The contractor's overhead costs are fairly standardized and the area in which efficiency of management has any real scope is not large. He cannot economize by the strategic buying of goods nor institute a better organization of selling. His labor costs are approximately 75 per cent of the price he gets and the difference of a penny a garment on a large order may spell success or failure. Low costs for contractors mean, therefore, low labor costs, and over the years the contractor who could sweat his labor most effectively has been the survivor. However much he may have desired to deal fairly and squarely with labor, the competitive stress has driven him inexorably to a hard bargain. His income fluctuates so directly with the activity of his workers that he has been tempted to resort to almost every kind of petty extortion. It is for this reason that the sweatshop and the contracting system have been practically synonymous terms. And for this reason the reforms of 1933 and 1936, long overdue, were instituted.

These reforms have virtually revolutionized the position of the contractor. The agreements of 1933 established the principle that *the jobbers should be responsible to the union for the maintenance of wage rates by contractors*. Jobbers are, moreover, bound to deal *only* with contractors, who in turn are bound by union regulations covering wage standards and working conditions. In 1936, competitive underbidding by contractors was further controlled by the provision that prices should be settled, not in the contractors' shops, where committees of workers were often at a disadvantage, but on the jobbers' premises or on neutral territory. It was also provided that the parties to the negotiations should be the jobber, a representative of the union, and a committee of workers from the contractors' shops. By these measures the industry has become more unified and has moved toward a more clean-cut industrial structure.

It would be difficult to overemphasize the importance of this reconstruction in the relationship of jobbers, contractors, and workers. No longer can the contractor parry with prices offered by the jobber on the basis of the wages he has to pay, nor answer the demand of the workers for

PRICE AND PRICE POLICIES

a raise by shifting the blame to the jobber. In the past many a contractor made the best of both worlds, playing off the two groups against each other. But he was often caught in a squeeze play—between jobbers withholding orders and workers withholding labor because the prices named by each group could not be brought into relationship. Now he is outside the sphere of day-to-day bargaining over piece rates. The basis of competition between contractors rests on their work performance, promptness, skill, and integrity, not on their ability to drive down wages and impair working conditions.

Jobbers who employ contractors have now the same wage responsibility as inside manufacturers who employ labor directly, and these latter are no longer at a competitive disadvantage. In the past it has been easier for the union to achieve contractual relations with the inside manufacturers than to organize the outside shops. The result has been that both the weekly rates and the average annual earnings of labor, as well as working conditions, have been better in the inside shop. In 1932 a study of 60 representative establishments showed that the average weekly earnings in 36 contractors' shops were \$17.49 contrasted with \$22.66 for the 24 inside shops, and the number of weeks at peak rates were 26.7 in the former and 34.9 in the latter group. The situation in which the inside manufacturers paid a penalty for better labor conditions could be met only by making conditions uniform throughout the industry, or by abandoning all contractual relationships and letting the trade cascade downward toward the chaos of its early days.

Although the evils arising from a surplus of contractors could be outflanked by jobber responsibility and wage standardization, a more direct attack was needed. Jobbers were using more contractors than they required, thus fostering a costly surplus overhead.¹ The jobbers, however, fought the limitation of contractors on several grounds. They insisted that contractors are specialists in certain types of work—chiffons or sportswear, for instance—and that “there are different peaks and valleys of activity for the different kinds of dresses.” October is a good month for tailored dresses, a bad one for dinner and dance frocks. June brings a demand for inexpensive sportswear, but afternoon frocks are at a low ebb. “The fact that activity in each class and grade of merchandise is crowded into a comparatively short period makes it mandatory that we have the

¹ An example given in one of the code hearings makes this clear, although the actual figures are only illustrative. If a jobber needs 5,000 dresses a week, these could be produced by 100 machine operators with the necessary complement of other crafts. The contractors employ on the average 20 machine operators. Hence the work could be done by employing five contractors. But instead of such concentration, the jobber distributes his orders among 15 contractors and works accordingly with 300 machines. No inside manufacturer would maintain 200 machines more than were needed. Summarized from *NRA Hearing on Dress Manufacturing Industry*, August 23, 1933, pp. 80 ff.

DRESSES

prerogative of expanding our productive facilities to meet the peak season requirements."¹ Jobbers also maintained that limitation of contractors is not needed if substandard shops are eliminated by collective agreements. The high mortality of contractors they held to be due to their weak financial condition. Finally, they claimed they must be free to hire and fire in order to control standards of efficiency. Limitation could place the contractors in a monopolistic position where they could dictate both price and quality of work. The arguments have an uncanny resemblance to those used from time immemorial in favor of the open shop.

The contractors, although in favor of limiting jobbers to those contractors who could be kept fully employed, did not believe that one of their number should be limited to a single jobber. If a contractor were bound to one and only one jobber, the adventitious dependence would be unfavorable to survival. Should the jobber's line prove unsuccessful, his management grow slack, his credit be impaired by outside speculation, his season might be ruined. The contractor did not favor monogamy for himself and polygamy for the jobber.

Despite these differences of opinion, the collective agreements of February, 1936, took a decisive step toward limitation of contractors.² Registration with the United Association has been superseded and a new Administrative Board³ has been established. From this board, manufacturers or jobbers must obtain authorization for any additional contractors and for the right to discharge, which, if challenged, must be supported by a bill of particulars. Fines are imposed for dealing with nondesignated contractors, heavy enough to offset any advantages gained from the

¹ Memorandum submitted by the National Dress Manufacturers Association to NRA, October 7, 1933.

² The first step toward limiting the number of contractors was initiated by the NRA. A code amendment was passed to the effect that "Each jobber shall designate the contractors actually required, shall confine and distribute the orders equitably to and among them." This resulted in the setting up of a system of "registration of contractors" through the United Association, to which practically all the contractors in the metropolitan area belong. Every jobber handed in to the United a list of his contractors. If he wished to add to the number he had to give evidence that his requirements justified such a request. After investigation, if the United found that all the jobber's present contractors were busy, the request was granted. The system of registration, while a definite step toward limitation, was a better thing on paper than in practice. Evasions were the order of the day. Jobbers "set up" contractors secretly or they had commerce with nonregistered contractors. They got permission for new contractors, on the basis of delay in deliveries or defective workmanship, without an adequate support of these claims. Or with only a little work ahead they insisted that their existing contractors were not sufficient. Limitation was thus still thwarted.

³ The Administrative Board is composed of a representative each of the union, of the Affiliated Dress Manufacturers (inside manufacturers), of the National Dress Manufacturers Association (mainly jobbers), of the United Association (contractors), and of the Popular Priced Dress Manufacturers group (those making dresses wholesaling at \$4.75 or below). A decision of the board, to be effective, must be unanimous. Failing unanimity the case goes to the impartial chairman of the industry.

PRICE AND PRICE POLICIES

transaction.¹ Contractors must, unless excused by the board, work for only one manufacturer or jobber. This is one of the most "radical" measures yet tried. Though it is too early to gauge its long-term effects it has already materially reduced the "shuffling" of contractors.

Another move toward limitation was initiated by the contractors themselves. This was the device of a registration fee of \$500 and a yearly payment of \$150. An even higher fee is contemplated. The fee, it is argued, will not only reduce numbers but tend to bring into the industry men of greater responsibility and higher standards. The "little man" who can survive only by undercutting will be eliminated. Moreover, the contributions will make possible increased activity on the part of the association, which guards the interests of the contractor in relation to jobber and worker.² Yet the initiate may have to strain to meet the higher entrance fee and as a result may enter the industry as a poorer financial risk. Nor, as the industry has gone, is there any sort of a correlation between initial pecuniary assets and the distinctive ability essential to survival. Yet it is reasonable to expect that any limitation, however crude its selective test, will make some contribution to the stability of the industry.

The new regulations and arrangements are undoubtedly improving the status of the contractor. One clear gain is a more self-conscious, active, pressure group. The progress already made toward the correction of evils affords basis for the belief that the system does not of necessity mean disorderly competition and substandard shops. Yet much remains to be done in formulating the rules of the game and in creating the common mind and the higher morale essential to their enforcement.

But even if proper controls are enforced, is the contractor system the best possible mechanism? In the first issue of the late *United Association News*, a weekly paper of the contractors, it was editorially asserted that it is neither "logical nor good business philosophy that an efficient successful sales organization should become an efficient and successful manufacturing establishment. This is an era of specialization and in such an era the contractor is an economic necessity. . . . Take away the possibility for quick expansion or contraction of production as season or style calls for and the industry will be stifled." This last sentence hides an important ambiguity which needs to be explored. The contractor has, it is true, been a means of supplying flexibility, making possible quick expansion and

¹ It must be noted that many jobbers now limit "voluntarily the number of contractors they create," finding that they get a better product by confining themselves to the same contractors for long periods.

² The United investigates all cases where jobbers have failed to pay in accordance with the collective agreement. In case of a shop dispute a member of the United, accompanied by a member of the union, visits the shop in the attempt to settle the difficulty. If this fails, the case may go to the Trial Board presided over by the impartial chairman.

DRESSES

contraction. He has been willing to work, and then not to work, bearing meanwhile the overhead. But if the making of dresses is not to be financed by the lost savings of contractors, by unpaid indebtedness to workers, by defaults to landlords and power companies—all in various ways a subsidy to the consumer—the overhead *must* be included in the price of a dress. It is the very “flexibility” of contractors that has been their downfall and it is precisely this situation which the control of overhead is intended to correct. If it does its work properly, payment must be sufficient to carry the contractor in slack times and in that event the jobber has made no more saving than if he himself had borne the overhead.

The contracting system has in truth proved useful largely because of its very evils. If the evils are corrected in full, if jobbers are held responsible for wages contractually agreed upon throughout the industry, if adequate overhead is always assured, if there are only as many contractors as the trade can keep busy—will the system be shorn of its advantages and cease to endure?¹ The value of the contractor as an institution can never be adequately assessed until it is given a trial under favorable conditions. If the system is to survive it must do so because the contractor fulfills a function as a specialist in production, and not because he is the victim of abuses which he is too weak to resist. As a group contractors have been more sinned against than sinning; and being sinned against is the most certain way of becoming a sinner.

What is the relevance of this jobber-contractor puzzle to the price of a dress? Merely this: that the structural arrangements of the industry leave room for a host of practices which come under the rubric of disordered, excessive, or unfair competition. And price, under such conditions, comes to have no intelligible relation to value or cost. If competition is excessive, the consumer may be subsidized by those within the trade whose living standards are jeopardized. If competition is unfair, one group with superior bargaining power may impose onerous terms on other groups, the consumer unwittingly paying a sum which registers this political pressure as an element in price. There is no crisp rightness about a market price. It turns an innocent face to the world and hides the fact that necessitous men must take what they can get. The theory that market prices work out for the good of all—provided competition be free—assumes a complete fluidity of labor and managerial talent which, when denied a proper living, moves with uncanny accuracy into a sunnier financial climate. Such a theory refuses to recognize that over long periods of time the consumer may profit unduly at the expense of those who carry on the business. It fails to understand that price is a “political” as well as an economic phenomenon.

¹ One of the most intelligent manufacturers in the trade recently remarked that “The contractor now gives nothing,” by which he meant that since exploitation was no longer allowed the service of the contractor had become of far less value to the jobber.

PRICE AND PRICE POLICIES

THE RISKS OF EMPLOYMENT

“Six hundred thousand Jews followed Moses out of Egypt; fifteen hundred thousand followed a dream out of Eastern Europe. Both groups went into a wilderness, one a wilderness of scrub-trees and desert; the other a wilderness of slums and sweat shops, of a greedy and growing industrial society. One had a Moses to part the waters of the Red Sea; the other was without a leader. One had the divine promise of a land which would be its own, in which it could plant crops, tend cattle and worship God in peace; the other faced an unknown society, itself still in a state of flux.”¹

The fusing of Jewish immigration with the development of the garment trades constitutes one of the most dramatic episodes of our industrial history. In the eighties, when the Jews of eastern Europe were by the thousands looking to America for the freedom and the hope denied them in their own countries, the making of clothes was emerging into its period of swiftest development. The two movements joined, the one accelerating the other, with the result that it is impossible to imagine the clothing trades with the Jews left out. Forbidden by law in their own countries to hold land and barred by custom from many pursuits, the Jews had become small retailers, money lenders, petty traders, and domestic artisans. Many were experienced in the ways of tailoring. When they arrived in New York, unable to speak English, without capital, unfitted for agriculture, dextrous but not physically powerful, unused to the rigidities of factory procedure, devoted to the observance of the Jewish ritual, the clothing trades offered the best means of livelihood. Their employers were Jews who understood their language and would close the shop on Saturdays and feast days; the work required long hours but no heavy manual labor. The shops were small and the discipline intelligible. Moreover, there was always the hope ahead that they too might travel the road to independence. That the sojourn of the Jews in the land of freedom turned into a chapter of economic oppression was one of the greatest of the many ironies of fate which have overtaken that people; that they themselves by sacrifice and effort helped to master these conditions, one of their characteristic triumphs.

The history of the garment workers has been told elsewhere.² But a brief glance affords a perspective of the distance traveled. The early picture is a grim one. In the “Jew Town” of the East Side, tenements were converted into workshops, and here men, women, and children toiled in unventilated and badly lighted rooms. They worked early and late for

¹ Kopold, Sylvia, and Ben Selekman, “The Epic of the Needle Trades,” *The Menorah Journal*, October, 1923, p. 293.

² Levine, *op. cit.*

DRESSES

starvation wages, often sleeping at night on the "bundles" to save time. Defenseless and unprotected, neither the state nor their employers gave them justice. Fines of all sorts were imposed—for a broken needle, for being five minutes late to work, for losing a "trimming ticket,"¹ for the failure to return an empty spool of thread, for spoilt goods. Then, too, there were taxes, for the chairs they sat on and for the power that ran their machines. At one period the workers had to buy their own machines, carrying them from shop to shop. Clocks were covered or sometimes turned back to prolong the hours of work. The contents of pay envelopes were mysteriously reduced. Protest was useless; the individual who dared lift his voice was no longer needed in the shop.

Out of a fellowship of poverty, the workers painfully and slowly fought their way toward some measure of justice. The struggle in the early days seemed at times hopeless. After weeks of starvation, strikes were lost—or if won turned out to be Pyrrhic victories. Strike promoters betrayed their interests, and the workers themselves were long in learning that only through group action could they "forge the instruments of their emancipation." But, gradually, permanent labor organizations were established, men of integrity and devotion became leaders in the movement, and signal successes such as the "Uprising of the 20,000," the "Great Revolt," and the "Strike of 1910," brought to the workers solidarity and recognition. The necessity for organization became current coin in the workers' realm.

The character of the labor struggle in the needle trades has reflected both the structure of the industry and the high degree of its racial homogeneity. The phenomenon of the absentee owner has been unknown. There has been no chasm between owners and workers such as exists in the coal fields, where miners live in dilapidated villages and the owners know as little of their ways of life as of how to "stem a shot, put up a prop or properly put a wick into a pit lamp." "The needle trades have no Homestead, Cripple Creek or Ludlow where workers and company agents shot each other down."² In the clothing shop, exploiter and exploited speak the same language, literally and symbolically. The Jewish community, particularly in the early days, was a compact group and "the suffering of one section could not persist beyond the ken and conscience of the other." In their struggle the garment workers have been able to count on an understanding which even the emergence of sharper class differences has not yet wholly obliterated.

The personnel of the industry has undergone a gradual change. The workers number approximately 120,000. Of these 77.9 per cent are women.

¹ The fine covered the entire cost of the trimming although it was only the ticket and not the trimming that was lost. The fine for spoilt goods was high enough to have bought the material many times over.

² Kopold and Selekman, *op. cit.*, November, 1928, p. 414.

PRICE AND PRICE POLICIES

In the New York area 32 per cent are Jews, 51 per cent Italian, 5 per cent colored, 2½ per cent Spanish, and 1½ per cent Americans. In the remaining 8 per cent almost every nationality of our conglomerate civilization is represented. Union records show British, Syrians, Turks, French, Hungarians, Polish, Austrians, Scandinavians, Dutch, Belgians, Russians, Irish, Chinese, Japanese, Mexicans, Bulgarians, Rumanians, Czechs, Germans, Malayans, Armenians, and Hindus enrolled in the union.¹ Union membership, while small in some localities, comprises some 98 per cent of the workers in the New York area. The striking fact is the displacement of the Jew by the Italian. After the war, when the new immigration laws diminished the supply of fresh labor from abroad, the industry recruited its workers from the second and third generations of those already in the trade. It could not count on "American" girls, who looked with disfavor upon this immigrant industry and preferred to accept almost any low-paid work elsewhere. The shift to the Italian has been largely due to a strong desire of the Jewish worker to keep his children out of the shops. His relentless ambition, his passionate identification of himself with the opportunities of the new world has led him to make every sacrifice to enable his children to avail themselves of an education which will carry them into a new way of life. With the Italians the case has been somewhat different. The Italian wave of immigration came later and allowed less time for discovery of possibilities in other fields. Italian families tend to be larger than Jewish, and the work of the older children is necessary to help support the younger. And the Italian girl has been taught less eagerness for education and a career than for marriage. The future racial composition of the industry is difficult to predict. Although the Negro group is still small, its relative increase suggests that in the next decades it may become a significant factor in dressmaking. The effect of new groups on union ideals and tactics presents an interesting question. But that the Jews who have built the union and found in it the expression of their deep craving for justice will for some time to come continue to be the active leaders seems certain.

The International Ladies Garment Workers Union—established under this name in 1900—represents the most purposeful, cohesive group in the industry. Though its strength has at times been weakened by inner dissension, it has had a continuity of organization which other groups have lacked. It has been armed with a faith and with a program. The creed of the manufacturers is a reliance upon the forces of competition to bring all things to all men. An emergency may for a time rivet their attention upon

¹ By way of contrast with New York, it is interesting to note the racial composition of the dressmaking group in San Francisco. Here the Mexican-Spanish lead with 27.2 per cent; Americans are second with 24.8 per cent; Italians number 20.2 per cent, Russians 17.4 per cent, and Jews 10.2 per cent.

DRESSES

their common interests, but their tendency is to drift apart into their private worlds, where each man is intent on the daily routine of "buying cheap and selling dear." For the worker strength lies only in association with his fellows. Experience has taught him that in the long run no one can win unless all win. The very factors in the industry—the contracting system and seasonal breaks in employment—which have made organization difficult have also made it imperative. This mutual bond of necessity has developed among the workers a "common mind." Almost unique in American unionism, the usual trade-union activities have been informed and supported by a social philosophy which has looked beyond the material needs of the day. It is this philosophy which among other things has nurtured the significant activity in workers' education, in health, and in recreational facilities.

The consumer's interest in the "labor problems" of the industry comes to focus in three related questions. What kind of a living do these 120,000 dressmakers win from their work? What effect has union activity had on price? Have the workers limited productivity either through inefficiency or through the imposition of unwarranted restraints which impede the free flow of goods to the market?

For the benefit of those to whom wage statistics have a flavor of unreality, we may ask what these wages yield the workers in the way of the comforts and conveniences of life. A recent study gives some indication in concrete terms of how the workers in New York live.¹ It reveals that whatever their wages 97 per cent of the workers have others dependent upon them; 72 per cent are the sole wage earners in the family, and 11.1 per cent have to take in boarders to supplement the family income; 94 per cent live in rented dwellings, and the average family lives in 3.5 rooms; 11 per cent of the families live in one room, and only 5 per cent have more than five rooms. The average monthly rental paid for their homes is \$31.25. Only 9 per cent pay more than \$43 for rent. While in smaller communities this amount might mean reasonable comfort, in New York it spells quarters badly lighted, ventilated, and heated, in a poor and overcrowded district. The workers share little in the modern conveniences of life. That 98 per cent do not own automobiles is not surprising in view of the density of New York traffic and the other available means of transportation. It means, however, that only 2 per cent have cars for trips into the country. Four-fifths of the workers own radios but the instruments are on the average four years old; 82 per cent have no vacuum cleaners and 71 per cent no mechanical refrigeration. The item on clothing reveals that in 51 per cent of the cases, the age of the *newest* winter coat was at least four years. For 20 per cent of the workers

¹ *Standard of Living Study*, prepared by the Research Department, Joint Board of the Dress and Waistmakers Union, 1935.

PRICE AND PRICE POLICIES

the newest coat had been worn for six years or more. The more imperative items of shelter, food, and meager clothing have crowded many necessities out of the budget. Sixty-five per cent do not get adequate medical care and 85 per cent need dental attention. For most of the workers medical care comes by way of the free clinic, to which there is not a little aversion. Admittance is only to those near the border line of legal poverty and demands an imperviousness to the indignities of a casual, mechanical, and impersonal treatment. Economize as he will, the dressmaker cannot keep solvent. In the fall of 1935, two out of three were in debt; and nine out of ten are forced to borrow money periodically during the slack season. Only 14 per cent have savings accounts, but the amounts on deposit are so small that they disappear during the weeks of unemployment. Fifty-six per cent of the accounts were less than \$101.

The picture presented here is hardly one of riotous living. There is, as one would expect in a seasonal industry, a marked contrast between wage scales and total yearly earnings. The hourly rate and weekly wage appear deceptively high. A cutter—the highest paid worker in the industry—receives in New York \$45 a week, which would yield a yearly wage of \$2,340 if he worked 52 weeks. Actually he seldom works as many as 35. Pressers in New York are guaranteed a minimum of \$1 or 85 cents an hour and operators 90 cents or 75 cents according to whether they work on dresses wholesaling above \$3.75 or below. Finishers, examiners, drapers, and cleaners earn much less. As to yearly earnings complete figures do not exist. The general averages fail to reveal the significant differences between crafts and between localities, but they are useful in giving the general scale of payment. In 1929, the peak of prosperity, the total yearly earnings of dress workers has been reported as \$1,342, which by 1933 had declined to \$812. In 1934, in the metropolitan area, where wage scales are high, the general average in both inside and outside shops was \$786.52.¹

The average annual wage becomes more significant when related to the "discard age" in the industry. Although this age is not "official," the

¹The figures for 1929 and 1933 are quoted by C. F. Marsh in *A Brief History of the Dress Manufacturing Industry*, prepared for the special Dress Commissioner appointed by the National Industrial Recovery Board. They are based upon "special, unpublished reports of the Census Bureau covering only those establishments which report dresses as their leading product." The 1934 figure comes from an investigation conducted by the Research Department of the Joint Board of the Dress and Waistmakers Union. Mr. Marsh's figure was apparently obtained by dividing total pay rolls as reported by the Census Bureau by the average number of workers employed in the industry. It represents the average earnings of workers employed throughout the year without taking into account the probable amount of unemployment which they undergo. The union figure, on the other hand, attempts to take unemployment into account by dividing the pay rolls in the sample by the maximum number of workers employed in any one week during the year. The two sets of figures are therefore not comparable.

DRESSES

following figures obtained by the union for a sample of 35,000 workers indicate how difficult it is to keep one's job after the fiftieth birthday. Ten per cent of the workers were between forty and forty-five, 6 per cent between forty-six and fifty, and only 3 per cent between fifty-one and fifty-five. After fifty-five, the chances for employment are slight. Except to a small minority the wage does not permit saving; old age means typically a period of dependence on relatives, friends, or relief.

Compare these wages with figures computed to indicate the requirements for living at a standard of health and decency and they are found to fall far short. The making of standard budgets presents, it is true, almost insuperable obstacles. Families vary in size, spending habits, and thrift with the result that the family of the budget is as much an abstraction as "the economic man" or "the reasonable man" of the law. The very concept of "need" is shot through with relativity—whether it be diet requirements, house-cleaning supplies, reading matter, or medical care. The budget maker also labors under the difficulty of deciding how far his budget should reflect what ought to be, or merely what is possible under present conditions. If a budget exceeds greatly the realities of current wage rates, it loses all relevance to the immediate situation; if it merely reflects consuming habits at various income levels, it has lost its value as a standard. Moreover, pricing the manifold items of a standard budget is a long and tedious task; to use a budget over a period of time its items must continuously be repriced. Such a procedure is full of pitfalls; from year to year our patterns of consumption change slowly but certainly so that the items of a given budget become as outmoded as dress styles; goods priced this year will in a few months be found to have changed in quality and identity; and changing price levels throw the items into a shifting perspective. No divine validity attaches to the ritual of budget making. Yet the effort is far from meaningless. Budgets present the claims of a rational and a decent standard of living. And despite the awkwardness of statistical method, such claims have a validity at least equal to the haphazard results of the bargaining process by which wages are fixed.

The following figures suggest some of the current standards of "a minimum health and decency budget" proposed for different parts of the country.

For a worker's family of five in San Francisco, \$1,544.16.¹

For a family of four in Hartford, Connecticut, \$1,756.69.²

¹ *Quantity and Cost Budgets for Family of an Executive, a Clerk, a Wage Earner and Dependent Family*, compiled by the Heller Committee for Research in Social Economics, 1934.

² Priced from August 28 to September 7, 1935. Compiled by the United States Bureau of Labor Statistics and priced by the New York Labor Bureau, Inc., and adjusted to a family of four.

PRICE AND PRICE POLICIES

For a family of four in New Haven, Connecticut, \$1,877.21.¹

For a family of five in Covington, Kentucky, \$1,770.33.²

For a family of five in Washington, D. C., \$2,056.07.³

Such a chasm between the wages of the dress workers and an adequate standard of living must give us pause. It indicates clearly that the pay envelope does not cover the cost of the goods which they need to buy if they are to secure the comforts or even the bald necessities of living. The sting lies in the fact that in our pecuniary society the tyranny of the pay envelope is absolute. The dictum that "he who steals my purse steals trash" may be useful in attesting the pricelessness of the best things in life; but the hard fact is that even nonpecuniary values such as the enjoyment of beauty, social sympathy, friendship, taste, and intellectual pleasures mean little to undernourished bodies and minds harassed by perpetual fear. A too-meager and unsteady pay envelope robs men and women of more than food and shelter; it imposes upon society a low cultural level which a few "upper-class devotees" cannot redeem or save.

How much or how little the industry can "afford" to pay the worker depends upon a tangle of values. The efficiency of labor can never be isolated from technology, management, or the devices of industrial organization. Yet the dress consumer may be curious as to the physical productivity of labor and inquisitive about the incidence of "union restriction" upon the free flow of dresses to the market. The productivity of labor is intimately related to geographic location. In New York it is high, decreasing as one moves westward or turns toward New England. In dresses wholesaling at \$3.75 or less, a New York City operator turns out, on the average, 68 dresses per week. A Boston operator makes 57, St. Louis 49, and Los Angeles 30.⁴ On dresses wholesaling from \$4.75 to \$8.75, the figures fall to 50 for New York, 28 for Boston, 27 for St. Louis, and 21 for Los Angeles. In the price range of \$10.75 and \$12.75 the New York operator makes 35, while Boston, St. Louis, and Los Angeles all average 19.

This discrepancy in productivity is due partly to the difficulty outside of New York in obtaining sufficient experienced help, especially in the busy seasons. But a more important factor is the greater volume produced in New York City, so that an operator can get up speed as she turns out more and more dresses of one style. She may not be inherently

¹ *Ibid.*; priced from August 29 to September 16, 1935.

² Priced from May 7 to May 15, 1935. Compiled by the United States Bureau of Labor Statistics and priced by the Chicago Labor Bureau, Inc., and adjusted to a family of five.

³ *Ibid.*; priced from May 13 to May 20, 1935.

⁴ For this material the author is indebted to a *Memorandum on Relative Production Per Worker on Silk, Wool and Rayon Dresses in Various Cities*, published by the Women's Bureau of the United States Department of Labor, 1934. Only one establishment in Los Angeles was included in the \$3.75 price range and \$4.75 to \$8.75 price ranges.

DRESSES

a better operator but her opportunity for volume production is greater in the New York shops than in Chicago or St. Louis. But to weigh all the factors affecting productivity is, on the basis of existing information, impossible. It is, in the summary of the Women's Bureau, "impossible to determine to what extent the lower output per operator in the various cities is caused by smaller volume on a single style, by older machines, by less efficient management, by a greater proportion of inefficient workers, or by a slower tempo on the part of the operator. Probably all those factors influence the result." Here is a subject that might well be explored by the industry itself.

Dramatic figures have been made available by an analysis of the best and worst performances of workers in different plants in the same industry.¹ The efficient concern using advanced techniques may enable the worker to achieve a productivity 200 times as great as the concern using obsolete equipment. In blast furnaces, lumber mills, and petroleum-refining plants output per man varied so widely in accordance with the equipment used that it ceased to have any intelligible relationship to the concept of "labor efficiency." In the dress industry, however, the difference in technical equipment between best and worst shops does not give scope for such wide variation in the worker's output. Yet there is a difference between working with a new sewing machine of 4,500 revolutions a minute and an old one of 3,500. The latest models are claimed to increase productivity from 10 to 20 per cent. In the management a wide gulf separates the efficient from the inefficient shop. Where machines are kept in order so that periodic breakdowns do not occur, where material is carefully routed, lighting adequate, the work well planned, and successive operations coordinated, the productivity of workers is higher and their well-being greatly enhanced. In the boot and shoe industry it has been estimated that the workers lose from 25 to 35 per cent of their time through departmental congestions and bad routing of raw materials through the shop.² Here is an important source of waste, even if skeptical minds quarrel over the numerical exactness. A comparison of dresses with shoes in respect to "unemployment on the job" is not possible; but workers testify that "waiting for materials to come along" is a fairly permanent and irritating aspect of the job.

How far productivity of the workers has been stimulated or hindered by the maintenance of the piecework system is an open question. The employers count on the device to help them gauge costs and competitive position. It has, moreover, notoriously served as a mechanism for squeeze-

¹ Chase, Stuart, *The Economy of Abundance*, p. 89. Mr. Chase uses figures taken from *Applications of KMH Methods of Analyzing Manufacturing Operations*, by Alford and Hannum, delivered before the American Society of Mechanical Engineers, December 5, 1932.

² The Federated American Engineering Societies, *Waste in Industry*, p. 133.

PRICE AND PRICE POLICIES

ing pennies out of the workers. Week work does not lend itself so well to this end. But on the face of it no industry is less adapted to the minutiae of piecework regulation. Each of the odd million new models put on the market every year is the subject of time-consuming and irritating negotiation, affording opportunity for miscalculation of the time necessary for making the garment. Around the fixing of piece rates many of the most difficult of the union's problems have centered. The determination of the actual rates has rested in the past too largely on the current bargaining strength of the parties concerned. Various attempts have been made to rescue the process from its "political" and haphazard aspects. The setting of a minimum below which wages must not fall has afforded some underpinning. An experiment was also tried by which a "flat rate" was put on dresses in the low-price ranges. But the system met defeat; for, as between two dresses, both wholesaling at \$4.75, one is easy to make, the other hard. In the finishing department alone, one model may take five minutes, another fifteen. Jobbers soon found in the "flat rate" an excellent opportunity to design models of increasing complexity, and it became a joke of the industry that "a \$4.75 dress was really a \$10.75 dress with a coat added."

The main efforts of the union have recently been directed toward "enforcement demands" to implement the collective agreements and rob the bargaining process of adventitious elements that thwart its purpose and kill its spirit. Paper understandings have continually been broken down by the individual bargain—to the despair of the union and the more fair-minded jobbers. Prior to the collective agreement of February, 1936, three demands were made by the union: (1) the limitation of contractors, previously discussed, (2) price settlement on the jobber's premises, and (3) the time-unit system of price settlement.

Price settlement on the jobber's premises eliminates individual shop negotiations. The system of settling prices by committees of workers in various contracting shops has long been known as the "auction block." "Price committees in shops working for the same jobber spend endless hours haggling and bargaining over the price to be paid to the pieceworkers." Workers "are forced, much against their will, to compete with the workers of other contracting shops. Workers in one shop do not know and cannot know what is happening in other shops. . . . Only when prices are settled on the jobber's premises before his dresses start on their travels among contractors, can this competition between contractor and contractor be eliminated and the stability dependent on equal labor costs assured."¹ The 1936 agreement attempts to defeat these ancient evils. Either on their own premises or on neutral territory, the

¹ Hochman, Julius, General Manager of the Joint Board of the Dress and Waistmakers Union, *Why This Strike*, pp. 14, 15.

DRESSES

manufacturer or the jobber now meets with workers elected from his shops, and with a union representative. Together they form a committee for the making of prices.

The unit system of price settlement attempts still further to eliminate elements of doubt and speculation. Its aim is that the pricing process shall be more objective and scientific than that achieved by the present bargaining process. Industrial engineers have evolved the time-unit system. "In this system the making of a dress is split up into parts that are common to the manufacture of all dresses. For example, there are fifteen possible body combinations which have been studied and their time element determined in advance. Different types of sleeves, necks and trimming also have been studied and their time determined. The time unit is 10 units a minute or 600 an hour. When the time has been recorded for each part, the figures are added and the total is the length of time required by an average skilled operator to make the dress. The next step is to translate the units into terms of money, and in order to do this it is necessary to determine the money value of the unit. From this a piece price is set so as to yield the minimum worker her minimum wage, the average worker her earnings above the minimum, and the fast worker her earnings above the average worker. If this system were in force throughout the country, the workers in some shops without doubt would earn less than those in other shops, but the plan of payment as well as the labor costs would at least be on a fair basis."¹ The Administrative Board, created by the 1936 agreement, is responsible for putting the time-unit system into effect. The union and the associations have each appointed a member to the board. This body may adopt time-unit schedules already prepared or it may collaborate in the preparation of new ones. The need for some authoritative mechanisms to give effect to the agreements has prompted the union to stress these measures. The keenness of competition creates the temptation to evade the rules of the game. And, insofar as the game can be won by chiseling, there can be no stability in the industry. On that point no one can quarrel with the contention of the union. If competition is to rest upon genuine efficiency, the door must be closed to him who wins on unfair terms.²

¹ *Memorandum on Relative Production per Worker on Silk, Wool and Rayon Dresses in Various Cities, op. cit., p. 5.*

² The record of the dress jobbers in evading agreements to which they have affixed their signatures leaves a good deal to be desired in the way of business ethics. In the two-year period ending May, 1935, over 2,000 cases were submitted to the impartial chairman. The union collected nearly \$500,000 for workers who had not been paid the agreed minimum, and for other violations. Sixty-four jobbers were convicted of actually "falsifying books." One of the commonest tricks is that known as price switching. Since workers on \$4.75 dresses receive higher wages than those on \$3.75 dresses, the jobber gives the dress out as wholesaling at \$3.75, whereas actually he wholesales it at \$4.75, thus cheating the workers out of the difference.

PRICE AND PRICE POLICIES

The tension and speed of piecework as well as the periodic demand for overtime at rush seasons have given special urgency to the question of hours. The present thirty-five-hour week, the strict limitation upon overtime, and the demand for still further reduction appear to some as an unreasonable restriction crippling production and raising costs. The issue of hours is a tangled one, in which pecuniary costs must be assessed against less tangible items. From the testimony of the dressmakers, by far the most harassing feature of employment is the speed under which they have to work. To all the workers, though in varying degrees, it constitutes a menace to health and mental poise. The consequences of long hours—tardily recognized by legislators and more tardily by the courts—have at last been generally acknowledged. The wasted man power resulting from fatigue, sickness, accidents, and shortened life is a social cost which individual employers have been able to throw upon the workers and the community.

The road to shorter hours has not always been an "uneconomic" one, even for the individual employer. Not only are the workers able to increase their productive speed when hours are shortened but management is stimulated to greater efficiency. Shop conditions are improved and better equipment is bought. When the thirty-five-hour week was introduced, replacing schedules which ran from forty to fifty-two hours, it was found that more than two-fifths of the operators in New York City increased their total weekly production.¹ It would be pertinent to inquire why certain operators produced more in the shorter than in the longer week and why the production of other operators decreased as hours were shortened. There is unfortunately no clue to the answer.² We do know, however, that after August, 1933, dress manufacturers looked more zealously to their equipment, a fact to which the increased sales of the Singer Sewing Machine Company bear witness.

The use of shorter hours to absorb unemployed workers is effective only insofar as increased productivity does not cancel the need for more hands. In 1934 some 22 per cent of the dressmakers in the metropolitan area were unemployed and the union's demand for a thirty-hour week—

¹ *Piecework Earnings in the Dress Manufacturing Industry in New York City*, Women's Bureau, United States Department of Labor, 1934. The study included only eighty-four establishments.

² The record of a related industry is worthy of note. When the hours of labor were cut to 35 hours a week under the cotton-garment code, the Cotton Garment Code Authority found that in the course of one year, ending February, 1934, the efficiency of operators in the various plants underwent the following changes: Where workers worked (prior to the introduction of the code) 40 hours or less a week, an increase of 25 per cent in efficiency took place. Where the number of hours worked was from 40 to 45, efficiency increased 43 per cent. Where the number of hours worked was from 45 to 50, efficiency increased 80 per cent. Where the number of hours worked was 50 or more, efficiency increased 102 per cent. These figures are taken from a chart prepared by the Statistical Division of the Cotton Garment Code Authority, NRA, May 15, 1934.

DRESSES

not achieved in the 1936 agreements—recognized the need for “spreading the work.” The union has pointed out that no additional capital need be required by the further shortening of hours. In the metropolitan area one machine “fully installed and ready for work” stands idle for every three machines actually working at the peak of the season. If wage scales were not reduced, the shortening of hours from thirty-five to thirty would to an unpredictable extent increase costs. How far the expedient would be justified as a measure for decreasing unemployment is a nice question. If the dress industry does not take care of its surplus workers, where are they to go? Other industries, already surfeited with labor, offer little hope of alleviating the situation. Either the dressmakers remain unemployed as a burden upon the community, or the industry furnishes them with the employment which spells added spending power. If dresses cost more because more workers are on the pay roll, that more is somewhat less in the net through the consumer’s partial escape of added taxes for the care of the unemployed. The difficulty for the dress manufacturer is clear. Dresses compete for the consumer’s dollar against a host of other goods and services. If dresses are higher, fewer will be bought. If he absorbs the unemployed in *his* industry, while other industries let the community take care of their unwanted hands, he is at a relative disadvantage. Only when all industries move in unison along this path of shorter hours does this relative disadvantage disappear.¹

¹ The mind that craves a clean-cut answer to the question of the percentage of labor cost to total expense is doomed to be tantalized with partial satisfaction. “Average” labor costs of dresses mean little, since they vary tremendously from dress to dress. The following figures, showing the relation of labor cost to wholesale selling price under the conditions of the 1933 agreement may afford the curious a clue.

Gross whole- sale selling price	Labor cost	Percentage of labor cost to wholesale selling price
\$ 2.25	\$0.51	22.7
2.87½	0.56	19.5
3.75	0.74	19.7
4.75	1.05	22.1
6.75	1.30	19.3
10.75	3.00	27.9
16.75	4.00	23.9
29.50	5.50	18.6
39.50	9.00	22.8

According to the custom of the industry an 8 per cent discount is given on all goods, so that the net wholesale price is 8 per cent below these figures. The labor costs on dresses from \$16.50 vary more widely than in the lower price range, so that the figures are only approximate. The author is indebted to Louis Rubin, formerly of the Dress Manufacturers Association, now of the Popular Priced Dress Manufacturers, for the figures in this table.

PRICE AND PRICE POLICIES

The participation of the union in industrial affairs is seriously questioned by those who regard ownership as a simple clean-cut right and endow it with a valid claim to the sole management of business. The situation here reveals the doubts and confusion as to what controls and sanctions are permissible in our society. Lingering assumptions in favor of a "free" competition have been shaken by the blunt fact that such competition has had intolerable consequences. Even the most myopic of those committed to the policy of "let business alone" admit that such freedom must be a relative matter. Few dress manufacturers, for instance, would plead for a return to the days when each worker bargained individually for his job and his pay. But many still vaguely believe that labor should be the docile instrument of the business process and are shocked that some of the time-honored prerogatives of business are subject to labor control. The efforts of the union have, it is true, reduced the elements of control traditionally associated with ownership. Matters such as the fixing of hours and wages, the hiring and firing of workers, the machinery for the settlement of disputes have become the subject of collective bargaining. Even in the matter of research into the problems of the industry, the union has assumed a vigorous leadership, counting nothing relevant to the industry outside its province.

If stress is laid upon the objectives of the dress industry, rather than upon the mechanisms for their attainment, it must be admitted that union activity has helped to ward off the more obvious evils which attend unregulated enterprise. The union has forced changes which have lifted the plane of competition and thereby given to the many uncoordinated units of the industry some measure of stability. The collective agreement has been the chief instrument of policy making.¹ And unless the government is to be the agency of regulation—a suggestion to which few in the trade would be hospitable—the industry must find means of governing itself. Whatever "mind" the industry has at present is largely due to the efforts of the union, and without a mind the industry cannot set its house in order.

THE WHOLESALE MARKET

It is sometimes said that the middleman arrives with civilization. The phrase calls attention to the fact that the chasm between the producer and the consumer widens with commercial expansion. That those parts of the globe which are "industrially stagnant" do not know the middleman

¹Local unions are organized by both craft and nationality for the purpose of giving democratic expression to special interests, but the locals do not take separate action. The various locals are affiliated into a coordinating organization, the Joint Board of the Dress and Waistmakers Union. There is only one agreement for all the workers in the industry and that is negotiated by the Joint Board.

DRESSES

cannot, however, be read as a justification of his existence. When production is on a small scale, when families and villages are almost self-sufficient, there is little surplus to be exchanged, and distribution is a matter of direct contact between producer and consumer. As production has expanded into large-scale industry and as markets have widened, the middleman has come forward to span the gulf between those who make and those who consume. How far he merely clutters up the scene and how far he performs necessary functions is to be determined only by watching him at his various tasks. In no two industries is the work of the intermediary between producer and consumer the same. Our distributive machinery varies as widely from trade to trade as do the mechanical processes of production.¹

A striking fact about the industry is the small number of intermediaries required to get dresses into the hands of the wearers. This is due largely to the very nature of dresses. They do not have to be stocked in bulk against a piecemeal demand as does coal. Although they are seasonal, they are not, like potatoes or apples, harvested during only a limited portion of the year, thus requiring the services of a clearing house where current supplies can be offset against the day's demand. The caprice of weather, pests, and floods which renders unreliable many supplies which must nevertheless be fed into the market as demand requires, has little relevance here. Dresses are, it is true, subject to the weather; but it exercises its sovereignty not over production, which goes on in rain or shine, but over the market. A break in weather conditions may bring a season to a premature close with the sacrificing of stocks at a high loss.

In another respect dresses are easy to market. They do not have to be repacked and regraded, culled and sorted—tasks which devolve upon the middleman in the produce trade. And although many agricultural products can profitably find their way to a market only in carload units, necessitating an intermediary to gather together the small supplies, dresses can be shipped in any quantity. Nor is the dress manufacturer subject to the position of the milk producer, who has no direct connection with the sources of urban demand. Dresses do not require refrigeration nor special care and speed in delivery. A dress is perishable, but it may

¹ A study of why buying practices are what they are affords a wide and interesting field of exploration. Historical accident, the force of habit and custom, the logical requirements of the product all join to determine where and how goods shall be sold. One of the neatest and most dramatic of illustrations can be found in the famous old London markets—each a little world in itself, dominated by a special set of conventions. Billingsgate, the famous fish market; Smithfield, the center of the wholesale meat trade; Leadenhall, the mart of game and poultry; the Metropolitan Live Cattle Market; Covent Garden, with its stalls for vegetables and fruit—each of these differs from the others and from the ways of Mincing Lane, where tea, coffee, sugar, and cocoa are bartered, and from Hatton Garden, where men buy platinum, gold, and silver and where precious stones exchange hands.

PRICE AND PRICE POLICIES

be securely packed against ordinary disaster and its span of life outlasts the journey to its destination.

The wholesaler often simplifies and facilitates buying by the retailer. In the drug business the typical firm has on its shelves from 8,000 to 12,000 items, while the well-stocked wholesale establishment may carry from 45,000 to 60,000.¹ The presence of the local wholesaler ready to make immediate deliveries saves the retailer from buying in large quantities to meet an uncertain demand and from placing small orders among a large number of manufacturers. But the goods of druggist or hardware merchant do not suffer from such an obsolescence as do dresses. A wholesale warehouse stocked with dresses of all styles and sizes would soon resemble a museum of antiques.² It is primarily the swiftly changing market which explains why the manufacturer has kept the selling of dresses in his own hands and why the middleman has not won a strong foothold in the industry.

Marketing methods, however, have in recent years undergone many changes. The day of the traveling salesman, who used to travel up and down the land with an assortment of samples, is gone.³ Such a method is too cumbersome and slow in an era when the selling life of a dress is two or three weeks. Salesmen, moreover, are likely to deprive a store of its exclusive features by showing the goods to competitors. But it must not be inferred that the traveling salesman is extinct. No figures are available, but many stores in small towns still rely on this method of purchase, supplemented by fall and spring style shows in metropolitan centers. Buyers, however, naturally prefer to see the wider variety of styles on display in New York and, for all except the smallest stores, the buyer's trips to the garment market are an accepted item of expense.

With the gradual displacement of the traveling salesman, a different type of sales organization was required, one functioning constantly in the manufacturer's place of business. His showroom has become the center of selling activity. Here, particularly in the more expensive lines, the art of salesmanship is developed with as much circumstance and pomp as in the retail trade. Every device which may lend enhancement to his goods is employed. The interior decorator is invited to do his best. He may

¹ Beckman, Theodore N., *Wholesaling*, p. 13.

² There were formerly many warehouses located in places removed from the primary markets. Although some of these have survived they have become increasingly unimportant as style changes have accelerated and a swifter and easier travel for buyers has been accepted as a business cost. The resident buying offices now perform many of the functions previously undertaken by the warehouse.

³ In the wholesale trade the girl who displays the gowns upon her person is the model, the dress is the sample, and the material of the dress is the swatch. In the retail trade the girl who displays the dress is the mannequin, the dress is the model, and the material is the sample.

DRESSES

create, by way of background, an elaborate Louis XV, a dignified Georgian, or a stark modernism with accouterments of chromium and glass. The environment suitable to a firm specializing in evening gowns is different from that of a "sports" house, where dark paneled walls and a fireplace, reminiscent of the English country house, are in order. Small sofas and comfortable chairs are arranged for the buyers with low tables conveniently placed for cigarettes and ash trays. A discreet privacy is assured by the device of screens, which separate fellow buyers and permit reaction to the dresses without observation.

With the stage thus set, the model—chosen with fine discrimination—makes her appearance. She is likely to be above average height and is almost certain to be below average weight. She may be blonde or brunette, but her figure is faultless. Her hair and make-up are in the latest mode and she must know how to walk and turn with a languorous, fluid grace. Inquiry has failed to reveal a single model of wrinkled face, gray hair, or size forty-two. The buyers, with what imagination they can command, must try to subtract the model and visualize the dress on the fat, dumpy, scrawny, ill-proportioned women with haggard or too rotund faces who, along with the young and fair, will come to buy. They are given full opportunity for an adequate view. The model parades up and down the room and pauses in front of each buyer, giving the number of the dress and its price, which the buyer may note on a pad furnished by the house. After the sample dresses have been exhibited the buyers indicate the ones they should like to see "in the hand" for closer inspection, and these are brought in on the racks. The orders taken on a given day will be delivered within four to six weeks, sometimes sooner. If there are not sufficient "buys" on a certain line, some manufacturers will refuse to cut. Negotiations are somewhat prolonged by the fact that a given "style" may be ordered in several materials and in different colors.

The buyers come to the showrooms with different kinds of bargaining power. Some appear as "independents," representatives of single, unaffiliated specialty shops or department stores. Some come from resident buying houses, others from chain stores, still others as commission men. That these groups fare somewhat differently has given rise to many hotly disputed questions. The knottiest of the current disputes center around the resident buying office. The department store and the specialty shop have in recent years found association advantageous, and now some 2,000 of them are affiliated with resident buying offices. These are of different types. In one type a number of widely scattered stores, each independently owned and operated, maintain and jointly control a New York office, each contributing to the operating expenses. In a second type the buying office is run as a business venture and member stores pay fees. In the third type, a group of stores owned by a single company operates its

PRICE AND PRICE POLICIES

own New York office.¹ The resident buying office purchases a variety of merchandise, but clothing constitutes the largest item, and as an institution it has come to have a special relevance for the needle trades.

It is easy to understand the usefulness of the buying office. The dress buyer who comes to New York from out of town is confronted by a bewildering number of manufacturers. To find her way among them is time consuming. The office acts as a steering committee indicating where her needs will best be met. Moreover, the out-of-town buyer is likely to be uncertain as to style trends. She may mistake a fad for a fashion, she may be attracted to merchandise on the verge of its eclipse. The office is a clearinghouse for information and the buyer's barometer of style. Like the subscriber to a business service the store that belongs to a buying office pays to widen the scope of its horizon. When the buyer returns to St. Louis, Oshkosh, Sacramento, or Northampton, the resident staff of the office may supplement her purchases as need requires.² During the depression, when money for buyers' trips was scarce, the permanent staff of the buying offices did an increasing proportion of the buying for their member stores. Indeed, some stores never send buyers to New York, relying entirely on the office for the purchase of merchandise. A continuing trend in this direction is explained by the fact that the office selects on the basis of mass records, a safer guide to salable merchandise than the personal preference of all except the most expert of individual buyers.

The resident buying office, however, has more to give than information and a buying service. The totality of buying power, won by ability to assemble orders from many members, gives to it a strategic buying position. A healthy dispute is now afoot as to whether current practices and devices do not contribute to the instability of the dress manufacturers by the dictation of prices that run below the margin of safety.

One of these devices is group buying. Instead of sending buyers to the manufacturers' showrooms, the office holds sample showings on its own premises, where competing manufacturers submit their dresses. After a comparative and objective examination of these samples, the buyers from the member stores decide as a group to concentrate their purchases on the winning dress. A saving in price through a large order is the principal object of the group purchase, although it is claimed that "merchandise bought at group buying meetings has had a record of having better consumer acceptance and in normal years selling with fewer mark downs than that bought by individual buyers without the benefit of

¹ There is still a fourth type of buying office which is owned by a single store. Prior to the development of the "cooperative" offices, these were more numerous. Except for the largest stores this method of market representation has been found uneconomical.

² According to the managers of several large department stores, the buyer needs to be on the floor of her department as much as possible to deal with customers directly.

DRESSES

group judgment."¹ The manufacturer finds this method of selling objectionable. It is to his advantage to have the buyers come to his showroom and see his whole line rather than to be judged by a few samples. Furthermore, the practice has considerably intensified the evils of style piracy. The argument that he has no selling expenses when he sends his dresses to a group meeting does not convince him. He cannot let his showrooms and sales organization go, because he needs them for the small orders upon which he must partially depend. If the prices offered at the group meeting do not allow for any selling expenses, the small buyer will have to bear the entire cost of the sales organization, a situation which is likely to deliver the manufacturer still further into the hands of the group buyers. So insistent have the manufacturers been in their protest that group buying is now practically obsolete.

Another device is buying through "preferred resources."² The office selects certain manufacturers whose goods they feel will be most salable and exerts pressure on its members to give "preferred treatment" to these "resources."³ In return for the added business the manufacturer is expected to give preferential consideration. Such consideration may be an exclusive chance at the newest models, unusually quick delivery, or an agreement to confine his product to the buyer's own store within his city. The last is of some moment, since a store possessed of a unique line escapes the severe price competition of other stores. But the most important of all preferential considerations is the discount. The buying office makes an agreement with the preferred resource to concentrate with him a larger volume of the groups' purchases than he could usually obtain unaided. When the sales have reached the specified and usually predetermined volume the manufacturer gives to the office a rebate, varying from 2 to 5 per cent, which is passed on to the member stores in proportion to their purchases. If the requisite amount of business is not forthcoming, the rebate is not given.

The rebate, known as the "volume" as distinguished from the "quantity" discount, is one of the sore spots of the industry. Its origin may be traced to chain stores, which have long enjoyed price concessions in the form of quantity discounts. Department and specialty stores with orders too small for quantity discounts have in consequence been at a disadvantage. Through their cooperative buying organizations they now seek

¹ Reilly, Philip J., *The Buying of Merchandise through Central Arrangements*, p. 2.

² The term "resource" means "a vendor from whom a buyer makes purchases." See John W. Wingate, *A Manual of Retail Terms*, p. 114. Another definition is "a place where a buyer may buy his line of merchandise." See Norris A. Brisco and John W. Wingate, *Retail Buying*, p. 23.

³ There is always some difficulty in getting buyers to cooperate in respect to "preferred resources." According to department store tradition, buyers are allowed a certain degree of autonomy in selecting their models and this prerogative is one they dislike to forego.

PRICE AND PRICE POLICIES

concessions comparable to those given to the chains. But there is this difference, as the dress manufacturer is eager to point out: on a large-quantity order certain economies of production are easily effected. Material may be purchased to better advantage, and the saving in cutting and making a large number of dresses is obvious. With the volume purchase these economies are not possible to the same degree. Although the total of sales may be assured, the actual orders are placed seriatim, a few of one style today by one buyer, a few tomorrow of a different style. Piecemeal production follows upon piecemeal buying. Since style changes make it impossible to buy materials ahead or to plan production, the manufacturers' outlays for labor and material are as high as though there had been no volume order. This is not the case in industries producing staple goods where, if volume is assured, material may be purchased in larger quantities and production undertaken in advance of actual orders. The dress industry, it is claimed, is peculiarly unsuited to the volume discount; moreover it encourages the manufacturer to invest in too large an inventory in order to "accumulate his rebate." And the very nature of the volume order, which is only an "if" order and not a "firm contract," requires him to "be out battling for business all of the time" and "dogging the man to live up to his contract."

The question of discounts, whether quantity or volume, blurs into the question of outright price concessions. There are many who believe that "haggling on discounts is a haggling on price in disguise" and that it is far better for the manufacturer to break his price line than to resort to such a subterfuge. It is further claimed that the consumer is more likely to benefit from a straight price concession than from a reduction in the form of a discount.¹ The markup will be figured on the basis of invoice price, whereas if a discount is obtained, "bookkeeping will put that somewhere else than in the pockets of the consumer." Probably "overhead will get it."² Others hold that price concessions and discounts are both justified if they are "open covenants, openly arrived at," and in no sense discriminatory—if, in other words, manufacturers live up to the Kantian principle, "Act only on that maxim whereby thou canst at the same time will that it should become a universal law."

The discount is a single counter in the larger and vaguer quarrel about the power of the strong buying organization. The dress manufac-

¹ Volume and quantity discounts are given in addition to the regular cash discount of 8 per cent E.O.M. (end of the month). This cash discount has varied from time to time but was "frozen" at 8 per cent during the NRA. There are also other special discounts—such as sale discounts, holiday discounts, anniversary discounts, and Monday discounts.

² The problem of discounts was discussed at length in the NRA code hearings on the dress industry, January 8, 1935. It was pointed out that discounts, according to department-store practice, are handled by the central office rather than by the department, and are therefore not reflected in the retail price.

DRESSES

turers are in a far weaker bargaining position than the organized buyers. If they attempt combination, as the dress guilds did when they agreed to refuse to grant special discounts, they are guilty of restraint of trade. Combination among producers is an old and familiar evil against which the powers of government may be invoked. Yet combination among buyers, which may make or break a manufacturer and "constitutes economic control without the risks of ownership,"¹ goes unchallenged before the law. The strong buying organization, no less than a combination of producers, puts at a disadvantage the small independent merchant, the volume of whose business may not justify him in belonging to a resident buying office. The condemnation of strong buying organizations applies with equal force to the chain stores, to whose power the manufacturers have through the years somewhat accommodated themselves. Only recently, however, have combinations among department stores appeared to the manufacturers as a threat of monopoly.

Advocates of central buying point out that such organizations are developed in the interests of cheaper goods and do not threaten to create artificial scarcity as do producer combinations. The indictment of restraint of trade cannot therefore be preferred against them.² On the contrary, they stand for "low retail prices, planned purchasing, the social economy of volume business." Their interest is first and last that the consumer shall have goods at a price and of a quality that will entice him to purchase. They stoutly claim that whatever economies they can effect are passed on by way of cheaper goods to the consumer.

At this point the voice of doubt is raised against the stores united in the resident buying offices. Are concessions granted by the manufacturer passed on? Or do they swell the profits of the retailer? Or are they lost in a swollen overhead? The department stores find it difficult to compete with the chain and the small independent retail stores. In the buying and selling of dresses the chains have shaken off many of the costs which encumber the department store. They buy in large quantities from a central office for all the shops belonging to the chain; while the individual stores have no buyers.³ The economies of the chain are obvious—the principle of cash and carry, the lack of returns and damaged merchandise, the elimination of bad debts, and the smaller selling staff.

¹ From an unpublished manuscript by Edith Ayres, to whom the author is indebted for many suggestions in regard to buying practices in the dress industry.

² The fact that stores uniting in these organizations usually belong to noncompeting areas frees them, they claim, of the charge of lessening competition. In any city only one store usually belongs to a given resident buying house.

³ When the department or specialty store buyer comes to New York she selects goods with an eye to her particular clientele. The buying of the chains is a more impersonal affair, and consequently merchandise is chosen which will have the widest possible consumer appeal judged by records of past sales.

PRICE AND PRICE POLICIES

The small independent retailer has also certain advantages in his struggle with his larger and more heavily burdened competitor. Many of these advantages accrue, so the larger stores claim, because he lives in an economic "climate" which they have created for him. The larger stores build up good will for certain styles and the small merchant with low overhead, selling the same kind of goods, capitalizes upon his neighbor's activity and rides to success on the tide of this good will. Particularly the fly-by-night retailer, whose taxes are low and whose credit is questionable, can undersell his more responsible and respectable neighbor. Were discounts withheld from the larger, more permanently established stores, these fly-by-nights would be given undue encouragement. It is further argued that the small independent retailer does not have the expense of belonging to a resident buying office.

The issue here is a nice one. If the chain and the small retailer can sell the same dresses cheaper than the department store, should the department store survive, when survival rests not upon the economies effected under its own roof but by virtue of concessions granted by manufacturers? Such concessions help to pay for the high overhead due to charge accounts, deliveries, returns of merchandise, high rents, de luxe equipment, and an expensive sales force. It may well be argued that if consumers prefer to shop in these stores they should pay fully for the cost of the service they receive and not be subsidized by the manufacturers' preferential considerations. Costly selling systems have been heedlessly accepted and it is a question whether, were concessions withheld, there would be a deflation of the stores with uneconomic forms of selling in favor of the stores with less service. The fact that from 1929 to 1933 the chains in all fields increased their ratio of the total retail sales from 20 to 25.2 per cent¹ indicates that during depression years at least consumers tended increasingly toward more economical channels of distribution.

"Morally, they haven't a leg to stand on," said the secretary of one of the NRA code authorities in speaking of the group buyers. But ethical judgments of economic practices can be made only in terms of social consequences. Concentration of economic power, which buying office and chain organization represent, is good or bad according to what is done with it. Insofar as it makes it possible for the manufacturer to cut costs in producing or selling, it is unreasonable to suppose that discounts jeopardize his position. That many manufacturers have from year to year renewed their agreements with chains and buying offices indicates

¹ *The Census of American Business Retail Distribution*, p. 2A, shows that from 1929 to 1933 in the department-store field the chains increased their share of the total business from 16.7 to 23.9 per cent. Among family clothing stores their share decreased from 27.3 to 20.3 per cent; in the realm of women's ready-to-wear specialty shops it increased from 22.7 to 23.4 per cent.

DRESSES

that they have found the terms not too onerous. Yet strong buying organizations may bring undue pressure, particularly in a "buyer's market." How far this may damage manufacturers depends on the steps they take to meet it. A manufacturer underfinanced, underqualified, and unaware of his costs of production, may totter into bankruptcy by granting too many concessions. Or he may transmit the pressure to the workers through various forms of exploitation. Or a newcomer, eager to get established and willing to work for several years with little return, may make private agreements which, if universalized, would undermine the industry. But if the industry were properly organized, it would not permit its stability to be imperiled by buying groups. The stronger elements in the trade are now in no such jeopardy. Cooperative purchase is not likely to cease, and it behooves the manufacturers to move toward policies which will give them an equality of bargaining power.

Another group of buyers are known as commission men or commission resident buyers. They purchase chiefly for the small specialty shops throughout the country which cannot afford to send buyers to the market. There are some 300 of these commission men, many of whom are ex-salesmen who used to go on the road and now have offices in New York or "carry their offices in their hats." Although a few of these have built up a fair reputation in the trade, as a group they are the object of much unfavorable regard and some manufacturers refuse to sell to them. Those that do, pay them a commission on their purchases, usually 5 per cent. The commission buyers advertise a free service to their clients, but it is rumored that they sometimes receive commissions from both sides. Their practices are unstandardized, and it is charged that some of their personnel are irresponsible.

The mail-order houses present another channel of distribution. They are concerned chiefly with the less expensive lines and the more staple styles. The mechanism of the "catalogue" as a method of salesmanship imposes emphasis upon the long-run fashion trend. Since spring catalogues are ready for distribution in January, spring styles must have been chosen and production on the garments started before December. Moreover, the "books" are effective for six months after the date of publication. The vagaries of fashion cannot therefore be reflected in the merchandise offered for sale; but to have a successful season the mail-order houses must work within reasonably accurate style trends. Dresses are usually made for them according to their own specifications and samples are submitted by manufacturers. The majority of their dresses are bought in the New York market, except in the house-dress line. Savings are effected through the method of buying whereby they pay only the "intrinsic" value of the merchandise itself, and relatively little for the "intangibles," and through the lower costs of the system of marketing.

PRICE AND PRICE POLICIES

Losses, too, due to obsolescence of style are considerably less than in the general retail trade. The mail-order house combines the function of wholesaler with a special technique for retailing. But the majority of dresses move through other channels than the mail. They are purchased at stores, and the mechanisms and arrangements of wholesale buying exist only that dresses may find their way to a store rack. But much may happen to the dress on the last lap of its journey toward the "ultimate consumer."

THE RETAIL MARKET

The costs which a dress has incurred on its way to the retail establishment are not known to the woman who goes shopping. She knows only the retail price, and what she buys or whether she buys depends on this price. She is likely, however, to be mildly obsessed by the question as to whether the store is not making too large a "profit" on the transaction. Experience has made her suspect that there is no inherent "rightness" about what she pays. The duplicate of the dress which she bought for \$10.75 has on occasion been seen at a neighboring shop for \$8.75. Why the difference? What determines the retail price? Is not the spread between wholesale and retail price notoriously high? If not, how can a dress be sold at \$29.50 that was once proclaimed by the price tag to be worth \$69.50?

This distrust of the retailer is old. From time immemorial the merchant has been under a suspicion not attached to the producer. "Of the two sorts of money-making, one is a part of household management (agriculture and the hand trades), the other is retail trade; the former necessary and honorable, the latter a kind of exchange which is justly censured for it is unnatural and a mode by which men gain from one another." Although Aristotle's economics are not in vogue today and the distribution of goods is rated as of equal importance with their manufacture, in the popular mind the old suspicion lingers. To make two dresses bloom where there was one before appears to all as an honest and worthy occupation, but to buy dresses to resell them as they are needed savors of wiles and tricks devised for the advantage of the merchant—to which the proper answer is a certain amount of sales resistance.

To deal adequately with the question of the markup, we should have to travel through the mazes of modern retailing practices. As dresses leave the showrooms of the manufacturer they find their way into thousands of small, medium-sized, and large stores, in cities, towns, and country villages. They are sold in department stores, dry-goods stores, country stores, ready-to-wear specialty shops and from a mail-order catalogue.¹ Some are independent; others belong to a chain. Only

¹ If we wished to follow dresses into the retail market we should have to go to 3,544

DRESSES

by detailed study of the operation of these many shops could fair judgment be made of the efficiency of retail dress distribution. Here we can merely sketch in outline some of the landmarks and point to a few of the sophistications and intricacies of the selling problem.

The complexities which make up the scheme of retail price making defy neat and orderly statement. The procedures vary from store to store and department to department. Although the competition between retailers is genuine and severe,¹ the making of price, far from being automatic, is a matter of conscious decision on the part of a store executive. A store is, to a certain extent, a planned economy in miniature with a system of accounts that has its focus in solvency. To promote this solvency is the goal of every store, but each achieves it, or fails, by its own method of "housekeeping" and its own variety of price schemes.

There are many things which all stores share in common. They are all at the mercy of the intangible condition known as the state of business, over which as individuals they have little control. Every merchant must play his part within the cycle of trade fluctuations and bear with what grace he can the phenomenon of "buyers' strikes," which descend on efficient and inefficient alike. He must be sensitive to a demand partly of his making, yet beyond his control; he must anticipate not only the shifting desires of consumers, but the plans of his rivals for meeting these desires. Moreover, whatever his own price scheme, it must be articulated into the wider price system of the social order. Items such as wage rates, cost of merchandise, rentals, insurance, taxes, interest, heat, light, and power have their source in the general scheme to which storekeepers—each in his own way—must accommodate themselves.

There is also a changing world of conventions which at any given time sets the stage for the retail seller. The one-price system is a case in point. It is not the habit for the customer to bargain with the individual saleslady for the dress she wants to buy. A price concession may be granted here and there to groups or even to individuals; but American stores in general, as opposed to a bazaar in the Orient, have adopted the practice of charging one price to all. The one-price system implies

department stores; 34,122 general merchandise and dry-goods stores; 17,759 women's ready-to-wear specialty stores; 6,650 accessories and other apparel stores; 5,765 family clothing stores, as well as to many of the 85,839 country general stores. The classifications and figures are taken from *Retail Distribution*, issued by the United States Department of Commerce, Vol. 1, 1933.

¹ Mitigation of the competitive process is to be found in the occasional "friendly arrangements" between stores, whereby they agree to adhere to the same markup in certain departments. These gentlemen's agreements succeed best among a few stores where merchandising managers know each other. They are likely to be informal and flexible. If, for instance, a given dress appears to one store to warrant a higher markup than that agreed upon, telephone communication can establish the higher price in all the stores. Agreements seldom extend to markdowns.

PRICE AND PRICE POLICIES

price posting, the marking of goods so that all who buy may read. This convention, one among many, became entrenched as shops increased in size and as salespeople became strangers to office records. Retail prices—like all others—rest on a host of subtle understandings, customs, and habits.

Yet within the matrix of retail conventions there is ample scope for variety as regards economy and efficiency of operation. To ask why the price tag is what it is, is to uncover an intricate network of pecuniary and social relationships. The ticket is but an outward symbol of an inner scheme of control, varying with the individual establishment. In one store a department may designedly be run at a loss, in another at a profit. The interrelationship of prices is, of course, most complicated in a large department store. A glimpse at what lies back of price fixing in the dress department of a typical large store should throw some light on the practices which prevail in the store as a whole.¹ In a peculiar sense the dress department suffers from a limited market. The bolt of dress cloth in the piece-goods department is a bundle of almost limitless potentialities. It may be cut for a woman wearing a forty-four or a thirty-two; it may be transformed into any one of a hundred styles; it may be combined with different trimmings to suit a blonde or a brunette. But when the material has been cut to a definite size and a single style, its potential uses have been curtailed and its market restricted. A dress is a combination of variables—style, quality, fabric, color, size—which to be sold must be found in a happy confluence and blessed by the “right” price.

Dresses, therefore, more than most merchandise, require careful and strategic buying. The task of selection demands a subtle eye and a flair for the ways of the customer. A buyer who can find resources not tapped by his competitors, or who can make agreements that the styles he buys shall be “confined” to his own establishment, secures a great advantage since a unique style is “touched with monopoly” and free from the regular competitive pressures. Dresses must also be carefully sold. To sell the right dress to a customer is the best insurance for future business. Since not more perhaps than 1 per cent of dresses are known by the manufacturer’s name the reputation of the store is more intimately at stake than in selling a nationally advertised product. The store is responsi-

¹ In the following discussion, department store refers to a store that has a number of separate shops under one roof. It thus includes departmentalized specialty shops. It does not cover the one-line independent specialty shop which sells only dresses. Such a shop is in many ways like the dress department of a department store. Both have their own organizations for buying and selling, although in the department store there are special departments that handle matters such as accounting, credits and collections, delivery, cash paid out and received. But the essential problems of dress selling, and the questions of markup and markdown are very similar. A dress department rather than a one-line shop has been selected for discussion since roughly 75 per cent of all dresses are sold through department stores and little data is available on one-line shops.

DRESSES

ble for dress advertisements¹ and a successful sale brings credit, not to the unknown manufacturer, but to the store itself. Careful selling also decreases the number of returns, an evil from which the dress department suffers acutely. In stores doing a business of over \$10,000,000 the returns on women's dresses in 1934 amounted to 19.9 per cent of gross sales; of junior and misses dresses to 22.5 per cent.²

The problem of the markup and the markdown is peculiarly puzzling to all style departments. Since obsolescence falls so swiftly and irrevocably on dresses, the height of the markup and the timing of the markdown involve strategy of a high order. How is the original markup determined? Is there a fixed markup which is laid on all dresses automatically, or is it a fluctuating thing? Neither of these assumptions is true. The markup must of necessity bear some relation to the expenses of doing business; no transaction is an isolated thing.³ It has to be integrated into the department's figures, as those in turn must be integrated into the store's total economy. The department—if it is not consciously run at a loss—must bear its share of administrative and overhead expenses. These expenses, according to common practice, are prorated among the different departments, usually in the ratio of the net sales of the department to the net sales of the store, or to other available allocation factors. Rent is allocated to the department on the basis of floor space and sometimes the location is taken into consideration. There are in addition the costs incurred

¹ Some dress manufacturers advertise to the trade through the trade journal, *Womens Wear*, and some have tried, without a great measure of success, to publicize their own trade names in fashion magazines.

² Other departments having as high or a higher percentage of returns are blouses and skirts, girls' wear, negligees, sportswear, house dresses, maids' and nurses' uniforms, furs, oriental rugs, radios, talking machines and records. The dress returns reflect the practice of sending out two or more dresses for a final selection of one.

The "returned-goods evil" from which retailers suffer they in turn impose on manufacturers. While a proportion of the returns may be fairly ascribed to the manufacturers' fault in sending merchandise which was an "unconfirmed order" or was improperly examined or unlike the sample, it is claimed that many returns by the store are an attempt to make the manufacturer pay for mistakes made in buying. The evil has been accentuated by the resident buying office, since it often sends out goods on the chance of their being accepted.

³ In retailing it is customary to express the markup as a percentage of retail price rather than of cost. Thus a dress bought for \$5 and sold for \$10 bears a markup of 50 per cent, not of 100 per cent. The reasons given for this method of computation are as follows:

1. The basis for all figuring must be uniform.
2. Most of the figures recorded and studied in the store are retail figures. For example, the expense of conducting business is based on selling price. Sales totals are known but the total cost of the goods sold must be computed.

3. "A profit must be provided for two items of capital—one the capital invested in merchandise—the other the capital necessary for operating expenses. . . . This is only possible by figuring profit on the selling price." Paul H. Nystrom, *The Economics of Retailing*, p. 64.

PRICE AND PRICE POLICIES

directly by the department, among them wages and salaries, traveling expenses for the buyers, display and direct advertising including rent for the show windows, costs in the receiving and marking room, clerical costs of stock control and record keeping, wrapping supplies, delivery expenses, interest, taxes, and insurance on merchandise in stock.

The allocation of costs in department stores has undergone something of a revolution. With the development of cost accounting, the rule of thumb of the bookkeeper has given way to a ritual of no mean proportions. It has been supported and stimulated by the trade press and a wide literature on merchandising practices. Detailed reports are now issued on department and specialty store performance,¹ and the enterprising manager may note and digest the records of departments in stores of different sizes in respect to such matters as markup, markdown, gross margin, stock turnover, returns, age of stock at inventory, publicity, buying and selling costs, and dollar sales per year per square foot of selling space. Although the accounts of each department are kept separate, price making has tended to become a function of the "control system" rather than of the department. Initial markups necessary to meet the department's expenses have been carefully figured in relation to stock turnover and probable markdowns, and this "goal figure" shapes the general policy.

The cumulative markup, or the accumulated difference between the cost and initial retail price of the total merchandise handled during a period, has been calculated for all departments of the stores reporting to the Controllers Congress of the National Retail Dry Goods Association. The typical figure of the markup for women's dresses is 38.9 per cent in stores with annual sales volume of \$500,000 to \$1,000,000 and 42.3 per cent in stores doing a business of \$5,000,000 to \$10,000,000. In stores of over \$10,000,000 in sales volume it goes down to 39.6 per cent. Many other departments have a higher cumulative markup than dresses—notably millinery, ribbons, jewelry, furniture, china and glassware, pictures, and the gift shop.² The bald figures of markup, however, have little significance for the layman. They are for him part of a vicious circle, since markup is a percentage of retail price and retail price is adjusted to take care of expenses and profit. Without delving into the intricacies of these terms he has no basis for a valid judgment of whether it is low or high. The figures are quoted merely to indicate that markup is

¹ Of particular importance are those of the Controllers Congress of the National Dry Goods Association, the Harvard Bureau of Business Research, and the Michigan Bureau of Business Research.

² Cumulative markup must provide for the cost of subsequent markdowns. Therefore it is highest in departments where markdowns are heaviest. The difference between cumulative markup and the cost of markdowns is known as "realized markup" and represents the sum available for expenses and profit.

DRESSES

no casual, haphazard thing, but a figure devised to meet certain well-defined ends.

Price marking, however, is recognized as an art. Few dress departments adhere to the rigid rule of an average markup on all items. A price is an expression of a hope, and hopes do not bear any fixed relation to invoice costs. Of a group of \$10.75 dresses one may be immediately recognized as a mistake when it takes its place in the stock of a department. Another is clearly a "hot number" and its markup will be higher than that of its more commonplace sisters. Whether a store will "take a chance" on such a markup depends on competition in the surrounding area. Tastes differ, and what appears as a "honey" to one buyer may in another store be deemed worthy of only the average markup. Price discrepancies, if they appear too often, will damage a firm's reputation. If the style is "confined" to the single store, greater latitude in pricing is obviously possible.

The prices of one's competitors are a constant factor determining the markup. These are watched by an accepted system of "comparison shopping." Stores have departments whose function it is to compare the prices, styles, qualities, displays, and services of competitors with their own.¹ All managers maintain that "it is a fixed principle of retailing to meet the prices of one's competitors," the term being applied to those stores that carry the same price lines and appeal to the same clientele. For this reason, the high-priced store on 57th Street in New York does not worry about the competition on 14th Street, even though on rare occasions the same dress may be sold with startlingly different markup. The principle of merely "meeting" price seems to accord ill with the patent fact of price wars, in which stores from time to time engage. But to attract patronage and build up reputation, it is necessary to outdo your competitor at strategic points. The price war on a conspicuous item is primarily a device for "getting traffic through the store," with the hope that the losses on that item will be more than compensated by increased purchases in other departments.

Another factor which shapes the markup is the policy of "price lining" or the concentration of goods at certain fixed price points. A price line is "a single retail price fixed in advance for all goods that would normally be marked within a certain range of prices."² Thus all dresses which might retail from \$8.75 to \$12.75 are marked at \$10.75. Price lining is now almost universal. Its outstanding merit is that departments

¹ Comparison shopping, to which no stigma attaches in the retail world, is not tolerated in the field of production, where it is labeled espionage. The chief reason is that customers are continually taking information from store to store in scattered form and the comparison department merely extends and makes more accurate this information.

² Wingate, *op. cit.*, p. 224.

PRICE AND PRICE POLICIES

can carry smaller stocks with greater turnover, thus making more profitable use of their capital. The practice also simplifies marking, record keeping, and stock control; and consumers find it easier to come to a decision when confronted by only a few price lines.¹ A customer faced by a series of dresses at \$10.75, \$9.89, \$9.49, and \$8.89 becomes confused and lost in speculation as to what causes the difference in price. The determination of lines is derived largely from a study of past volume of sales at different levels. The records reveal certain prices to be more popular than others, just as certain price endings have more drawing power than others. The higher price is often more popular than the lower. Sweaters marked at \$8 have in certain instances failed to attract patronage while the same goods at \$12 proved an immediate success.² Customers have now come to look for certain goods at certain prices, and the expectation of value is stronger than the ability to judge inherent worth.

These retailing conventions have great relevance for dress manufacturers. As price lines have crystallized, the manufacturer has produced goods to fit the retail categories. The assumption that the causal sequence flows from cost forward to price appears here in reverse. The ultimate price is fixed by forces outside the manufacturer's control, and the influence of this price flows backward, determining to a certain extent the costs and qualities of his garments. Costs are built up as well as built down to price; and although the accommodation is slow and almost imperceptible, enterprising merchandisers have scented trouble at this point. Merchandising managers feel that price lining has its dangers and that manufacturers are continually squeezing their margins;³ but few

¹ Many stores have broken up their dress department into smaller divisions such as "high-priced," "medium-priced" or "budget," and "thrift" dresses. Price is the most important factor in the breakup of dress departments, but size is also used as a basis of separation. There are misses' departments, half-sizes—dresses wider in the hips—and stouts. Some stores have as many as ten or more dress departments.

A reason for separating departments according to price is that the customer in the thrift department is of a different social and income level from the woman who shops for the high-priced dress, and segregation is considered desirable to protect both groups from embarrassment. It also permits the store to provide different physical equipment and degrees of service and selling personnel.

² A woman who had worked several years in a small-town dry-goods store reported that the store wanted to offer several grades of black satin without investing in a large stock. From the same bolt of satin they offered three "grades"—at 98 cents, \$1.49, and \$1.98. More of the satin sold at \$1.98 than at the other prices.

³ In the July, 1935, *Bulletin* of the National Retail Dry Goods Association the following paragraph appeared: "Price-lining has gone to an extent that the manufacturer has begun to merchandise for us. He discovers the price at which we are likely to sell merchandise and then makes up a line of goods and offers them to us at an amount which he believes will be acceptable to most of the stores for a particular price line. Our policy seems to have gone to the extent that it has made our buyers much less value-conscious. It has put into the hands of the manufacturer the power to restrict and to limit our initial mark-up and gross margin. Perhaps in the past we have over-exaggerated the customer demand for price-lining. It is time, probably, for us to experiment with certain lines of merchandise to find

DRESSES

stores would be willing to go back to the days when departments were stocked with a host of miscellaneous prices. In the dress department, with its wide variety of styles and sizes, the case for price lining seems to have special merit.¹

The markup is logically related to the probable markdown which the merchandise may suffer before it finally leaves the store. Like the two sides of a shield which may be distinguished but not separated, markup and markdown are aspects of a single process. The aim of the retailers is that goods shall be sold when their original markup is still fresh upon them. But where demand is capricious and buyers are human in their power of selection, the perfect balancing of supplies and sales is rarely achieved. In dresses the problem is peculiarly severe, since so many variables must be "right" to effect a sale. And what was "right" last week is no longer so. Moreover, dresses become easily shopworn, soiled, or damaged, either from handling or because of returns. The changing seasons invite a precarious carry-over until next year.² It is, therefore, not surprising that markdowns in dresses are more extreme than in any other departments.³

The timing of markdowns exhibits the dilemmas typical of all gambling operations. Shall a loss be taken early in the season, thereby avoiding the chance of a more drastic cut at a later period? Merchandising studies have recently focused attention on "the devaluating influence of time" and the general conclusion appears to be that markdowns tend to come too late. An analysis of twenty of the most staple departments in a store in an eastern city, with a volume of business from two to five millions,

out whether or not we cannot successfully price dresses at \$14.25, \$14.50, \$14.75, \$15, \$15.25, \$15.50 and \$15.75, as well as pricing them all at \$15. If some experiment of this kind is not attempted by the retailer, the practices of manufacturers will continue to lessen our gross margin."

¹ Price lining was part of the plan described by E. A. Filene in his book, *The Model Stock Plan*. It called for three major price lines with a minimum number of in-betweens. As a part of this plan, each major price line was to carry a "Best Buy." The "B.B.," as it is called, is an article of exceptional value, superior to similar articles in other stores. The B.B. must often take a low markup, but the large volume of sales may make it profitable. Even if a loss is incurred, it builds up prestige. Complementary to the B.B. is the "M.P.," the "Most Profitable Purchase," an article which yields high profit to the store and attracts a certain group of customers who are interested in "fashion-rightness." The M.P. bears a high markup, but between the B.B. and the M.P. "the initial department markup will be adhered to." The model stock plan has, with variations, been used by thousands of stores all over the country.

² As a merchandising practice the carry-over from one season to another is not highly regarded. Emphasis is now laid—among manufacturers and retailers—upon the necessity of carrying small stocks in relation to sales on the principle that "a nimble sixpence is better than a slow shilling."

³ Evidence from *Departmental Merchandising and Operating Results of Department Stores and Specialty Shops*, Controllers Congress of the National Retail Dry Goods Association, 1934.

PRICE AND PRICE POLICIES

showed that merchandise more than six months old failed to return its direct selling expense in addition to its cost, and merchandise over a year old did not even return its cost. Twenty per cent of the stock which was older than six months yielded only 14 per cent of the total sales and received 75 per cent of the markdowns.¹ This figure is the more significant since the study did not include women's apparel or any of the fashion departments. Another inquiry showed that in a dress department of a large store, one-third of the stock was at least eight weeks old and that while it yielded one-sixth of the sales it was responsible for more than nine-tenths of the markdowns. The incidence on gross profit of the large percentage of markdowns necessary to sell old merchandise is a serious one. It was recommended that a greater percentage of markdowns be taken on newer merchandise. "There seems to be only one solution for the problem of old merchandise; that is prevention."²

Although slow-moving merchandise is a liability, the temptation is to wait until late in the season before marking down. This gives the department a longer time to sell at regular prices, and customers have come to expect "real bargains" when the season is over. Leftover merchandise bought in "job lots"³ at bargain prices is often added to the assortment of odds and ends "to help move" the remnants. Early markdowns have the disadvantage of "educating the consumer not to buy from the stock when it first appears." And early in the season, when style and quality are more important than price, the consumer is likely to assume that the marked-down garment is faulty.⁴

There exists a wide variety of practices in regard to markdowns. Some stores mark down a few dresses every day to keep the stock as fresh as possible; others have sales every month; still others resort to drastic semiannual clearances. Markdowns may be one thing upstairs and another thing in the basement. A scheme of automatic markdowns irrespective of the putative salability of the dress is held in great regard by a few stores. Sometimes dresses from which the bloom of youth has vanished may be sold by increasing the amount spent for advertising them. But the cost of moving goods by this device may be more than taking a markdown. Dress retailers have found the hardest and most important lesson in selling experience is to learn that dresses have no intrinsic value.⁵ It has been suggested that "to prevent gouging of the

¹ Gabler, Werner Karl, *Time as an Element in the Cost of Retailing*, The Research Bureau for Retail Training at the University of Pittsburgh.

² *Ibid.*, p. 8.

³ Job lots are mainly returns from the manufacturer's customers and leftovers from "volume cutting."

⁴ *Mark-downs in Women's Coat and Suit Industry*, United States Bureau of Foreign and Domestic Commerce.

⁵ By way of illustration a buyer told of an imported brocade evening dress bought for \$150 and marked at \$275. After several months it was marked at \$15, and put on the rack

DRESSES

consumer," dresses be marked with the wholesale price at which they were purchased—the claim being that “profiteering through retail mark-ups materially cuts down the sale.”¹ The suggestion has merit as a method of clearing the air of suspicion. But retailers might well be reluctant to give this clue away unless they had opportunity to present the other side of the shield—total losses through markdowns and expenses other than the invoice cost. The manager of a large department store, commenting on this proposal, spoke of the “irrelevance of invoice items” in the total picture.

It is of note that the dress departments of department stores have notoriously been “in the red” for several years.² Other departments have fared worse—books, magazines, furniture, oriental rugs, china and glassware, miscellaneous house furnishings, gift shop, radios, toys, and sporting goods. But being in the red does not altogether cancel the usefulness of a department. With plant and equipment fixed the space “rented” to a department cannot be allowed to go unused. If it pays even part of its rent and contributes in some degree to the overhead it cannot be abolished, even though it shows a loss, unless a more profitable line of goods can be found to take its place. All departments cannot obviously be run at a loss, but a fair proportion may be—and are. Like the pushcart

with other evening dresses bought at \$8.75 and selling for \$15. Dozens of these cheaper evening dresses were sold before the brocade finally caught the eye of a purchaser.

¹ *Womens Wear*, December 20, 1933, pp. 1 and 23, reporting an interview with Julius Hochman.

PROFITS AND LOSSES ON DRESSES FROM 1928 TO 1933 IN DEPARTMENT STORES AND SPECIALTY SHOPS

	1928	1929	1930	1931	1932	1933
<i>Group I</i>						
\$500,000 to \$1,000,000 ¹	4.9	0.0	1.5	4.3—	10.7—	4.5—
<i>Group II</i>						
\$1,000,000 to \$2,000,000	1.0	2.4—	6.0—	8.2—	12.4—	3.2—
<i>Group III</i>						
\$2,000,000 to \$5,000,000	3.7	3.1—	6.3—	5.6—	11.0—	7.1—
<i>Group IV</i>						
\$5,000,000 to \$10,000,000	1.1	6.8—	9.6—	9.2—	13.1—	8.3—
<i>Group V</i>						
Over \$10,000,000	0.7—	5.2—	1.2—	10.2—	14.5—	7.6—
<i>Specialty stores</i>						
Over \$500,000	6.9	0.3	5.1—	3.5—	9.3—	3.5—
<i>Average</i>	2.8	2.9—	4.5—	6.8—	11.8—	5.7—

¹ These figures indicate the annual sales volume, or size of store selling the dresses—not the annual sales of dresses alone.

Departmental Merchandising and Operating Results of Department Stores and Specialty Shops, Controllers Congress of the National Retail Dry Goods Association, 1934.

PRICE AND PRICE POLICIES

vendor who loses on the "damn banan's" and gains on the "peanutta," the store must as an entity maintain solvency.

This discussion has done little more than reveal the multiple character of the thing called markup. A skeptical mind will be left with the most important questions unanswered. What of the "costs" of selling? Granted that prices must cover costs, only the more naïve will suppose that "cost" is fixed and absolute. Actually it is a "highly selective instrument used in the service of a larger strategy." The vital questions begin here. How high an administrative salary may be charged against costs? How high a rate of interest should be assessed against fixed plant and current stock? What sets the limit of expense on advertising? Are the playrooms for children, the luxurious rest rooms, the dining rooms run at a loss, valid outlays? Where does the item of inefficient buying and salesmanship figure? Such questions must make it clear that a critique of retail dress prices must probe the validity of every cost item. Such an examination would reveal how retail selling is shot through with the habits and folkways of an industry.¹

There is a growing tendency to question whether our selling practices meet the needs of our people and whether the time has not come for their thorough reexamination. It is not likely that, in so complicated a situation, any single type of sales organization could win general approval. So long as the demands of customers vary, the methods of salesmanship must respond. Women who demand "service and exclusiveness" will not be satisfied with a policy which centers on the "bargain." So long as incomes differ, so will the shops in which those incomes are expended.

THE HAZARDS OF DRESS BUYING

It is often said that modern science has revealed to us the precarious nature of the universe in which we live. It is perhaps even more true that in its application to industrial processes it has been instrumental in making our world more precarious. Our forefathers were acquainted with the wool from which they made their garments, the wheat that gave them bread, the leather they fashioned into shoes, the wood and stone they built into their houses. Today as shoppers we know none of these things. Though we live in an age of specialization, shopping has become the art of the amateur. This is hardly the fault of the shopper; to become an expert in the selection of articles for even the simplest household could hardly be compassed in one lifetime. Not a day passes but some laboratory finds new combinations of old substances. The waste product of yesterday becomes the valued resource of tomorrow. A "standard product" of last

¹ An interesting example of the relation of industrial costs to national habits is to be found in the *Cost of Operation of English Department Stores Compared with American Stores* by Philip J. Reilly of the Associated Merchandising Corporation.

DRESSES

week has already been superseded by a "better buy." Nor does change always move toward a better product at a better price. Competitive pressure puts a premium on the something that is "almost as good;" and of the profusion of novelties that clutter the market the shoddy, if properly heralded, has a chance against the more honest ware. "Shoddiness" in its various forms is an ancient evil; but modern technology, not too discriminating about the master it serves, has opened the door to many ingenious forms of substitution and adulteration. Daily the situation is more harassing for the consumer. Even to the economist it is becoming clear that a study of price divorced from quality leads into a wilderness of unreality.

In respect to dresses the consumer is faced with as many unknown qualities as there are fabrics on the market. Each season brings a new assortment to tease the eye and baffle the understanding. Delight is tempered by doubt. How will the new materials behave? Granted the fascination of wearing a dress of glass fibers, who is to tell us the homely truth as to whether it will last the season or wear through at friction points, whether it will bag or sag or suffer at the hands of the cleaner a change into something new and strange? Despite these doubts the dress purchaser is in a more fortunate position than the buyer of products whose properties and processes are masked. Style, color, and pattern are visible to the naked eye and need no labeling. If a dress enhances a lady's charm it is hard for her to cavil on durability. For this very reason the sober question of length of service has been obscured. But a woman—unless she has an unlimited purse—is only half woman; the rest of her is budgeteer, and the budgeteer is bound to get her money's worth. She wishes to know what anticipations she may reasonably entertain about the dress she buys. She does not expect her filmy evening dress to give her the same service as the blue serge she wears to the office. About the performance of each she asks different but equally relevant questions.

Her chances of being adequately answered are slight. The salesgirl cannot be counted upon. The few phrases she has at her command cannot conceal a case of the blind leading the blind.¹ Neither she nor her customer is a fabric expert. "Tensile strength" and "thread counts" are a foreign language. And why not? What for instance will it avail them to know that a dress is made from wood pulp or cotton linters or to be able to trace its ancestry direct to the silkworm? The point is how the particular

¹ Miss Ruth O'Brien of the United States Bureau of Home Economics, at the Annual Convention of the National Retail Dry Goods Association on January 18, 1935, told of a clerk who, when asked if a fabric was weighted, said "with girlish enthusiasm," "Oh, yes, it is very *nicely* weighted." A clerk in a silk department questioned as to whether a certain piece of silk was pure dye, "answered blithely," "Oh yes, the dye is pure." "Pure dye" is a term guaranteeing that silk is not weighted more than 10 per cent or, in the case of black silk, not more than 15 per cent.

PRICE AND PRICE POLICIES

dress will respond to the washtub or the cleaner's art, to body heat or the rays of the sun, and to an amount of wear commensurable with its function in the wardrobe. Whether a rayon is viscose, cuprammonium, or cellulose acetate will always be for most women a matter of indifference, if only they can be warned that the dress of cellulose acetate will dissolve under certain cleaning agents and that a hot iron will melt the acetate filaments. The principle at stake is the same as with a bottle marked "poison"; the user need not know its chemical constituents—such information might indeed be of little help—but there must be, in unmistakable language, a warning as to what may be expected of the contents.

This is the work that labels have to do—to interpret to those who shop for our 30,000,000 families technical knowledge at those points where knowledge will affect action. Labels for the layman must be pragmatic and instrumental rather than merely "scientific." A scientific term may in time win general acceptance and become a guide to action; but technical terms, newly coined every day, have been the refuge of scoundrels who find it more profitable to name the physical characteristics of the product than to state how it will dependably behave. The label that is mere description is for the average consumer a form of obscurantism.

Obscurantism is a mild term. There is today an enormous amount of plain mislabeling. Cottons that cannot face the purest of soapsuds are proclaimed as colorfast. Fabrics which "on a damp day shrink an inch or two on the manufacturer's shelf," are advertised and sold as strictly washable. Cloth that never saw more than a stub of a sheeps' tail is "100 per cent wool." Underwear whose luxurious weight came by means of a bath of salts of tin or lead is labeled 100 per cent pure silk. An "age of labels" has accomplished little more than the ruin of a host of reputable words. Only the most drastic rites of purification can restore these symbols to public confidence. To be useful labels must be of an integrity beyond reproach. If the maker is dominated by interests which conflict with those of the consumer, labeling becomes a futile farce. Only if the labeler does for us what we as consumers cannot do for ourselves can we have a sense of security.

Adequate labeling waits upon the framing of minimum consumer standards, based upon analysis of commodities in the forms in which they are purchased at retail. An increasing number of trade associations, technical societies, and large retail units have done substantial work in furthering the development of such standards. Such activities are not to be disparaged. But the difficulty is that in the dress industry, as elsewhere, standards promoted by industry itself or by its agencies are likely to represent only what industry and trade are able to agree to within the exigent conditions of current competitive practice. No compulsions exist

DRESSES

to force agreement or compliance. Organizations sponsored by consumers themselves are few in number, hampered by lack of funds, and scattered in their efforts. An agency is needed, free from partisan interests, with funds adequate to the task of coordinating work already done, of stimulating new research, of promulgating more energetically adequate labeling for over-the-counter use. Is not the government the logical agency to assume such leadership? Should not the fruitful spending of the national income be as much a matter of public concern as has been the earning of that income? Without an authoritative agency it is likely that exaggeration, subterfuge, and deceptive guaranties will continue to promote the sale of goods and consumers will continue to be lulled by claims which time will prove false.

The hazards of dress buying do not begin and end with the unknown qualities of fabrics. Poor workmanship accounts for many a disaster. Dresses are often skimpy where they should be full; seams are shallow, badly finished, and stitched with thread poor in quality or unsuited to the material. Dresses may ripple and bulge because the goods are cut across the grain—a result of juggling pattern pieces to save yardage. Such evidences of poor workmanship may be detected by the careful buyer; but if a dress is what she wants, it is far more likely to be taken home and re sewed than to be rejected. The cost of continual repair work is an item of no mean proportion. The customer thus lays out for the dress not only the money which crosses the counter but also the time, energy, and skill required to complete the manufacturer's unfinished job.

There is also the hazard of size. The determination of dress sizes is still largely a craft mystery. As economists talk of an economic man, as political scientists deal with a rational political animal, as doctors prescribe their drugs for a "phantom individual," as judges speak of the reasonable man, so dress manufacturers make dresses for a series of hypothetical women. That this is no exaggeration is borne out by the fact that some 75 per cent of the dresses for women over forty-five and some 50 per cent of those for women between twenty and forty-five require alteration. Only the young with the faultlessly conventional figure escape the burden of heavy alteration costs. The standard "forms" early adopted on the basis of an inadequate sampling of women's figures have never been revised. Meanwhile women living new kinds of lives have changed their proportions.

Instead of providing dresses for the figures women actually possess the industry has muddled along on guesses. Its idealizations have brought losses to manufacturer and retailer in returns and markdowns, and to the buyer in time, money, and energy spent in the search for a "fit." That the "majority" of women over thirty tend toward an "atypical" figure, if measured by the dresses they want to buy, indicates a curious

PRICE AND PRICE POLICIES

situation. Such a figure is partially cared for by "half sizes,"¹ "long stouts," "stylish stouts," and "stubby stouts." But such terms are vague and no exact proportions are defined. The time is ripe for the industry to adopt more realistic norms. Variations in figures cannot be eliminated but they might be studied; the problem is only that of bringing a number of variables into relationship. The length of waist, the girth of hips, shoulder length and the width between the shoulders, bust measurement, upper and forearm proportions, length and width of legs, neck and wrist size—all these vary in innumerable ways. But if thousands of women of different ages, occupations, and racial stock were measured, and these measurements studied, it is reasonable to suppose that intelligible relationships between the variables would emerge and eliminate at least some of the present guesswork.² No single manufacturer can make such a study; it is essentially a joint undertaking for the industry.

Not only is accurate measurement lacking but the language of sizes is garbled and indistinct. There are as many dialects as there are dress manufacturers. Some thirty-two's "run small" and some thirty-eight's "run large," and in a dozen different ways, particularly in the cheaper dresses. This means unending frustration for seller and buyer. The sales-girl often adds to the confusion by misnaming sizes in the effort to please her customer. For the desire of women to be more svelte than they are the manufacturer is hardly to blame. But more sympathetic nomenclature might be devised to meet the needs of the "mature silhouette." Women would lend themselves eagerly to such a conspiracy. For what woman who has dieted for a streamline figure will buy a "stubby stout" without self-consciousness and resentment?

The greatest of all hazards remains, that of an indiscriminate taste. Aesthetic judgment in respect to clothes is regrettably a backward art. The training of the eye is left largely to accident or turned toward an appreciation of "the arts." Yet most of our aesthetic satisfactions must be found, not in excursions into the realm of the arts, but in the colors and forms of our everyday surroundings. The dress atrocities made and bought each year are evidence of a woeful lack of trained observation and bespeak the neglect of rich opportunities for satisfying experience. The manufacturer and the shopper alike share in this lack of aesthetic vitality and the only cure is the realization that taste is not a lawless and unintelligible matter. It may be developed and communicated. Cloth as a medium of

¹ Half-size dresses are wider through the hips. They have a suspiciously good sales record, which should afford the trade a clue. Some canny buyers concentrate on half sizes and name them straight sizes when they put them on the racks. For much of the material in this section I am indebted to an article by Evelyn Thompson in *The Consumer*, Nos. 4 and 5, issued by the Consumers Division of the NRA.

² Miss Ruth O'Brien of the United States Bureau of Home Economics has drawn up plans for measuring 750,000 women, but the project has not yet been undertaken.

DRESSES

artistic expression presents possibilities not surpassed by canvas or clay. It is an art that enters into the very texture of daily living. If clothing can be beautiful in form, line, and color and even the cheapest of dresses may achieve something of this beauty, the surface of our existence will be greatly enhanced.

THE DILEMMA OF REFORM

This study has attempted to depict but one small, though busy, corner of our economic life. Some of its features, however, possess a significance reaching beyond the boundaries of the trade. But the study does not examine the interrelationship of the industry with other aspects of the economic order. This wider setting has to a large extent been taken for granted. Yet as a street corner is what it is because of the rest of the city, so the dress industry is shaped and determined by all the institutions and arrangements of our system of "free enterprise." The very nature of the price system with its "far-reaching categorical imperatives," our laws in regard to private property, our complicated monetary controls, together with our attitudes and theories in respect to all these, fix the form and give direction to the dress industry. Were this basic framework to be altered, were, for instance, our notions about private property to suffer drastic change, the making and selling of dresses would be fundamentally transformed.

But what may come is not what is. The dress industry of today is rooted in the economic and social institutions of the present. From them it stems and to them it contributes its quota of order and disorder. The question is whether within this framework the confused and mobile processes of dressmaking are likely to be transformed into greater stability and efficiency. The reader who has come to this last section by way of all the others will probably agree that the price of a dress has no claim to sanctity. At various points along the route it has been touched by wastes and inefficiencies, anarchy and maladjustment. Actual price is far from the price promised by the "competitive ideal"—a price which is a symbol of perfect economy in every unit of the industry and of the neat adaptation of "capacity" to "demand" in the units as a whole.

If a frontal attack were made, the industry might be "tidied up" in many effective ways and price might be shorn of many of its present irrelevancies. But it is a mark of the decentralized control that such tidying up is the responsibility of no one. It has been no one's concern even to raise the kind of questions that need to be asked. Is the present organization the best possible instrument for supplying the nation with dresses? If not, where does it fail? At what points can current technique be improved? How much obsolete equipment should be scrapped? What is the optimum size for a dress plant? How can managerial efficiency be

PRICE AND PRICE POLICIES

promoted? How can dress designing be brought to a higher level? Should the contracting system be abolished? By what means can the seasonal trend be mitigated that equipment and workers may be more steadily employed? To expect these questions to be answered intelligently by the mere play of the profit motive is as futile as expecting a runner in a race to pause and give a helping hand to his nearest rival. The problems fall outside the door of the individual firm in an industrial no-man's land. Each dress firm struggles, as it must, for the snatched profit within its own household. But numberless isolated, individual judgments made under the pressure of the profit and loss calculus add up neither to the elimination of waste nor to an orderly structure for the industry. The profit motive operates sharply within discreet boundaries. But is it not to the self-interest of profit makers to break through their separateness and join in a common undertaking to initiate needed changes? The vital connection between self-interest and reform is, however, weak among dress manufacturers.

In industries where large overhead brings waste into clear perspective, there is a direct incentive toward full utilization of equipment. This is lacking in the dress industry; the division of responsibility as between jobbers and contractors is peculiarly favorable to allowing unproductive overhead to go unchallenged. In industries dominated by a few large corporations, research into methods of efficiency is likely to go forward as an "investment." But dress firms are numerous and small, and profits are uncertain. A large number of concerns pass each year from the scene, a larger number remain on a precarious footing. It is the industry par excellence of the transient, and transients are a notably unstable element of the population. Moreover, the present organization works just well enough to create the illusion that it works better than it does. Speculative profits are won by enough firms to provide hope for all. To those caught in the existing mechanism, reorganization presents only latent economies lacking the tang of reality found in the daily calculations of immediate gain. To change the pattern of the industry and raise the plane of competition, an enormous amount of inertia has to be overcome. This is rendered difficult because the jobber is primarily interested in the opportunities and limitations of the market and is not really concerned with stabilizing the processes of production. The contractor whose business it is to produce has no control over sales policies and can put forth no effort to create a steadier demand. He takes work when he can get it and, if his shop is small and badly organized and his work irregular, he is not in a position to remedy the situation.

Thus among those who direct the industry there exist serious obstacles to the operation of the needed incentives. If their failure to set their house in order involved themselves only, the present anarchy might be merely a matter of interested comment. But 120,000 workers are directly

DRESSES

concerned as well as some 44 million women who buy dresses. Are the workers or the consumers as pressure groups likely to be able to achieve what the manufacturers themselves seem unable to accomplish?

The stake of the workers in the industry is immediate and crucial. They do not win from their work a decent standard of living. Unless the industry is to remain to an extent parasitic, and workers are to suffer from hopelessness, worry, and loss of physical vitality, means must be found of raising wages. The judgment that a living wage should be the first charge against an industry represents a deep moral conviction accepted far beyond the ranks of the workers themselves. The fact that industries have enormous recuperative powers in the face of a higher wage scale and the growing emphasis upon the laborer as a consumer whose purchasing power is needed have lent added support to this moral demand that no group of workers shall live on sacrificial wages. Such incomes constitute in effect a subsidy either to profit makers within the trade or to consumers without.

Obviously higher wages cannot be conjured out of the ether. They have earthly sources. But to maintain that the industry cannot afford to pay more is not to deny that within another frame of reference—in a reconstituted industry—wages might be other than they are. By searching out the possible sources of better living the workers may succeed in bringing to the industry a greater measure of stability. Their incentive is strong and steady. They are an integrated self-conscious group and through their leaders they have an uncommonly good knowledge of the economics of the trade. Whereas the self-interest of the dress manufacturer is transient and competitive that of the workers is permanent and unified. Its focus is in the industry as a whole. The fate of an individual firm matters less to them than the control of the conditions which determine success or failure for all units within the trade. How much they may achieve will depend on the vitality of their organization and how far the collective agreement can be used as a mechanism for cutting into the fundamental issues of the industry. In any case the pressure of labor is bound to work slowly.

It cannot be assumed that the interests of the workers are always at variance with those of the manufacturers, striking as the divergence appears in moments of conflict. The forces which make employment so disastrously unsteady are the same forces which render profit seeking so precarious. All groups stand to gain by the better coordination of production with demand. One must grant that the disease of irregularity in the dress industry is peculiarly stubborn and very old.¹ A trade so buffeted by

¹ That seasonal irregularity is no new phenomenon is well illustrated by this quotation from John Bellers, *Essays about the Poor Manufacturers, etc.* (1699), p. 9: "The uncertainty of fashions does increase necessitous poor. It has two great mischiefs in it. First—the journeymen are miserable in winter for want of work, the mercers and master weavers not daring to lay out their stocks to keep the journeymen employed before the spring comes,

PRICE AND PRICE POLICIES

changing seasons and styles may never be stabilized to the extent possible in massive industries producing staple articles. Yet if the curve of seasonal employment cannot be completely flattened, its jagged character may be mitigated. Seasons there will always be; but that the dress industry should be so fully at their command argues a want of ingenuity out of keeping with the success of mankind in mastering the wayward elements of time and space. Success, however, cannot be achieved by the counsel of despair expressed by the manufacturers. "Dresses . . . must be available to the public at precisely the time when they are wanted. This applies to every type, and the best efforts of the industry to prolong the seasons have invariably failed."¹

In the face of little experimentation it is premature to accept the fact that the dress industry can work only approximately half the year. The buying and selling habits in which manufacturers, retailers, and shoppers are involved have become established in a thoroughly opportunistic fashion. These habits have now formed themselves into a pattern which falsely enough appears inevitable. To break up the pattern and to substitute alternative arrangements will require the cooperation of all groups. But the initiative must come from within the dress trade. The workers are most victimized by the fatal operation of the pattern and might well seize every opportunity to demand action. However the situation may be met—whether by seasonal shifting of emphasis to different products, combining standard lines with those influenced by the latest fashion, making up a proportion of stock in dull seasons, working out time regulations for the booking of orders, or by devices not yet conceived—it is certain that the necessities of workers and contractors correspond with the needs of the manufacturers for steadier business.

The more efficient organization of production offers another possible source of gain to all groups, although in what proportion each would share depends on current bargaining strength. But for these gains to be made real, much scattered information must be turned into assured knowledge. Performance between the best and the average shops must be tested and analyzed, the technology of the industry must be explored, standards of managerial competence set up, and the factors that effect the productivity of the workers studied. These matters are at present in their "swaddling clothes."

It may be urged that the workers are not likely to frame their program with reference to increased productivity. They have too often failed to

and they know what the fashion will then be; secondly, in the spring the journeymen are not sufficient, but the master weavers must draw in many prentices, that they may supply the trade of the kingdom in a quarter or a half year, which robs the plough of hands, drains the country of laborers, and in a great part stocks the city with beggars and starves some in winter that are ashamed to beg."

¹ Memorandum submitted by National Dress Manufacturer's Association to N.R.A., October 7, 1933.

DRESSES

reap where they have skillfully sown. If wastes are to be conquered, labor must safeguard its interests, particularly during the transition period when it is likely to bear the brunt of readjustment. But if these safeguards can be assured, dress workers cannot afford to be unconcerned with an expanding output—as a means of ensuring steadier and more profitable work. There is certainly a latent demand for the product of the industry not satisfied with four dresses—two silk and two cotton—purchased by the average woman each year. Every woman can always do with one more dress, but price is not irrelevant to the fulfillment of her wishes. If a more scientific organization of production can cut costs, the industry will encroach on the homemade product. Nor can it be assumed that the dress budgets of women are fixed in amount. If dresses had more intrinsic beauty in form, line, and color, the art of dressing might rise to a new level and the items of the household budget be correspondingly reapportioned.

The stake of the consumer is less crucial than that of the workers but none the less real. Yet it is fanciful to think of the women who buy dresses as able to exert pressure toward a more orderly or less wasteful industry. They lack knowledge and group coherence. Even the withdrawal of patronage cannot be fully exercised. To stop buying dresses and to take to the needle would for many women mean a drastic reorganization of their lives and this they could hardly contemplate with equanimity. There may be more or less home sewing as prices rise and fall and women will continue to exercise a slow pressure on style trends, but little more can be expected of them. Social custom, personal habit, inertia, ignorance, extravagance, all combine to keep the consumer the passive victim of over-the-counter deals. There are hopeful signs that this passivity is giving way, but we cannot envisage in the near future the women of the country rising 100 per cent strong to demand even the adoption of standard measurements.

It is not certain that the chaos of dresses can be rescued by the play of pressure groups. But the need of order and purpose is imperative. Our ultimate judgment of any industry, and of our economic life as a whole, must be in terms of its effect upon human living. If we could look with fresh eyes, not deadened by accustomed irrationalities, our judgment would be something like this: The dress industry represents an intolerable way of life for workers who spend their lives under pressure of intense effort and enforced idleness, and for manufacturers and contractors who fight grimly a day-to-day battle with their fellow men and finally go to the wall. They are all without security and without even a hint of the dignity and serenity which should belong to human beings. Even if it could be shown that the system produces the cheapest and best possible dresses, any price which results in such disorganization and frustration is uneconomic in terms of the conservation of human values. And price is a meaningless term if it is robbed of such an ultimate reference.

SECTION VII
WHISKEY—THE INCIDENCE OF PUBLIC
TOLERANCE IN PRICE POLICY

BY ALBERT ABRAHAMSON

A STUDY IN PARADOX

THE whiskey industry is a study in paradox. It is among the oldest of trades, yet it is just off to a fresh start. In its current organization, originating with repeal in 1933, it is an infant among industries, yet it is already overexpanded. It is highly regulated—even the Schechter decision did not end federal control—yet it cooperates with a zeal which almost amounts to abandon. It is subject to a heavy load of taxes, federal, state, local; yet it accepts the burden meekly and asks not for lower but for more uniform taxation. Its product meets a wide consumer demand, yet it is constantly harassed by the thought of extinction. A highly profitable industry, it is also extremely competitive. Whiskey must compete with rum, gin, wine, and beer; brands and blends must vie among themselves; and the legal industry must struggle for the market with a vigorous illicit trade which, through an evasion of taxes and regulation, can undercut in price.

The fact is that the whiskey industry is unique, primarily because of the social attitude toward its product. The passing of prohibition was accepted with joy or tolerance by the vast majority of the American people; but it did not still the protests of a vigorous minority, well organized and skilled in political tactics. Nor did it eradicate the general conviction that an uncontrolled liquor traffic was dangerous; and that industrial freedom in its production and sale meant the return of the saloon, excessive consumption of alcoholic beverages, and other social evils. In consequence, regulation was regarded as correct and proper; and the modern whiskey industry took its start amid a strong sentiment for public control.

The direction of federal regulation was determined by the national recovery drive of 1933. Codes were written for the various branches of the industry; but the unusual character of the problems in this industry required a separate regulatory agency called the Federal Alcohol Control Administration. With the outlawing of the codes by the Supreme Court in May, 1935, regulation lapsed during the summer. However, the Federal Alcohol Administration was quickly established; and the industry

PRICE AND PRICE POLICIES

—in the face of a general business sentiment which met “the end of control” with a feeling of relief—showed no disposition to question its validity. Such a willingness to cooperate was in part due to a feeling of insecurity; a few states and a large number of local areas were still dry, and a trend was apparent toward the erection of state monopolies for the distribution of alcoholic beverages. In part it represented the anxiety of the industry to attain respectability and win public confidence. A return of the evils of preprohibition days would lend thunder to the die-hard “drys” and might once more turn public sentiment in the direction of outright prohibition. The legal destruction of an industry and its return on probation make reasonable an appetite for industrial regulation. They are also fundamental to an understanding of the usages, the arrangements, and the trade practices which converge into the distinctive price structure of the whiskey industry.

THE PECULIARITIES OF DEMAND

The prospective purchaser of an alcoholic beverage is faced with a fabulous array of wares. He stands before a show window with its multiple variations in the theme of a bottle. There as an economic man he tries to resolve the conflicting values and to make the intricate calculations necessary to the wise choice of a beverage. He is confronted first with rival offerings which attest a keen interliquors competition. Gin invites with Polo Club, Chilton, Fleischmann's, White Swan, Gordon's, Floradora, Cavalier, Dixie Belle, Gold Feathers, Lion & Unicorn, Crown Cabinet, and Paul Jones. Rum appears as Planter's Punch, Pilgrim, Cockade, Carioca, Ron Rico, Don “Q,” Three Daggers, or Government House. An array of names such as Grand Marnier, crème de cacao, Gold Medal Apricot, kümmel, peach nectar, crème de menthe, and anisette attest the mysterious properties of liqueurs and cordials. To right and left, whiskeys promise stimulation; wines appeal to cultivated taste; ales offer tang and cargo; and from the side lines ginger ales, mineral waters, and bitters suggest dilution and variety of concoction.

But if amid this varied appeal of name and label, the buyer remains steadfast to whiskey, his problem of choice has just begun. He may play his preferences among grains with Scotch, rye, bourbon, corn, or various blends. He may prefer an Irish or a Canadian or an American stock. He must make a choice as to age and to alcoholic content. He may buy liquor fresh from the still, or he may prefer one bottled in bond. He may likewise select a beverage that is weaker or stronger—an 86-proof Scotch or a 100-proof bourbon.¹ And given a genus, he is confronted with a baffling

¹ The word “proof” is used to measure alcoholic content or strength. The highest degree of proof is 200, which is absolute alcohol, or 100 per cent alcohol by volume. Whiskey is 100 proof when it is 50 per cent alcohol by volume.

WHISKEY

collection of labels and brands. Mayflower, Sweepstakes, First Nighter, Mount Vernon, Irish Smile, Old Portage are straight ryes; Hunter and Park Lane are blends of straight rye. A straight bourbon may be Pedigree, Cream of Kentucky, Sunnybrook, Crab Orchard, Ten High, Churchill Downs, Bottoms Up; and its counterpart in a blend may be Briarcliff, Tom Hardy, or Patrick Henry. Cotton Picker, Colonel Glen, Indian Queen are straight corn; and Scotch is represented by Haig and Haig, Vat 69, Heather Dew, Cutty Sark, and King's Ransom. Or he may select a spirit blend such as Brigadier, Cobb's Creek, Penn State, Wilken Family, Belle of Nelson, Chicken Cock, or Mellow Mate. Such inviting names are only samples from a vast catalogue; and each label attests an indefinable something more in each alluring bottle. But he is a wise drinker who knows all the chemical, aesthetic, and bacchanalian properties of the article he buys.

The Federal Alcohol Administration sets up definitions to which the various types of whiskeys must accord. A straight rye, for example, is straight whiskey distilled from a fermented mash of grain of which not less than 51 per cent is rye grain. The usual proportion is 60 per cent rye, 20 per cent corn, and 20 per cent malt. Straight bourbon and straight corn are straight whiskey distilled from a fermented mash of which not less than 51 per cent is corn grain. Usually the proportion is about two-thirds corn and one-third rye for bourbon, while corn whiskey is made from corn grains with just enough barley malt for conversion. A blended whiskey is a mixture which contains at least 20 per cent straight whiskey of 100 proof and, separately or in combination, whiskey or neutral spirits.¹ A blended rye—or blended corn or blended bourbon—must contain not less than 51 per cent of the straight stock which give it its generic name. A blend of straight rye whiskeys—or corn or bourbon—is, as the name implies, a mixture of several whiskeys of the same type. A spirit whiskey must contain at least 5 per cent and not more than 20 per cent of whiskey in combination with neutral spirits. A bonded whiskey is a product which has been stored in a warehouse under United States Government lock for a period of four years.²

In actual fact the variety of choice for the consumer is usually more limited than the miscellany of market offerings imply. Before he enters the store the buyer has usually decided whether he wants a rum or wine or whiskey; thus the avenues of possible alternatives are closed by the preferences he has for certain beverages. In the class of distilled spirits, the

¹ Neutral spirits are known generally as straight alcohol.

² The imported whiskeys are manufactured in compliance with the laws in the country where produced. Scotch and Irish whiskey contain no distilled spirits less than three years old. Canadian whiskey contains nothing younger than two years. For a more detailed description of whiskeys see Regulations No. 5 relating to Labeling and Advertising of Distilled Spirits, Federal Alcohol Administration, 1936.

PRICE AND PRICE POLICIES

chances are that he buys whiskey. It is estimated that approximately 80 per cent of the annual consumption of hard liquor is this product. In 1936 the average for fifteen monopoly states—where figures are obtainable—was 82.74 per cent for whiskey; gin accounted for 12.84 per cent, brandy, 1.61 per cent, and rum and other specialties, 2.81 per cent.¹ However, there is a distinct local variation in the type of beverage consumed. For example, Maine—for February, 1937—distributed its consumption roughly as follows: whiskey, 59 per cent; gin, 21 per cent; other spirits, 12 per cent; and wines, 7 per cent. In Virginia for the same period 80 per cent of the drinks was whiskey; gin accounted for 8 per cent; wines were 7 per cent. In the state of Washington wines competed heavily with whiskey—40 per cent as against 49 per cent. In Utah the consumption of wine was to whiskey as 35 per cent against 57 per cent. In Pennsylvania, where habits are different, whiskey accounts for 76 per cent, wine 11 per cent, gin 8 per cent, and all others 4 per cent.²

1
CONSUMPTION OF DISTILLED SPIRITS BY CLASSES DURING 1936 IN FIFTEEN MONOPOLY STATES
Percentages of Total

State	Whiskey	Gin	Brandy	Rum	Special- ties	All dis- tilled spirits
Idaho.....	84.93	10.95	2.56	.56	1.00	100
Iowa.....	77.75	16.94	4.18	.23	.85	100
Maine.....	65.59	24.14	4.67	3.69	1.91	100
Michigan.....	79.60	14.71	1.59	.32	3.28	100
Montana.....	83.87	12.85	1.50	.47	1.31	100
New Hampshire.....	72.86	17.65	2.75	2.57	4.17	100
Ohio.....	86.42	10.77	1.12	.61	1.08	100
Oregon.....	83.67	10.92	3.74	.64	1.03	100
Pennsylvania.....	83.68	12.22	.82	.60	2.68	100
Utah.....	86.00	10.04	1.18	.33	2.45	100
Vermont.....	70.53	23.14	4.34	1.39	.55	100
Virginia.....	83.53	12.24	1.48	.31	2.44	100
Washington.....	79.90	14.83	2.86	1.02	1.39	100
West Virginia.....	85.57	10.68	2.33	.20	1.22	100
Wyoming.....	86.85	10.24	.89	1.24	.78	100
Total.....	82.74	12.84	1.61	.70	2.11	100

Statistical Bulletin 51, Legislative Reporting Service, Distilled Spirits Institute, Inc., Washington, D. C., March 26, 1937.

¹ The author is indebted to the American Services Exchange, Washington, D. C., for these figures. They are collected monthly from the state monopoly commissions and are collated for the use of the liquor industry. Unfortunately the failure to include beer makes the picture incomplete.

WHISKEY

This divergence has its roots, at least in part, in sectional tastes. The thriving wine industry of California has turned the attention of the inhabitants to the grape, and its influence has spread all along the Pacific coast. Although gin and rum are popular, corn is the favorite cheap drink in the South. New York, as the port of entrance for most European products, invites exploitation by importers; and the cultivated palate of the wealthy, as well as the large foreign population, offers a rich market for foreign goods. In part also the consumption of particular types of liquor depends upon the system of regulation in vogue. In a state which prohibits or imposes severe restrictions upon sales at the bar, the buyer who cannot assuage his thirst at the bar with a gin rickey or fizz turns to the package store, and custom and ease of mixing frequently dictate whiskey. Even with whiskey, section dictates differences in taste. In rough terms the East is partial to rye and Scotch; the Middle West tends toward bourbon; and the South has a decided preference for bourbon. Yet Scotch is marching rapidly westward; bourbon is capturing citadels in the North; and all types of whiskey are sold everywhere.

A vital factor in the consumer's preference is price. Approximately 75 per cent of all retail sales occur at a price of \$1 a pint or less. Fewer than 5 per cent of sales is in the \$2-or-over class; and these consist largely of imported Scotch. Thus the bulk of legal drinking is in the youngest and cheapest American whiskeys.¹ But, in their sensitiveness to price, consumers are not insensitive to the appeal of well-publicized names. A product such as Crab Orchard or Town Tavern, nationally advertised and produced by a major company, has a strong hold on the public. Some local brands, pushed by intensive advertising, are equally fast sellers. In every state a few whiskeys have gradually come to the front; and it is estimated that some thirty popular brands, with names that vary somewhat from state to state, have come to dominate the market. Nevertheless the public is quite willing to experiment with new products. A company may, with a fanfare of publicity, release a new brand and within a few months find it a leader. Such popularity, however, may prove short-lived, for a fickle fragment of the public may as easily turn to something

¹ The retail sales in four states for one month—February, 1937—were broken down in terms of price with the following result:

Name	Under \$0.85	\$0.86-\$0.99	\$1.00-\$1.49	\$1.50-\$1.99	Over \$2.00
Ohio.....	43.47%	33.57%	16.76%	3.36%	2.81%
Virginia.....	77.80	15.85	4.05	1.26	1.02
Pennsylvania.....	69.21	8.05	17.20	4.62	.92
Iowa.....	71.37	15.70	6.10	6.18	.64

Computed from statistics of American Services Exchange for February, 1937.

PRICE AND PRICE POLICIES

else. Here lies the competitive strength of private brands. A retailer who regularly serves a customer and is trusted for his integrity finds it easy to direct the half-formed intentions of the buyer. A word that the whiskey is equally good—and cheaper—makes its blunt appeal.

A comparative freedom from strong allegiances to particular brands arises out of the newness of the industry and its product. In days of old the public was supplied with a variety of American whiskeys which had won established places in the market. Although these disappeared with the coming of prohibition, the brand names were pirated by bootleggers or used by Canadian distillers whose goods surreptitiously slipped over the border. In speak-easies the public soon learned that the label on the bottle was no introduction to its contents; and, in respect to illegal liquor, the emphasis shifted from the brand to the reliability of the purveyor. And, since whiskey was difficult to simulate, gin became the popular drink.¹ Prohibition remained engraved in the Constitution, yet liquor was to be had for the thirst of a nation.

The advent of repeal brought serious questions to distillers intent upon the new market. Had the taste for gin become permanent? Or was wine—the objective of so many experiments in American cellars—the answer? Or would the preference fall on whiskey? Within a short time it appeared that the public would return to its former favorite. But what kind of whiskey? In the interval of the “long drought” many people had forgotten precisely what constituted a good drink; and many coming of age during prohibition had no experience of legal whiskey. Thus the American taste had to be rediscovered and possibly recultivated.

The new industry was in something of a dilemma. Repeal came suddenly, and the industry was ill-equipped to meet it. Whiskey cannot be distilled, aged, and marketed overnight. It must be aged for at least three or four years to smooth out elements of the distillate unpleasant to the palate. If marketed earlier, it must be distilled sufficiently to remove the alien attributes; but an intensive distillation also removes some fine qualities of taste and smell. At the time of repeal there were, in American warehouses, some 4,000,000 to 5,000,000 gallons of properly aged whiskey. Against a newly released demand such a quantity would last only a month or two. Obviously something had to be done to bridge the gap between an insistent market and a limited supply. It was at one time suggested that the government and the bootleggers enter a deal whereby the illegal stock—which was huge—might, by the magic of the payment of taxes,

¹ Most gin is made from alcohol flavored with juniper berries and other aromatics. It requires no aging before consumption. During prohibition a great deal of gin was made by consumers; the expression “bathtub gin” indicates that the industry had left the distillery in part and had come back to the home. A reason for its popularity was that the price of gin was lower than that of most whiskey.

WHISKEY

be made to take on legality. But officially this was frowned upon.¹ Across the Canadian border there were between 20,000,000 and 30,000,000 gallons of whiskey suitable for American consumption as straight, though too light-bodied to serve as a basis for blends with alcohol. But a tariff of \$5 was a barrier; and among officials there was no effective sympathy with the idea that it be lowered. In Great Britain there were some 37,000,000 gallons, largely Scotch—a rather substantial quantity if the public could be persuaded to accept a whiskey not of the American type. But here again the tariff interposed its barriers, and Scotch could not be used as a basis for blends acceptable to the American taste. The industry gallantly essayed its answer. Millions of gallons of whiskey poured from the distilleries. Some of it went into barrels to be aged for a future market; most of it was produced for quick consumption. To make this green stuff palatable was the next task. A stringent distilling process removed toxic properties but at the expense of the peculiar taste that made whiskey a popular drink. In this interregnum many consumers gave a new allegiance to the legal industry; others returned to an outlaw trade, with its bootleg product, aged stocks, and fifteen years of refinery experience. Circumstances made such a period of transition inevitable; but the result was to delay for a time the cultivation of American tastes.

Gradually better whiskeys came on the market. In 1934 whiskey retailing at \$1 a pint was no more than six months old; by late 1935 such a price commanded a year-old whiskey; and in 1937 it could secure a product aged for a year and half to two years. The old popularity of the blend was also revived. In the days before prohibition almost all American brands were mixtures rather than straight whiskeys. Prohibition created an aversion to blends; bootleggers practiced the art of "cutting" with a view to dilution and higher returns. This suspicion was carried over into the early days of repeal; consumers rejected the first legal blends which appeared on the market. But the industry was insistent—it had to be—and, with the dearth in aged stocks, a small quantity of old whiskey had to enter many bottles. As a result, a little leaven of old stuff was used to season a body of young whiskey. Golden Wedding, for example, was very popular before prohibition as a straight rye; with repeal it was called for by consumers, many of whom had never tasted the original stock. Schenley captured the name to capitalize on its reputation, but the new product was very different from the old. In one area it became a blend of straight ryes, in another a blend of straight whiskeys; and in each instance a small amount of old whiskey served as a base while the

¹ There is no way of telling whether the outlaw stream eventually joined the river of legal liquor; but it seems doubtful that the bootleggers poured their stocks down sewers simply because the Treasury would not accept taxes.

PRICE AND PRICE POLICIES

body constituted the postprohibition product. Another expedient was to "marry" a whiskey with neutral spirits and secure a spirit whiskey. Seagram's popular 5-Crown was made up of between 5 per cent and 20 per cent four-year-old whiskey combined with alcohol. In consequence of such devices the demand for blends mounted although by 1936 it had not yet superseded the popularity of straight whiskeys.¹

Thus American whiskeys have undergone constant change. In the years just after repeal these changes came with startling rapidity and radically altered the product, even though the brand name endured. Almost overnight a rye was metamorphosed into a bourbon or a straight became a blend. The proof varied from 80 to 100 and back again. Although as time passed the whiskeys on the market became older, this did not invariably happen. At one period, a whiskey might be ten months old; a little later, seven; and eventually be dropped to six or raised to twelve. Moreover, as the industry moved forward, the process of distilling was constantly refined.²

CONSUMPTION OF WHISKEY BY TYPES DURING 1936 IN THIRTEEN MONOPOLY STATES
Percentage of Whiskey

State	Straight	Blended	Bottled in bond	Canadian	Scotch	Irish	Miscel- laneous
Idaho.....	62.20	29.54	.37	5.04	2.75	.03	.07
Iowa.....	69.38	23.55	.70	2.66	2.86	.13	.72
Maine.....	38.01	54.86	.73	2.04	4.36		
Michigan.....	52.07	36.33	.48	5.61	5.44	.07	
Montana.....	50.64	42.66	.37	3.52	1.71	.05	1.05
Ohio.....	66.84	27.48	1.02	1.85	2.78	.03	
Oregon.....	59.78	25.49	.31	8.43	5.59	.07	.33
Pennsylvania.....	51.23	43.30	1.40	1.50	2.48	.09	
Vermont.....	21.99	70.20	.88	2.06	4.60	.14	.13
Virginia.....	69.05	29.06	.54	.40	.94	.01	
Washington.....	54.91	25.62	.50	13.34	5.63		
West Virginia.....	80.78	17.79	.21	.71	.50	.01	
Wyoming.....	59.85	31.51	.75	4.69	3.13	.07	

Statistical Bulletin 51, Legislative Reporting Service, Distilled Spirits Institute, Inc., Washington, D. C. March 26, 1937.

² The mechanics of whiskey distillation have been highly developed, although the essential methods are centuries old. In the mashing process the starch in the grains is broken down and converted into fermentable sugar. During fermentation the sugar is attacked by the yeast and converted into alcohol. The fermented mash is generally referred to as "beer." The function of the distillation process is to separate the alcohol from the beer and slop. The finished whiskey is then run into cistern tanks, its proof is reduced to approximately 100, and it is placed in new, charred white-oak barrels where the product is aged. This type of barrel imparts a characteristic woody taste and color; and it is believed that it absorbs some of the disagreeable odors of the freshly distilled spirits and acts as a catalytic for chemical action resulting in the flavor of matured liquor. Attempts have been

WHISKEY

The incidence of such changes in the commodity has been to keep drinking tastes unsettled—and expectant. Except for the finer domestic or imported products, the distinctive bouquet and flavor of a popular brand are transient; the period between its appearance and eclipse is not adequate for a crystallization of taste. Buyers are fully aware that whiskeys are improving in quality and insist upon an improved product. The label on the bottle is a guide to its contents; according to the Federal Alcohol Administration, consumers have shown a surprising disposition to scan labels before purchasing the ware. This attitude has accentuated the competitive character of the industry. American taste, since repeal, has not been established firmly enough to wed consumers to particular types or brands of whiskey. According to retailers, buyers have only the haziest notions of the differences between whiskeys; within a given price range the age as stated on the label may be as compelling as the brand name.¹ Although the advertised brands are steadily growing in sales importance, buyers still slide from one popular brand to another and—less easily—to private brands. This is due in part to the variety of offerings, which tends to confuse; in part to the unformed and experimental character of the American palate. The result is a bitter, colorful, and ingenious competition between distillers.

As long as tastes are in process of formation, the future market is uncertain. In his design upon that market, the distiller faces two problems. First, he must, if he can, build up a lusty preference for his brands. Many are now “trial balloons”; many will collapse; a few will endure the public test. Any show window will make it quickly apparent that a lure attaches to a romantic name; the brands which survive the ordeal should consistently pick up prestige. The distiller wishes to make his product the inevitable selection of the buyer; to him the ideal customer is one who remains faithful to his choice in spite of the allurements of other bottles.

made to age whiskey artificially; heating, shaking, and the passing of electric currents through the whiskey have been tried; according to one authority, “they will take the newness out, but they almost invariably fail to put the age in.” It is significant that it is not merely “time” which does the trick, that age is a name for an intricate chemical process.

¹ A true story—in which the names of brands only are changed—indicates that the untrained palate is not yet above exploitation.

A manufacturer of soft-drink fixtures discovered a few years ago in an old warehouse an apparatus for blending whiskeys, evidently an heirloom from preprohibition days. He resolved to put it to use and in search of materials visited a distillery, where he was shown three grades of whiskey. A walk around the distillery confirmed the test of his taste, that the three grades were identical. So he bought on the low side.

Then he proceeded to market his product. A brand from preprohibition days called Old Mortality enjoyed great vogue; so he dubbed the newcomer Old Morality. But the lesson from the distillery was not to be lost so he sent his salesmen out armed with samples of Old Morality in three grades—Three of a Kind, Full House, and Royal Flush. But, in spite of identity, most buyers detected the more exquisite bouquet in Royal Flush. The other labels were discarded and all of Old Morality went out as Royal Flush. So he sold on the high side.

PRICE AND PRICE POLICIES

Second, the distiller wishes to play a leading role in the determination of tastes. A refined palate is sensitive to even slight differences in the odor, bouquet, and taste; the preference for a particular product requires slow and long cultivation. The long-time strategy of the distiller demands that his brands be kept persistently at the front.

Social Attitudes toward Drinking. An industry ordinarily serves society best when it strives alike for abundance and low prices. Whiskey is the classic exception. It is expected neither to go in for quantity production nor to aim at a price which will give to the product a secure place within the American standard of living. Although a respectable minority still holds out for abstinence, the prevailing attitude toward the industry can best be described by such words as "temperance," "good taste," or "moderation." Thus the goal becomes qualified abundance; and price assumes the function of limiting consumption.

But what is the source of demand? There is, to begin with, a small demand for special purposes. During the prohibition period the production of alcoholic compounds was permitted for sacramental, medicinal, and industrial purposes, and in dry areas such purposes today find legal fulfillment. It is also claimed by some—and vehemently denied by others—that alcohol is a food. But such uses are insufficient to account for widespread and persistent consumption.

It is as a combination of stimulant, narcotic, and beverage that whiskey finds its widest market. To list the reasons why people drink is to recite a catalogue of the ailments, frailties, and aspirations to which mortals are subject. To forget the troubles of this world, to ease the strain of existence, to escape from reality, to obtain consolation, to induce sleep, to remove inhibitions—to these ends people drink moderately and temperately. To attain complete oblivion or stupefaction, large quantities and strong potions are used.¹ One must distinguish the various shades—the quenching of thirst, the derivation of a slight glow, the desire for partial escape, and the quest for complete forgetfulness. Poets have forged immortal verses in praise of their favorite beverages; psychiatrists have justified their use as an escape from arduous endeavor; and a distinguished historian of English society has contrasted the rival consolations of religion and the public house. How much one drinks and what one drinks depend upon one's goal and the speed with which he would achieve it.

Drinking is also a social institution. How many hosts there are in this world—and guests—who have bravely downed cocktails to ease the incidence of social formalities it is impossible to say. During prohibition the interest in drinking became inextricably mixed with the desire to do

¹ Longshoremen along the eastern seaboard buy denatured alcohol—"smoke"—or canned heat, and after a very crude rectifying process drink it. Complete oblivion follows shortly.

WHISKEY

the smart thing, and the dualism prevails to this day. Again, during prohibition, to a certain group, it was not drink, but "the right to drink" which was important; and it is a curious paradox of rationalization that persons who then stubbornly stood on their personal liberty now vigilantly police the guest's glass against any possible lapse in devotion to the faith. A vague anxiety to keep up with the fashion may shade off into more compelling demands and finally become established as a stubborn habit.

It is an anomaly that a passion for moderation in this country is accompanied by a national preference for strong drink. Wine is regarded as something of a connoisseur's beverage and has never made much headway, though the wine industry in California has hopes for the future. Beer has always been popular and shows a high per capita consumption.¹ But a wide variety in alcoholic content prevents gallonage figures for whiskey, wine, and beer from being comparable.² An informal canvass, moreover, indicates that Americans drink primarily for effect and that delicacy of flavor is secondary. So long as this remains true, the demand for whiskey will have a preferred place among alcoholic beverages. A notable increase in the consumption of rival drinks must fight its way against a strongly entrenched habit and an ancient American tradition.

Nonetheless, it is impossible to predict the future of the legal whiskey industry. It is the social attitude toward drinking which furnishes the unknown in the equation. The unlimited consumption of whiskey is widely regarded as an evil both to the individual and to society. In recent years the advent of the automobile and the increasing mechanical character of everyday activity have made the community increasingly sensitive to the results of intemperance. In former days a drunkard would degrade

¹ The 1935 per capita gallonage consumption of beer, wine, and liquor for a few sample states follows:

State	Beer	Wine	Liquor
California.....	11.2	3.63	.91
Florida.....	5.5	.31	.58
Idaho.....	9.4	.11	.64
Massachusetts.....	11.5	.25	1.00
Michigan.....	20.0	.04	.58
New York.....	17.7	.59	.90
Pennsylvania.....	16.5	.08	.87
South Carolina.....	1.4	.17	.51
Illinois.....	15.9	.19	1.06
Washington.....	13.8	.75	.88

Report of the Committee on Statistical Data, National Conference of State Liquor Administrators, July 1, 1936.

² Beer is about 4-5 per cent alcohol; light wines are 12-14 per cent as against 17-24 per cent for the fortified wines; and whiskey is 40-50 per cent alcohol.

PRICE AND PRICE POLICIES

himself, beat his wife, neglect his family. His conduct was capricious, but the zone of his active influence was limited. A drunkard at the wheel of an automobile is regarded as a public menace. Moreover, the connection of the "liquor interests" with all forms of sin and evil—popularized by the prohibitionists—has not been entirely dispelled. Campaigns against whiskey are commonly joined to crusades against gambling, white slavery, and corrupt politics. Thus the problem of whiskey is debated in an atmosphere of high moral values, righteous indignation, bombast, and irrelevancy; and economic judgments must make their compromise with the prevailing social and religious notions of the community.

Because of these peculiar attitudes toward its product, the operations of the whiskey industry are subject to a pervading control. The federal government, through the issuance of permits, determines who shall enter the industry as distiller, rectifier, or importer; and in respect to each can halt activities through the suspension or revocation of his permit. Through its definitions of various types of whiskey, it sets standards and gives its approval to labels before they can be used. It regulates industrial behavior in the prohibition of "unfair competition and unlawful practices." It forbids exclusive retail outlets; imposes a ban upon "tied houses"; prohibits misleading and dishonest advertising; and outlaws commercial bribery.¹

The states also engage in extensive regulation. An area in a state or an entire state may by popular election go dry. At present five states—Kansas, Oklahoma, Tennessee, Mississippi, and Georgia—still decree abstinence in respect to hard liquors; and a number of towns, townships, or counties in North Carolina, Texas, New York, Ohio, and Massachusetts remain true to the pledge. A mid-point between the "dry" and "wet" extremes is the state monopoly. In sixteen states there are administrative commissions which purchase and sell through state stores.² Some of these states permit sales only through stores; others allow sales of individual drinks in hotels, restaurants, and cocktail bars. The remaining twenty-seven states and the District of Columbia permit "free enterprise," but it is a free enterprise heavily constricted by regulation. Members of the industry—distillers, rectifiers, wholesalers, retailers, and restaurants—must be licensed before they can engage in business. The number of retail outlets owned by one operator is limited; and hours of operation are usually fixed by law. Purchases may be circumscribed by minute regulations relating to the state of sobriety of the purchaser; maximum amounts per purchase may be fixed; and sales to minors are usually prohibited

¹ See the Federal Alcohol Administration Act, approved August 29, 1935, and the Regulations of the Administration.

² Alabama, Idaho, Iowa, Maine, Michigan, Montana, New Hampshire, North Carolina (county stores), Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia, Washington, West Virginia, and Wyoming (wholesale stores).

WHISKEY

outright. Some states ban advertisements of intoxicating beverages; others carefully censor copy for false statement of fact or a too ardent appeal. Also smaller political units take their fling at regulation. Counties and cities may license the purveyors of beer, wines, and "hard liquors" within their domains; they can determine the hours of opening and closing for business; they can limit the number of stores and the areas where they may be established. All this regulation rests upon the police power; all of it rests for legal sanction upon the protection of public morals.

Added to this superstructure of control by political units is a system of "self-government." The new whiskey industry has determined to attain respectability. Prohibition was the result of particular abuses; it is, therefore, good business to see to it that such evils do not return. A strong stand is taken against the "tied house"; in days of old the distiller might stake the saloonkeeper, impose upon him a quota, and force him to maintain sales to stay in business. It is also agreed within the trade that the saloon is not to be reestablished—although the cocktail lounge seems to be only a refined and disguised saloon. There are no swinging doors; there is no ladies' entrance; but there is still a bar and altitudinal drinking. The industry has shown an admirable disposition to cooperate with the regulatory authorities; and has kept its good humor despite a baffling hierarchy of controls which are often downright contradictory in character.¹ The trade association for manufacturers—the Distilled Spirits Institute, Inc.—has been active in keeping the industry informed of the constant changes in the requirements of the law. It has also attempted to anticipate federal or state legislation by removing the sources of complaint before action.²

In all this temperance is the keynote. And temperance is a positive objective of the activities of the industry. Among the public uses to which many states put license fees and liquor taxes is the support of schools; and

¹ For example, states have decreed that excise labels be pasted over the cork of the bottle, a regulation also set by the federal government. A multitude of conferences and an infinite amount of time is spent by the industry in ironing out such conflicts of jurisdiction.

² It has become customary for distillers to submit their advertising copy to the institute before printing. A "suggested creed" presented by a representative of National Distillers at the National Conference of State Liquor Administrators, July, 1936, is indicative of the attitude of the institute. The attitude suggests the ardent prohibitionist rather than the vendor of small drink. The first two read:

"1. We believe there should be no illustrations of women in liquor advertising; no copy appealing especially to women buyers, nor any reference to women, as substantial purchasers or consumers of alcoholic beverages.

"2. We believe that there should be no illustrations of children, nor youthful persons, nor any copy carrying any sort of appeal, expressed or implied, to youthful drinkers."

The next four express disapproval of liquor advertising in college periodicals; Sunday newspapers—even though they may be "distributed or circulated on week-days"; religious publications—even though "solicited"; and "over the radio" which "carries its message directly into the home of the conscientious abstainer."

PRICE AND PRICE POLICIES

an aspect of education is acquainting children with the deleterious effects of alcohol upon the human organism and upon society. Some states use such a toll upon liquor sales to subsidize radio broadcasts which preach the benefits of moderation or of abstinence. The representatives of the industry are always careful to differentiate between excessive and moderate drinking; though ordinarily volume means greater profits, in whiskey it may mean prohibition. There are always social reformers at hand to point out evils; and a moral crusade is always imminent. Statistics correlating drinking with motor accidents are given wide circulation; and the effect of alcohol upon the nervous system seems to have an abiding appeal for teetotalers. The incidence of this fanfare is forever to keep the conduct of the industry a vital question of public interest.

The result is a public opinion highly susceptible to experiments in control. This sentiment has been capitalized by regulating agencies into a source of revenue for the government—national, state, and local. It was not entirely an accident that repeal coincided with the depression. Added to the widespread belief that prohibition failed to prohibit and fostered an underground and unregulatable industry was the hope that a licit liquor industry could do its bit in the fight for national recovery. In large part this expectation had its base in the heavy revenues collected from the industry before prohibition. Thus, if repeal was desired by the law-abiding who preferred legal to bootleg whiskey, it came as a boon to public officials struggling with budgets. Hungry public treasuries looked to the reborn industry with almost insatiable appetites. Those who wanted high yields of revenue found ready allies in those who believed the consumption of alcohol should be discouraged by a policy of high prices. The federal Treasury raised the excise tax from \$1.10 to \$2.00 per gallon; and the states—which before prohibition had been content with license fees—undertook to impose state gallonage taxes or to enter the business of liquor retailing.

The result is a price structure shot through with a galaxy of taxes intended to fill the public purse. The consumer of whiskey does not merely purchase a commodity; he supports the public schools, contributes to the old-age or unemployment insurance fund of his state, gives diligently to undertakings for the public welfare, and subsidizes propaganda for temperance.

THE PRICE STRUCTURE

The current whiskey industry has alike a tradition and a novel organization. Up to 1918 it was an ancient and honorable—if somewhat disreputable—institution. In the period 1910–1915, which is regarded as typical of the preprohibition years, approximately 100,000,000 gallons of

WHISKEY

distilled liquors were produced annually, of which about 85 per cent was whiskey. In addition there was an average production of 75,000,000 gallons of alcohol, about 60 or 70 per cent of which was used for whiskey blends and other liquors. With prohibition the legal production of distilled spirits fell to around 2,000,000 gallons a year. Its great market destroyed, the lawful industry collapsed; and the task of satisfying an illicit demand was taken over by the smuggler, the bootlegger, and the home brewer.

The return of repeal could not bring back the old business arrangements. They had lain dormant too long; they were no longer the everyday habits of a going industry; the lines of industrial practice had long been obliterated. Nevertheless the pallid ghost of the old order did not leave the new industry untouched. In tangible ways it gave evidence of itself—an ancient technology was carried over; a small supply of aged stocks gave an impetus to the new business; plants were waiting to be opened; skills in processing and blending were available for use; yeast cultures, tenderly nurtured during the drought, were at hand for their task of fermentation. Less tangible but quite as real was the bitter example which the older industry had set—the pitfalls which had spelled disaster and the blunders which had brought about perdition. The chastened whiskey industry came to life with its lessons well learned.

It also came back with a stupendous vitality. For the fiscal year ending June 30, 1934—six months of repeal—76,500,000 gallons of whiskey were produced; for 1935 the volume had swollen to 170,000,000, and by 1936 to 245,500,000 gallons.¹ Approximately 90 per cent of the production came from five states—Kentucky, Illinois, Indiana, Pennsylvania, and Maryland.² The cause for this concentration seems to lie in part in proximity to raw materials and in part to tradition. The grain used in largest quantity is corn; and the great area of production is Illinois, Iowa, Ohio, and Indiana. Rye—the next largest—and the lesser grains also have their

¹ Annual Reports of the Commissioner of Internal Revenue, and Report of Federal Alcohol Administration, July, 1937.

² The production by kinds of whiskey for these major producing states in 1936 follows:

State	Corn and bourbon	Rye	Other	Total
Kentucky.....	87,663,797	1,514,869	57,544	89,236,210
Illinois.....	36,548,361	11,088,559	10,124	47,647,044
Indiana.....	43,124,072	2,554,606	85,177	45,763,855
Pennsylvania.....	13,754,655	14,593,332	136,438	28,484,425
Maryland.....	901,629	16,981,405	95,801	17,978,835
Total.....	181,992,514	46,732,771	305,084	229,110,369

Report of Federal Alcohol Administration, July, 1937.

PRICE AND PRICE POLICIES

center of production in the Middle West.¹ Of equal significance is the preprohibition location of the industry. Kentucky has long been famous for its bourbon; Pennsylvania and Maryland have been regarded as great producers of rye whiskey. The reopening of the old distilleries brought these states again into prominence; and an older distribution of production has been reestablished. The result has been attributed to the supply of skilled labor, to the compulsions of habit, to a desire to capitalize on the sentiment created for the products of these areas.²

The whole of the legal domestic supply comes from 112 companies operating about 120 distilleries. Five of these concerns—Schenley, National Distillers, Seagram, Hiram Walker, and Frankfort—account for about 40 per cent; and, with four other smaller companies, 60 per cent. These figures, however, represent domestic production of whiskey, not the volume which is brought to market. An aging process intervenes between distillation and market appearance, a zone which invites wide variation in practice among companies. A number of producers—notably National Distillers and Schenley—have stored large quantities to age. Others—Continental is a fair example—have placed the bulk of their production on the market. And a firm such as Seagram does a large business in a blend of alcohol and aged Canadian whiskey, which does not appear in production statistics.³

From the very inception of repeal the large companies have had the competitive edge on the independents. Their control of aged stocks gave them an early advantage. In the early years of prohibition, when there was no expectancy of repeal, the small distillers of whiskey for medicinal and industrial uses exchanged their warehouse receipts for ready cash; the aging of whiskey meant a tying up of capital which they could ill afford. A speculative interest led to the gradual concentration of stocks in a few hands. The supply was not large—in early 1933 only about 15,000,000 gallons. But the sudden imminence of repeal sent distillers rushing to their stills; and by the end of the year 30,000,000 gallons were secure in bonded warehouses. The bulk of it was in the hands of two companies—

¹ For the fiscal year ending June 30, 1936, about 30,000,000 bushels of corn and 13,000,000 bushels of rye were used in the manufacture of distilled spirits. Malt, wheat, barley, rice, and oats made up the remainder to total 48,000,000 bushels of grain.

² A further explanation voiced by distillers is the prevalence of a peculiar limestone water in these states which improves the whiskey. This theory has been challenged both in and outside the industry; and dissenters point to the supplies of the identical water in neighboring states. But even as folklore—apart from any matter of fact—it may partly explain the peculiar concentration of the industry.

³ A compilation of the consumption figures of two monopoly states, Ohio and Pennsylvania, for February, 1937, yielded suggestive results. In both the five companies listed above controlled between 50 per cent and 60 per cent of the market sales. In Pennsylvania another five companies controlled 25 per cent; in Ohio three companies represented the next 25 per cent. The remaining business was in the hands of a number of small companies.

WHISKEY

National Distillers had half the total supply, Schenley a quarter, and the remainder was in small holdings. The Canadian companies, Seagram and Hiram Walker, were also at the time well supplied with whiskey from across the border. As a result such firms fortified by aged stocks were able to capture markets before their rivals could get set for battle.

The financial resources of the leading firms also helped to shape the competitive struggle. In the older industry distilling was a business apart. Producers could not afford the capital requisite to storing; and it was their practice to barrel their whiskey, to store, and to sell the warehouse receipts. About the technique of aging, a subsidiary industry grew up which offered profits to skill and experience—and created a temptation to gambling in warehouse receipts. From the warehouses the whiskey reached the rectifier, who blended, bottled, and sold to the thriving wholesale trade which brought the goods to market. In the new industry this separation of functions grew less distinct. The large companies absorbed small plants, maintained possession of stock aging in warehouses, took over the offices of rectifying and bottling, and entered the field of wholesaling. Not one of the five largest firms any longer sells whiskey in the barrel. Although product, technology, and marketing process are essentially the same, the old industry and the new find expression in distinct patterns of organization.

In the current trend toward integration outward from production, the large distillers have exhibited a preference for an elaborate corporate structure. While in the twenties the industry was doing penance for past misdeeds, the arts of corporate finance were elsewhere being adroitly applied, and from the treasure house of devices a renewed liquor industry could borrow. The Schenley Products Corporation operates its five distilling plants through a dozen lessee subsidiaries, some of whom also rectify and engage in wholesale operations. Affiliates concerned solely with marketing Schenley products do business throughout the United States or in restricted territories; the Schenley International Corporation sells distilled spirits for export. The activities of the parent corporation are carried on in the names of about forty companies. For National Products Corporation a similar complexity exists; its eight distilling plants are leased to twenty subsidiaries—for such is a minor possibility of multiple personality. Some of the filial companies have permits to rectify and to market. A cooperage subsidiary engages in the making of barrels. Hiram Walker and Seagram are affiliated with Canadian companies which have international ramifications; for them the tangles of corporate structure and the possibilities of corporate personality are even greater. The main lines of this corporate control—to say nothing of its maze of byways—is as difficult to trace as the intricate structure of a public-utility holding company. A number of balance sheets contain substantial items for good

PRICE AND PRICE POLICIES

will; startling salaries are paid to some officials; and the intricate devices of a purposive system of accounts are employed as befits an industry which must be respectable at all costs.

Among the smaller distilleries a different pattern stands out. In their organization they tend to resemble the old whiskey industry. A part of their whiskey is bottled and sold to wholesalers; a part is sold in bulk as warehouse receipts. Their product passes on to some 300 or more rectifiers who blend and bottle. Among individual distillers there is a variety in practice. At one extreme stands the large producer, who ages, blends, and bottles all but a mere fraction of his output; at the other the small distiller, who sells the bulk of his product as soon as it is barreled. In general the markets of the independents are local, their brands are little advertised, and their status in the industry is insecure.

How long the independents can survive is a disputed question. A new industry is inviting to business pioneers; and with repeal a host of adventurers went into distilling and rectifying. As competition decrees its order and the industry settles down, many will be absorbed by the large companies or go to the wall. Only the shrewdest of managements can survive the trends which make for concentration. The off-to-a-good-start, the large size, the financial resources of the large company give it a staying power in the race. A miscellany of products affords to them protection against the shocks of the market, and the astute development of brands with a national market makes for quantity sales, reduced costs, and lower prices. An industrial structure of major companies with independents as hangers-on has become typical of oil, tires, and automobiles; the small whiskey distiller or rectifier may presently find himself in such a minor role. More and more he will operate in the interstices of the industry, possess a precarious foothold, and have to fight desperately to hold his ground in the shift of economic change.

A current overaccumulation of stocks makes the status of the independent the more hazardous. In April, 1937, there were in bonded warehouses more than 400,000,000 gallons of whiskey, an all high in the annals of the industry, old or new.¹ It has been facetiously suggested that if consumption is to be kept in hailing distance of production, the country must be converted into a nation of drunkards. It is no secret that the situation is seriously disturbing to the industry. Some distillers attempt to drown alarm in the thought that high production is warranted as a step toward aged stocks; but such a reason overlooks the huge excess in the output. As a way out in 1936 a desperate attempt was made to impose a voluntary restriction upon production. The alternative seemed a collapse in the price structure, and, even more serious, the emergence of tricks of

¹ Report of Federal Alcohol Administration, July, 1937.

WHISKEY

the trade injurious to the status of the industry in the eyes of the public. For the large companies the problem was serious enough; for the small ones it was a predicament. A break in prices and a prolonged chaos would drive many out of business; their financial resources would not be equal to the strain of a price war.

The threat of price demoralization from overproduction may possibly be averted. The stocks are closely held by the large companies; dumping is likely to occur only if the corporations, now financially strong, become hard pressed for cash. Even if prices are maintained, a policy of restriction will have an adverse effect upon independents. A lessening of volume will immediately increase their costs and thus strike at their tenuous ability to compete with the larger companies. In consequence, as the industry settles down to an orderly production, it is likely that the number of small distillers will be decreased. This may come about quietly through a private agreement to restrict activities, or it may occur spectacularly through open price wars. The uncertainty gives intensity and bitterness to a competitive struggle which finds fullest expression in the field of marketing.

The Battle of Brands. The struggle for markets is carried on through the vigorous pushing of rival brands. In comparison with other commodities which are likewise marketed through heavy advertising, the number of whiskey names is enormous. It is roughly estimated that there are 30,000 brands selling over the United States.¹ Of these about 3,000 sell in a national market; the remainder cater to small areas of consumption. Here again the whiskey industry reveals its relative immaturity. The revival of legal drinking brought in the wake of heavy production a multitude of brands; and the market structure is now so complex as utterly to confuse the public.

A single company may account for as many as 50 or 100 different brands of whiskey.² The corporate structure, with its many subsidiaries,

¹ The FAA must pass on brand labels before use. Up to 1937, about 100,000 whiskey labels had received their approval. However, this does not mean that each label represents a different brand. Every change in proof or type, and until recently age, of whiskey is represented by a change in label; consequently one brand over a period of time may account for several dozens of labels.

² Among the whiskey brands of National Distillers are Town Tavern, Old Farm, Crab Orchard, Windsor, Old Prentice, A. M. S. Corn, Old Overholt, Mt. Vernon, Old Grand Dad, Old Taylor, Old Crow, Bond & Lillard, Old McBrayer, Chicken Cock, Brigadier, Belle Nelson, Old Log Cabin, Hermitage, Rewco, Penn-Maryland Regal, Hill & Hill, Sunnybrook, Old Farm Rye, Black Gold, I. W. Harper, Willow Springs, Spring Garden, Large 10-Year, Commonwealth, Shenandoah, Kentucky Tavern, Penn-Maryland Imperial, Penn-Maryland De Luxe, Tip Top.

Schenley offers among others Old Quaker, Cream of Kentucky, Ancient Age, Wilken Family, Golden Wedding, Old Schenley Extra, Schenley's Spur, Mayflower, Schenley's Cream Red Label, Chimney Corner, Gibson's Club, Gibson's Rye, Cotton Picker, Sam Thompson, James E. Pepper, Buckeye, Campfire, American Cream Blue, American Cream White, Schenley Blue Label, Walnut Hill, Echo Springs, Old Schenley Supreme.

PRICE AND PRICE POLICIES

makes for a multiplication of names. If a distillery has acquired fame for a particular brand, the item of good will for the name at the time the plant is sold holds a high place among assets; and the new owner is likely to perpetuate its use to cash in on the public preference which it represents. Or a brand famed in the days before prohibition may continue to be called for; and a company hurries to acquire the name in order to capitalize on its popularity. But such brands as are resurrected have little or no relation—in terms of taste and quality—to their earlier namesakes. Another common practice has been the sheer concoction of attractive brand names. Frequently these begin with the word "old"—Old American, Old Grand Dad, Old Mr. Boston, Old Coach, Old Rip Van Winkle, Old Charter—to give the impression of mellow age through the contagion of sound. Or a name may be selected for its picturesque quality—Paul Jones, Patrick Henry, Jack of Clubs, Windsor, American Chief; and something in the subconscious is expected to effect a favorable reaction. In general the newer names have a higher mortality than the old. A product which has been a failure may be allowed to go under with the exhaustion of the first supply and its name is heard no more. Or the same whiskey may appear bedecked in a new attire to attempt again to win a place in the market. In some cases a product is pushed under a variety of different brand names; and the one which is most appealing is allowed to carry the banner.

The large company offers a variety of whiskeys at many prices. In the lowest category are the brands which retail for 65, 75, or 78 cents a pint; in the upper registers are the finer whiskeys, which market at \$2.94, \$3.04, \$3.87, and \$3.92 for a fifth. In between are a dozen or more brands selling in a range of more than \$1 and less than \$3. Such diversity allows the company to meet the several demands which make up the market at the prices which call them forth. And it affords—in conjunction with rum, gin, and other spirits—a measure of security by spreading the risks among several products. As yet sharply differentiated price lines, found in the marketing of women's dresses, books, and gasoline, have not developed, though the trend seems to be that way.

In the battle of brands the major companies compete strenuously with each other. Newspaper advertising is widely employed and as a source of revenue builds up editorial good will. An intercompany competition is focused upon the privilege of store window display; and rival firms pay heavily to bring their products in the way of the casual gaze of the prospective buyer. The incidence of price upon sales is watched carefully. A company presents a new brand at a low price, to a fanfare of advertising, and the challenge is met by its competitor by the announcement of a drop in price on an established line. The large producers persist in an attempt to build up an insensitivity to price, while buyers are only partially

WHISKEY

persuaded or remain adamant. And the multiplicity of wares makes an escape from competition on the basis of price impossible.

An effect of the multiple-brand structure is to create an intracompany competition. A company which offers half a dozen bourbon blends aims at incomes high and low, and touches off a rivalry among its own wares. The branch which handles the low-price brand tries to make the public price-conscious, while the branch which promotes rare old whiskeys endeavors to efface it. Although quality is set against cheapness, most products are handled on a small margin and volume is essential to profits. The anxiety of the sales department to show results also pits types of whiskey against each other. The distinction in respect to rye or bourbon, straight and blend is for the ordinary drinker an extremely hazy line. In an interim that places his experience in the future, his preference among whiskeys is likely to turn upon favorite brand and price. In consequence, a 95-cent straight bourbon must face not only all the other straight bourbons, but straight rye, straight corn, and an assortment of blends. Thus the company selling a number of brands is an integrated industrial organization and an aggregate of marketing parts in vital conflict with each other.

Another source of competition is the private brands of the independents. The names of whiskeys come into being at any point in the distributive process. A distiller may bottle a part or all of his product and market it under his own brand. Or the rectifier may bottle, or mix with newer whiskey, or blend with alcohol, and attach an alluring name of his own to the beverage. Or the wholesaler—or the retailer, for that matter—may, under his own brand name and within a limited area, build up a demand for a specific product. Even among hotels and restaurants there are coined distinctive brand names. The result is a grand total of something over 25,000 private brands which enter the lists against nationally advertised products.

Even to the crudest palate some of these whiskeys show sharp differences in taste. Others possess differences not easily detected in flavor; still others are given distinction only by their brand labels. A rectifier who merely bottles a whiskey also bottled by the distiller makes the primary division; a jobber, wholesaler, or retailer may push further the act of differentiation, and the same liquor comes upon the market disguised as three or more separate products. And, varied in name alone, they may sell at three or more different prices. In general a private brand tends to sell at a price slightly under that of the nationally known article—as a compensation for the good will built up by advertising—but the practice is not invariable. Some local brands are within definite areas heavily advertised and on the same price base compete effectively with the highly touted offerings of the large companies. Or a dealer, wholesale or retail,

PRICE AND PRICE POLICIES

so astutely builds up a reputation for quality products that his prices may be even higher than those of popular brands.

A last complication is given to competition by the imported brands. Canadian whiskeys—rye and bourbon—are processed for the American market and are sold through subsidiaries of the Canadian companies. For the well-known brands the price range is between \$1.00 and \$2.50 a pint; thus the impact of Canadian competition is felt largely in the field of medium-priced American products. The popular imported Scotches, which comprehend less than 5 per cent of the total consumption, retail for \$3 or more a fifth and satisfy a luxury demand. Sales, however, are important enough to make domestic producers solicitous to secure exclusive franchises for the American market. The large companies see in these agencies an easy source of revenue and another opportunity to spread the risks of doing business. The concern which, under contract, has a monopoly hold on the products of a European distiller takes a pecuniary toll on all the imports of the company's brands which enter the country. However, a lusty competition characterizes the sale of imported brands by these American agencies.

The imported product commands a luxury price. Except for small supplies of rare old stocks, the immaturity of American brands has kept them out of the high-price range. The foreign whiskeys, in the period following prohibition, have fulfilled a necessary function in the market; they have allowed those American consumers, who can disregard high price, to indulge their preference for a well-aged product. Another factor in their sale has been the cultivation of a taste for imported Scotches; their consumption received a strong impetus during prohibition, and some buyers now prefer the flavor over the best American brands. It is too early in the history of an old industry off to a fresh start to estimate how enduring will be the demand for foreign whiskeys. It may be that taste, plus a widespread notion that imported beverages excel domestic production, will give these whiskeys a permanent place; or the American industry, as its product matures, may learn to exploit a luxury market now beyond its reach.

Market Practice. In whiskey, market practice is a confused intermingling of elements new and old. In the dozen or more states with distribution monopolies there is no place for the independent wholesaler and retailer. The state agency purchases in large quantities directly from the manufacturers; and its volume entitles it to heavy discounts and all the courtesies attendant on fat contracts. The goods are then distributed through stores owned and operated by the state. In these areas the cost of doing business has become a sales irrelevance; price is an expression of public policy in respect to drink.

In the conduct of the monopolies the commonwealths go their separate ways. There is unity in respect neither to goal nor to policy. Some states

WHISKEY

seek high prices to discourage consumption and to gather revenue, in spite of an inconsistency between these ends. A price high enough to discourage consumption cannot be depended upon as a tax gatherer. Others lower prices to help the consumer, to discourage bootlegging, and to take a toll upon what otherwise might be illegal liquor. The ordinary markup on whiskey is about 50 per cent on the basis of invoice price, though a wide variation reflects diverse objectives of policy. There is variation also among the states in the character, the number, the accessibility, and the hours of the stores;¹ in the type of agency in control; and in the attitudes taken toward distillers. Not only does variety attend geography, but policies are changed as ideas prove unworkable or one political regime follows another.

In behalf of the state stores it is argued that they encourage temperance; clerks are generally instructed not to promote sales. It is also claimed that the business is conducted in a more respectable manner. More persistent, though less admitted, is the fact that the operation of the liquor business offers a rich source of revenue with little protest from the sufferers. Whatever may be the private opinion of the liquor industry toward the "interference of government with business," it must at the risk of a worse fate submit to the inevitable. Thus the states have capitalized a public sentiment against the abuses of alcohol into a stream of revenue. Against state control are levied the usual charges—corruption, inefficiency, favoritism—which greet every intrusion of the government. In one state complaint is made against limited stocks and early closing hours, as an encouragement to bootleggers and a discouragement to tourists. In another authorities are criticized for purchasing—presumably at bargain rates—little-known liquors, which consumers refuse to buy. In an effort to move such stock, the state has reverted to barter with distillers and has made an acceptance of unpopular stocks in part payment a condition of the purchase of well-known brands. In a third state it is alleged that a prodigal use of consignment sales transfers all risk to the distillers, that the size of the purchase enables the public authority to dictate the terms of sale and strips the producer of his bargaining power. But, whatever the merits of the scheme or the argument about its operation, the liquor market takes on added complexity from the state monopoly and the varied practices which attend it.

In contrast with state monopoly stands the system of "free enterprise" of the "wet" states. The industry itself markets its liquor, but under a hierarchy of public restrictions. Here, likewise, the trend toward integra-

¹ The entry of many states into the liquor business came shortly after the banking collapse, and in Michigan and Iowa buildings formerly used for banks were converted into state liquor stores. In Ohio it was announced in advance that "before opening for business, state liquor stores will take on an exclusive atmosphere like the Federal Reserve Bank." *Cleveland Press*, March 29, 1934.

PRICE AND PRICE POLICIES

tion leaves its impact upon the industry. The wholesaler, although nominally independent, may be in effect a subsidiary of the distiller, who dictates prices, shapes policy, and has the power to revoke a franchise to pass along well-known brands. Under the "fair trade acts" of many states this practice has the further sanction of law; but even in those states where they have not been enacted, resale price maintenance on national brands is the rule.

The number of wholesalers runs to a total of 3,500 or 4,000. Their excessive number—an incentive to price wars, particularly in urban centers—is due in large part to the coincidence of repeal and depression. To thousands of people who were unemployed or who had dull and underpaid jobs, the new liquor business seemed to promise pecuniary salvation. And they flooded the wholesale field, where little capital was required. Many of the newcomers had no experience in marketing whiskey and were uninformed about their wares. Since their income took the form of commissions, there was, in the insistent pressure to make sales, a wide resort to subterranean or even direct price cutting. Hidden discounts, "kick-backs," a throw-in of an extra case with a purchase of ten cases, advertising allowances have been practiced, though they are a violation of the regulations of the Federal Alcohol Administration; and they have served as a prelude to open price wars, which have raged for a few weeks and then subsided. As recompense for the performance of his functions the wholesaler takes a markup of 15 to 20 per cent.

The place of the wholesaler in the impending organization of the industry is uncertain. To the small distiller and rectifier the wholesaler is a necessity; the man-in-business-on-his-own has neither the personal nor the financial resources necessary to enter the field of marketing. For the small retailer, who buys a miscellany of wares in small lots he also performs a service. In general, along the lines of petty trade, the wholesaler supplies a personal contact, a fund of trade gossip, and a flow of suggestions of value alike to distiller and retailer. However, as integration advances, as the number of brands declines and small units are pushed to the wall, the structure of the wholesale trade is certain to respond. And it is hard for many in and outside the industry to believe that the wholesale markup is an essential element in the retail price of all whiskeys. The elimination of wholesalers who handle well-known brands would lead to little loss of efficiency and make possible lower prices. And the simplification of the marketing structure would probably ease the way for a stricter enforcement of the liquor laws. No deliberate campaign is necessary; the whiskey industry is not insulated against the trends which elsewhere are reducing the number of wholesalers.

It is the structure of the retail market which has delayed the change. A rough estimate places the number of retail outlets at some 225,000.

WHISKEY

Although there is no restriction upon the number which may be operated by a single person, the bar or restaurant which caters to "on-premise" drinking usually belongs to a single concern. For the sale in package the number of stores which may be operated by a single person is subject to public regulation. In several states, a person, natural or artificial, may operate only one store; the enactment is ostensibly in the cause of respectability. Its economic incidence has been to impress the structure of petty business upon the retailing of whiskey. As with wholesaling, the market is crowded with small operators who turned to the sale of whiskey as a means of livelihood during the depression. It is this host of small adventurers who provide an outlet to the overcrowded wholesale trade.

The effect has been to impose upon the whiskey industry a wasteful scheme of marketing. To the wholesaler's toll is added a retail markup which varies from $33\frac{1}{3}$ to 40 per cent on the invoice cost. The popular brands which must be carried to cater to consumer demand usually move along a smaller margin; the private brands, less sure of acceptance and more risky, usually demand a higher charge for handling. As in gasoline, the overbuilt retail structure "dilutes" the gallonage among many retailers; many of their costs—rent, labor, maintenance—are fixed; and a low volume makes for high unit expense. The ordinary retailer could carry several times his normal business with little increase in the cost of operation.

This dilution of business creates perils for the retail price structure. In many cases the impetus for price cutting comes from the wholesaler; his push for business has led to price concessions which the retailer has sometimes withheld and sometimes passed on to the public. In some local markets a cohesive organization among dealers enables them to keep the price structure fairly stable; elsewhere, particularly in large cities, the community of interest has been lacking and the price collapse has been carried through to the consumer. Another impetus has come from the retailers themselves. To increase their sales some have instituted special or week-end sales; and have made a point of advertising cut prices on popular brands. The flocking of consumers to these outlets in quest of bargains has forced other retailers to cut prices in retaliation.¹ The picture is further confused by on-premise drinking in restaurants and hotels, though here the competition is very indirect. The sale of whiskey by the drink offers an incentive to bootlegging. Cheaper—or even illicit—liquor is used to refill the legal bottles from which drinks have already been poured. It is argued that since the consumer is none the wiser the sub-

¹ It has frequently been claimed by the purveyors of nationally advertised brands that their products are used as loss leaders. Consumers, enticed into the store through price cutting on these brands, are persuaded to buy private brands as special bargains. The prices of these may have been marked up rather than down.

PRICE AND PRICE POLICIES

stitution is of no importance; but, the interests of the consumer aside, such lower prices may divert sales from package stores and lessen the business of the retailer.

To safeguard their prices, the larger companies have employed a variety of protective measures. One tactic, regarded as fundamental to industrial order, is a curb upon production; this is already in effect. However, few distillers can persuade themselves that, in view of a stupendous overaccumulation of stocks, this can be enough. So disciplinary devices have been contrived. Relations have been severed with wholesalers who yield to price-cutting temptations; and price abiders have been prevailed upon to refuse to deal with retailers who indulge in the practice. A failure to comply with the rules means the loss of a franchise to the wholesaler and a loss of the line to his retailers. Until the Miller-Tydings bill was passed, the state fair trade acts enabled the price-fixing manufacturer to implement conformity with the law. The large companies, by a legal sleight of hand, could bring their goods to "rest" within a state by shipping to a subsidiary, and the interstate shipments were then made subject to the state law. With the passage of the federal act permitting manufacturers to fix their resale prices, the large producers have been able to bring out in the open a practice which had long been given quiet indulgence.

But there is still a hitch—the prices of private brands are not controlled by the small producers. The dilemma is sharp and clear-cut. Can such a demand be built up for advertised brands that consumers will buy irrespective of price differentials? Or will the private brands so cut into sales that price maintenance will have to be abandoned? Or will a compromise be effected whereby prices on national brands will be maintained and private brands will be stabilized on a lower level to compensate for the lack of advertising? An answer to these questions cannot be immediate. At the moment on one side is evident a gigantic campaign by which brand names are dinned into the ears of consumers; on the other is a vigorous pushing of private brands attuned to the appeal of price. The issue will not be untouched by the battle of the brands as it is waged elsewhere along the industrial front.

ATTITUDES AND TAXES

In the jargon of the whiskey industry there is an expression "naked costs." It indicates the cost of whiskey in barrels before the items of bottling, distribution, and taxes have been reckoned. In response to the question, "What is the cost of making a gallon of whiskey?" a variety of estimates is available, ranging from 25 cents to \$1.50. Dispatches in the trade publications shortly after repeal mentioned figures of 40, 43, 48 cents and ran as high as 75 cents. An incomplete survey by the Federal Alcohol Control Administration in the early months of its work yielded

WHISKEY

many figures which proved unsatisfactory as the basis for cost analysis. They were obtained when plants were just starting, and the inclusion and exclusion of items of expense were largely fortuitous. The round figure of 50 cents a gallon was typical of the results obtained. "Experts" in testimony and interviews have mentioned 40 and 50 cents for one-year-old whiskey. For five-year-old whiskey, the estimates run from a low of 65 cents to a high of \$1.50. There is certainly no agreement.

A governing factor in this variation is the shifting prices for grains. In 1935, for example, the average price of corn in the United States was 65 cents a bushel, in 1936 it was 99 cents. In the same period rye jumped from 39 to 80 cents. And the price of grain is the distiller's chief item of expense. Moreover, naked costs are rather elaborately clothed before the whiskey leaves the distiller. There are a myriad items of expense which represent variable outlays for him. Spoilage, leakage, evaporation, aging, and bottling must find pecuniary statement; overhead must be met; the outlays for advertising and distribution must be covered; and a reasonable profit must be added. Such expenses are not identical for all distributors; nor can the purposive use of cost accounting in their estimation be ignored. When all are added to naked cost, there emerges a well-dressed price to greet the wholesaler.

Who possesses the wisdom to pronounce judgment on what a "reasonable profit" is? Or whether it should be considered as an item of cost? As for selling expenses, there is no way in the world of telling what items are fair and necessary, and what are a mere pecuniary expression of out-moded method and distributive waste. Is the expenditure of millions a year on advertising a fair charge on the consumer? Must he pay a price high enough to cover large salaries for corporate officials, for lawyers, and for lobbyists? And the industry has distinctive problems which are a challenge to the accountant's art. For example, it stores a considerable part of its product against a future and unpredictable demand. How are such items to be carried as inventory? How are depreciation and obsolescence—especially in view of the attitude of the public—to be recovered? The life expectation of the industry, of a corporation, of a bit of equipment is not subject to a nice actuarial computation. Tolerance, demand, and process may change; in some moral storm of the future the whole industry may again be submerged beneath a tide of prohibition. Beyond the area of arithmetical computation there lies a vast field where the significant factors are the imponderable attitudes of members of the industry. Business policies are neither measurable nor predictable; yet they must have a place among the exactitudes of price. Some distillers religiously maintain price; to others the idea is abhorrent. Some preserve in pristine purity their distinctive products; others market the same whiskey under many names and prices. Some build to a quality and fix

PRICE AND PRICE POLICIES

the price; others fashion the beverage to meet the competitive price. Such factors move in many—even in contradictory—directions, yet all have their parts in the shaping of price.

The inconclusive answer to the riddle of cost and price tempts one to an examination of profits. Possibly the industry can best be judged by considering the consequences of price policy as shown in profit and loss statements. But here similar difficulties arise, for the profit of a company is the function of many decisions in the realm of cost accounting. Profits in an absolute sense mean very little, for reference must be made to capitalization or to assets. An instance indicates the kind of questions which persist. In other realms many corporations carry good will at \$1. In this industry Schenley follows the conservative practice; yet in 1934 National Distillers estimated the value of "brands, trademarks and good will" at around \$10,000,000 as against total assets of \$60,000,000. In 1935 this was written off even though total assets remained unchanged. Seagram, with total assets of \$40,000,000, carries an item of more than \$10,000,000 for "goodwill, trademarks, bottling and blending rights." If profits are to be taken in percentages, shall the corporation be allowed to set down good will at its discretion? And as for return, is the industry entitled to a higher rate because of a profitless past, a former state of nonlegal existence, or an uncertain future? About all that can be said with certainty is that the leading companies are making money—and that they have developed a high corporate standard of living. They are able to keep going, to advertise, to pay high salaries, to store in volume against a future demand, and, in the face of such payments and indulgences to have enough left for profits. The whiskey industry, for the moment at least, enjoys prosperity.

A less optimistic picture can be drawn of the distributive branches of the industry. Between the time the whiskey leaves the distiller's hands and is passed over the counter to the consumer, its price has been doubled. For the service of passing along, the cumulation of charges by wholesaler and retailer are high; yet the markups are reasonable if these units, each with its pittance of business, are to survive. A large part of the current price of whiskey is occasioned by a distributive organization which is clumsy, inefficient, and overdeveloped.

The Office of Whiskey. Another important factor in price is the use of whiskey by agencies of government as an instrument for the collection of revenue. A rough estimate has it that taxes represent 50 per cent of the price the consumer has to pay. At every turn the industry has a tax to meet; and these outlays, accumulating as they go, are passed down the line from distiller to distributor and so on into retail price. The most important federal impost is the \$2 excise paid on each 100-proof gallon of whiskey before it can be withdrawn from a warehouse. For the fiscal year ending with June, 1936, collections amounted to \$200,000,000. Although

WHISKEY

it accounts for the bulk of revenue, it is in terms of variety only the beginning of federal taxation. Other imposts are the import tax of \$2 a gallon on foreign distilled spirits, a rectification tax of 30 cents a gallon—applicable only when certain processing occurs in addition to distillation—bottle strip stamps, occupational stamps.

The excise tax is an outright payment which must be made before whiskey can be withdrawn from the warehouse. The distiller may secure credit on his expenditures for material and equipment, but the federal government demands cash. The high outlay in proportion to the value of the product inclines the manufacturer to demand quick payment from those to whom he sells. It is asserted that the tax is set down as a cost by the distiller and that it is comprehended within the percentage markup under which the goods are passed along. In detail the argument runs as follows. A distiller sets his cost down at \$1 a gallon and does business on a 20 per cent basis. So, with no tax to reckon, he would bill the wholesaler at \$1.20 a gallon. The tax is \$2 if the whiskey is 100 proof. His book cost now becomes \$3; and with the customary markup, the price to the wholesaler now becomes \$3.60. The complaint against pyramiding does not stop here. The item of \$2.40 in excess is by the wholesaler in his turn set down as a cost. On a customary markup of 15 per cent the excess which now moves in the wake of the tax becomes \$2.76. The 40 per cent markup of the retailer is then applied and the original tax has swollen to \$3.86. The government received \$2, and \$1.86 of velvet went from the consumer to functionaries of the industry along the way. So, as the argument runs, the high price of whiskey is to be attributed as much to the pyramiding of the tax as to the tax itself.

However, the process of pyramiding is not the simple arithmetic calculation it appears. The ultimate interest of the businessman is in solid amounts, not in percentages. His use of a percentage markup is a mere device of business. What he really wants is a sum of money to keep him going and return him profits. If a distiller were forbidden to include the tax within the basis for markup, he would simply raise the rate of his markup to cover; for the payment in taxes has tied up funds on the use of which he feels himself entitled to a return. Moreover, the markup cannot be blindly followed. Attention must be given to the volume of business; a lower markup on the higher volume frequently gives the higher total return. Nor, in a highly competitive situation, can the pure mathematics of tax and markup take its straight course against the compulsions of the market and the expediencies of the moment. But, for all that, a great deal can be made of the incidence of tax on price.

The prevailing tax structure is new. Before prohibition the states laid no excise tax on whiskey. In the early days of repeal it was suggested that the federal government impose a uniform gallonage tax and turn a

PRICE AND PRICE POLICIES

part of the revenue over to the states. But, among the commonwealths, the rugged individualism of the Twenty-first Amendment prevailed, and each of forty-eight political units set about to meet the problems of repeal in its own way. Among the states which passed up prohibition and state monopoly to leave the business in private hands, various types of taxation were adopted. These are characterized by a complexity and diversity almost impossible to imagine. All of them collect excise taxes. In Illinois, Nebraska, and South Dakota the tax is 50 cents a gallon; in Louisiana it is 60 cents; in Missouri and Florida, 80 cents; in New York and New Jersey, \$1. In some states the tax is based upon the size of the container or the alcoholic content of the whiskey. The license fee is also widely used. In 1937 Indiana was assessing the manufacturer \$2,000, the rectifier \$500, and the wholesalers \$2,000; local package dealers were divided into classes and paid fees ranging from \$50 to \$200. The fees of hotels and restaurants were also graduated according to size. In Pennsylvania distillers were licensed at sums varying from \$2,500 to \$25,000. Hotels and restaurants paid license taxes ranging from \$150 to \$600 a year; but package stores were operated by the state. In Kentucky the distiller was taxed \$1,000, the rectifier \$1,500, and the wholesaler \$700. In addition to all this the county or municipality in some states has been allowed to prescribe license fees on stores, warehouses, and salesmen operating in their areas. And still other types of taxation are used. Kentucky, the greatest producer of whiskey, assesses a production tax in addition to its excise of \$1.04 per wine gallon; Maryland exacts a similar tax but the amount is credited against the \$1.10 excise tax where the spirits are sold within the state. A few states have experimented with export taxes; in others exports go free but there is an "inspection fee" of 25 or 30 cents per package shipped. All these variable exactions are passed down the line; pyramiding again takes place; and the consumer pays the tax plus the tax markup. An impressive story could be set down if one could unravel the pecuniary consequences of all the local, state, and federal taxes.

The Trend toward State Economy. A curious development in this tax picture is the construction of tariff barriers around individual states. The liquor industry has lent itself admirably to the protection of local industry from outside competition. In this mercantile warfare all the alcoholic beverages have been involved; and all the beverages—beer, wine, liquors—have felt the impact of thrust, counterthrust, and repercussion. A few lines must suggest the involved picture. Arkansas has levied an import tax of 10 cents a gallon on all vinous liquor but exempts wines manufactured within the state. In Illinois no liquor can be imported except by a licensed distributor, who must pay a tax of \$250. Louisiana exempts orange or berry wine made from fruit grown in the

WHISKEY

state from its license requirements. Dealers operating no established business but selling from warehouse stock must pay a license fee of \$10,000 as against a \$1,000 fee for others. In Maine distillers and brewers using exclusively the agricultural products of the state of Maine pay a license fee of \$100; those using materials produced outside the state must pay \$3,000. In Michigan a statute provides that a state commission shall establish uniform prices which must not return a gross profit in excess of 40 per cent; but wine processed within the state from grapes grown there is to be sold at a price where gross profit does not exceed 10 per cent. In New Jersey local brewers, wineries, and distillers are permitted to sell directly to retailers but out-of-state vendors must sell only to wholesalers.

Other states have retaliated with antidiscriminatory legislation. Usually this has been an embargo upon all the alcoholic products of a state giving preferences to local industry. The result is to intensify the problem. Few states attempt to discriminate against all types of beverages. Some seek to encourage brewing, others their wine industry, others the production of distilled spirits. The state which retaliates throws up a barrier against all alcoholic products from offending commonwealths. Thus protective action leads to drastic counteraction—itself discriminatory—which inspires the original state to further action. In respect to liquor, this kind of legislation if allowed to continue bids fair to stop interstate movement and to establish a state nationalism.

The danger is enhanced by a recent decision of the United States Supreme Court.¹ The case, of direct concern with beer, is applicable to all alcoholic beverages. The State of California had levied a license tax of \$50 upon domestic wholesalers and one of \$500 for those handling imported beer. A number of corporations contested the act as a violation of the Constitution. The opinion of a unanimous Court held the tax to be valid under the Twenty-first Amendment.² Prior to the amendment the tax would have been a "direct burden on interstate commerce"; but under it the state may indulge in any form of regulation and to any extent it chooses. If it can establish prohibition or a state monopoly within its domains, why can it not also "subject the foreign article to a heavy importation fee"? Moreover, "in the light of history, we cannot say that the exaction of a high license fee for importation may not, like the imposition of the high license fees exacted for the privilege of selling at retail, serve as an aid in policing the liquor traffic." As for equal protection, "a classification recognized by the Twenty-first Amendment cannot be deemed forbidden by the Fourteenth."

¹ *State Board of Equalization of California v. Young's Market Company, et al.*, 299 U. S. 59 (1936).

² Section 2 in point reads: "The transportation or importation into any State, Territory, or possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited."

PRICE AND PRICE POLICIES

A contrast of the intent of the amendment with the economic consequences of this interpretation is interesting. Its purpose was to allow the states to answer for themselves a moral question. The states with a "dry" majority had adequate powers to make valid the prevention of the sale of alcoholic beverages within their domains; the "wet" states could be as wet as their constituencies permitted. The issue of whether a state could use the grant of power to further the interests of its industries was not raised; and the suggestion would have been abhorrent to the framers of the amendment and to the electorate who made it the law of the land. The decision of the Court ignores the provisions in the Constitution giving Congress power over commerce among the several states, forbidding the denial by a state of "the equal protection of the laws," and prohibiting a state from levying taxes upon imports. The Constitution is an organic whole; its provisions have equal validity; and such standards are as compelling for state legislation as is the Twenty-first Amendment. Moreover, the opinion overlooks intent, which alone can give meaning to language, reverts to an unpurposive verbalism, and with complete unawareness slides across the plain boundary from the protection of public morals into the promotion of local interest. Legislation is invited in which the moral question is absent. Imports may be excluded on the sole ground that they are out-of-state products. As for the trade in alcoholic beverages the result is to break up the economic union into an aggregate of separate warring units, each imposing tariffs and embargoes on behalf of its own distinctive products. A return to state mercantilism—an escape from which was by way of the Constitution—is given the sanction of a document whose very purpose was "to establish a more perfect union."

POLICY—AND THE LEVEL OF PRICES

The structure of whiskey prices is a dual product. The industry manufactures and markets its product and takes the toll which a keen competition allows. The governments make the industry an instrument for the production of revenue. The two functions become inextricably mixed and inseparable. In general the direct outlays for taxation are themselves passed on by the industry; and under the markup policies in vogue, it may receive in return something more than the sums laid out for taxes. But in moments of competitive stress, and even more during price wars, the toll of pyramiding—and perhaps a part of the exactions of the tax—may be absorbed by the industry itself. Little attention has been given either by the federal or the state governments to the economic consequences of their taxation policies. Inevitably the effect, more adventitious than designed, has been to make for high whiskey prices. The current trend toward state nationalism must assuredly have the same result. Tariff walls do more than furnish an opportunity for raising prices by local

WHISKEY

producers; they also raise costs. The erection of a multitude of petty, local, and protected industries closes the way to large-scale production and low unit costs which volume sales make possible.

In this mélange of forces what of the public interest? This adds to factors industrial and political the complication of social attitudes toward drinking. By many people high prices are welcomed as a restriction upon consumption. Public officials concur in the result rather than the reason. Their interest is essentially nonmoral; but they want to amass revenues as painlessly as possible and accept high prices as a mere incident to tax gathering. The industry, united in the quest of profits, is divided in respect to price. One group believes in low prices, small margins, and large volume; another holds firm to the faith that it is the large markup and the high price which create profits. One and all they hesitate—in the face of the sentiment of a large part of the public—to preach a greater national consumption. Excessive drinking is obnoxious even to the individual most wedded to the habit.

A lesson taught by prohibition is that people drink irrespective of law—if they wish to drink. This suggests a tentative answer to the problem of price policy. High whiskey prices may have some slight effect in discouraging consumption; more likely they invite the consumer to patronize the bootlegger. The advantages of this shift of allegiance are hardly self-evident. The contents of the bottle escape regulation and may be dangerous; an illicit industry is fostered with tie-ups to other social evils; and the public treasury is denied its toll on the traffic. It is no secret that a large underground traffic still thrives; what is secret is the extent of its activities. It is variously estimated that the illicit business takes from one-quarter to one-half of the trade; the nearest approach to meticulous accuracy is the word, "large." It is suggestive that the bulk of the bootleg stuff has its best markets in dry areas.

Moreover, in the flat taxation of all whiskey there is the essence of the sales tax. It is hidden and therefore the less obnoxious, but it falls upon rich and poor alike. More precisely, it is not graduated according to price, and falls hardest upon the poor because they are least able to bear the burden. Thus the higher rate and the larger burden of revenue falls upon the income group which must struggle to comprehend the necessities of life within the standard of living. A lower rate or a tax graduated according to price would be a step toward a more equitable system of raising revenue; it would impel agencies of government to give greater effect to their professions of grounding taxes upon benefit received and ability to pay. It is a dubious justice which sends the man of low income in search of the bootlegger and brings legal liquor within the easy reach of the man with high income. Nor can a flat rate of taxation be easily assimilated to the idea of an effective democracy.

PRICE AND PRICE POLICIES

A variety of ways toward lower whiskey prices have been suggested. To that end changes unprompted by conscious intent are already under way. The gradual accumulation of stocks is resulting in improved quality and lower price. As the industry moves toward maturity, the high prices created by a scarcity of aged stocks will disappear. But, for all that, a number of industrial conditions will contrive to make for a high level of prices. The lavish expenditures for advertising, the campaigns of promotion, the wastes lurking in corporate practice tend to keep costs up. It is hard to see here a wasteless function in producing and bringing goods to market; in an industry required to meet higher standards of public behavior than others, such indulgences may do positive harm. A regulation, already wide in its sweep, might be invoked further to subdue trade practice to the interest of the industry and of the public. An elaborate and expensive system of distribution can be made simpler and less costly. The removal of restrictions upon the number of stores one concern may own would speed the cause of larger volume, smaller margins, and more efficient merchandising. As the function of the wholesaler would be made unnecessary, the cost of his maintenance would disappear. And a radical reduction in the number of retail outlets which the public must support is not out of the question. Until these elementary economies are effected, the public will be forced to subsidize a system of distribution which is unnecessary and makes for high prices. The consumer should pay the expenses necessary to the article he purchases; but no just organization of an industry can impose upon him the costs of waste, backwardness, or privilege.

Taxes can be reduced without a loss of revenue, to the advantage alike of the consumer and the government. The reduction of federal and state levies has repeatedly been suggested as the quickest and surest way of wiping out the bootlegger. The shift in sales from the illicit traffic to legal liquor ought to make up in volume for a substantial reduction in the rate of excise. The opposition comes from officials of state and nation acquisitively absorbed in the problem of revenue, and from moralists blind to facts, who still see high taxes as a check upon consumption. What in effect is being limited is legal liquor. The issue presents a delicate balance of conflicting values. A desire to reduce consumption as far as possible is too deep-seated to be disregarded. The demand of the government for a maximum of revenue with a minimum of protest is too insistent to be denied. The lately acquired respectability of the industry makes it fit and proper for the drinker to ask for good quality and low price. The use of a tax as a deterrent carries the hazard of bootlegging; the limit of an excise for revenue only is the highest rate which the volume of traffic can be made to bear. The demand that refuses the

WHISKEY

choice and insists upon both cheapness and quality cannot be pronounced unreasonable.

The answer to a question with so many facets can be set down easily enough as an abstraction. The tax should—if public policy reflects the viewpoint of the teetotaler—be high enough to exclude at least the unprivileged classes from the delights and sorrows of drink. Or, if temperance is to be the guiding note, steep enough to limit the masses to moderate drinking. The tax should be low enough to allow all confirmed in habits of drink to enjoy good whiskey at prices low enough to prevent serious inroads upon the purchases of other articles. But to translate such an abstraction into specific excises is another problem, the solution of which involves wide experience, neat calculation, and at bottom a choice between preferences.

Such are the roads to lower whiskey prices. They are in no sense alternatives; many of them may be pursued together. Nor do they disregard the actualities of a situation with which both industry and public are struggling. There is no lack of ways in which whiskey prices may be lowered. The real lack is a national will to formulate and push forward a unified program for the control of the traffic in drink.

SECTION VIII

MILK—THE POLITICS OF AN INDUSTRY

BY IRENE TILL

A BEGINNING WITH MILK

THE milk industry is a big business pent in by two petty economies.

At one end is the petty economy of the farm. More than half of the milk we drink comes from herds of ten cows or less. The production of milk is simply one of a great miscellany of farm activities. A selection of livestock furnishes its pittance to the meat supply; fresh vegetables and fruits are trucked to market; a harvest of wheat and other staples swell a national surplus. The farm is small in size; the capital outlay is not large; a pecuniary system has barely touched the fringe.

At the other end is the petty economy of the household. A single cow furnishes 8 or 10 quarts of milk a day; but it is the unusual family which can show as high a batting average in consumption. The ordinary amount used daily is but a fraction of the cow's quota. And like the farm, the size of the household is small; the capital expenditure for setting up an establishment is not prohibitory. If a pecuniary economy determines the character and standard of expenditures, it has little to do with the internal governance of its affairs.

Between small unit production and small unit consumption there exists what is ordinarily termed big business. In the typical American city two or three distributors control the bulk of the community's fluid-milk supply. The size of these companies makes the individual farm and household appear insignificant; the mysteries of the corporate art are utterly alien to their more homely tasks; and the financial returns to these Servants of the Milk Stream make source and destination even pettier.

A search for simplicity and order in the industrial process seems tainted with fruitlessness from the very start. The production of milk, like many other agriculture commodities, proceeds to a great degree irrespective of the needs of the market. The composite milk faucet of the nation's cows cannot be freely turned on and off at will. Again, fluid milk is one of a variety of milk products—cream, cheese, evaporated

PRICE AND PRICE POLICIES

and condensed milk, butter, and ice cream. The relationship of fluid milk to these products is intimate and complicated. The market for cream has local or sectional confines; cheese and canned milk sell on a national scale; the battle of butter takes place in the world arena. Fluid milk is a local monopoly. In all this jumble the different milk products are distinct and different, yet never wholly independent, streams.

The demand for milk is equally impervious to the human desire for an orderly pattern. Price is a factor in determining the volume of sales; but its impact is slow and indirect and must make its way against the well-established belief that milk is essential to health. The popularity of certain foods is, perhaps even more than of other commodities, an expression of the customs and habits of a people. Animal milk was not a food for human beings until some one of our primitive ancestors had a bright idea and risked life and limb in an experiment. Today, though skim milk has all the values of whole milk with the exception of butterfat, there can be little demand for it, at any price, until there is a wider appreciation of its nutritional worth. And if we try to think of the stream of milk and its multiplicity of uses in a continuing relationship, with price as the sensitive barometer, the whole scheme breaks down. For in the city the open market as the vehicle of trade faded so long ago that many cannot remember it as having ever existed. The retail price for a quart of milk in Boston or Chicago or San Francisco is determined directly neither by the open market nor by a public authority; it is a compromise agreement following private negotiations between the organizations of producers and distributors in the industry.

The consumer of milk is not consulted. His first acquaintance with a change in price is as an item of news in his daily newspaper; the corroborative detail is a printed slip around his milk bottle containing a neat rationalization for the advance. It may be that his wage is so low that milk cannot now be encompassed in his weekly budget. That is unfortunate. In some cities there is a store differential; and the consumer may save a cent or two by shifting his purchases from the delivery wagon to the store. In the smaller towns he may be able to strike a bargain with the farmer who peddles his raw milk. But in the large community it is virtually useless to go from one seller to the next hoping they will bid against each other for his petty business. Whether bound or free, as gentlemen the distributors are in agreement; and with but few exceptions they present a unified front on price. The legal fiction is that the buyer shops in a free market where sellers vie with each other in price. In milk the actual choice open to him is to pay the inevitable price—or do without. Here is a bargain between two interested parties, the producers and the distributors. The third interested party, the pur-

MILK

chaser of milk, is equally bound by the bargain, but it is one in which he has no direct part.

Nevertheless a constant bombardment of publicity is used to induce him to buy milk. The milk industry, the government, and the medical profession reiterate the necessity of milk consumption if the individual is to enjoy health. In the schools his children are educated to the food values of cow's milk. Through the maze of honest dietetical advice and the noisy promotion of wares, the consumer makes his rather bewildered way. He has begun to take a mild interest in that stream of industrial activities which stretch from the cow to his doorstep. Vaguely he feels that he is entitled to an assured supply of sanitary and fresh milk at a low price. But the cow which fills his milk bottle with its synthetic product is a composite animal sometimes hundreds of miles away. His experience begins with the choice of a particular grade in the market place—A, AA, Grade A Raw, Vitamin D, Meadowbrook Special, Golden Guernsey Select—but he has only the haziest notions of what the differences are. The price he pays may be too high or too low. Yet criteria of judgment cannot be set *in vacuo*; and a query to the source of information, the industry, elicits only the strongest protestations of good faith from producers and distributors.

It is the purpose of this essay to go behind the milk scene and observe the functioning of the fluid-milk industry. But before that venture is undertaken, something must be known of the importance of milk in the human diet and of its significant place in the standard of living. So a start, less remote than it may seem, must be made with milk, the human organism and the dietary.

THE BASIS FOR DEMAND

A miscellany of want, usage, and circumstance find their summation in the "demand" for an article of trade. For milk it is necessary to go behind the term to understand the strategic place which the commodity holds in American food habits. This in turn will furnish a clue to the powerful hold which the milk industry has over the public; and will go far toward explaining the peculiar practices which now prevail in the industry.

The demand for milk is a composite term upon which different aspects of a culture converge. The *need* for milk is the requirement of the organism for food; that is a physiological fact. The particular *way* in which the need is satisfied reflects the notions and customs of an age; this is a social phenomenon. The *ability to buy* is the ability to pay; this is an aspect of the economic order.

The physical need for milk—or any food—is the requirement of the body for a constant reinforcement of its tissues. Something is known of

PRICE AND PRICE POLICIES

this mysterious—or still undiscovered—process; much still remains to be found out. The human body is a dynamic organism subject to a continuous process of waste and repair. No element in the body endures for any great length of time. In the constant task of rebuilding, food is brought in as the raw material of bone and sinew; it is started on its body-reviving way through the process of digestion. It is easy to hypothecate a perfect food containing all the properties essential for the nutrition of the body.¹ But in the world in which we live, nature has effected no such perfect adjustment. Nutrition for the body must come from the world about it. The materials taken from the environment and appropriated for nutritional uses are called foods. In the world of nature they are a species of grass or animal and perform natural functions of their own. The body takes the crude materials, makes some delicate chemical conversions, and uses what it can. What is usable is what is assimilable; the adamant constitutes waste.

So the foods we eat are not the perfect answer to the body's needs. Rather they are bundles of approximations. A food is a necessary compromise between the needs of the body and what the environment offers. How far we have gone in the art of adjusting foods and their preparation to the demands of the body we do not know. Our knowledge of the human organism itself is too meager; and as little is known about foods. Nor do foods themselves contribute any simple or quick scheme of classification. Although called by such generic names as potatoes, spinach, or milk, they are complex substances broken down by the body into their simpler elements and subjected to various physiological processes. If milk yields calories, protein, calcium, phosphorous, iron, and vitamins, so does cabbage, banana, or bread. Every food contains a multiplicity of nutrients, varying in quality, amount, and combination. When we eat a meal, we consume a heterogeneous assortment of foods, each of which is made up of a heterogeneous assortment of elements. It is all very disorderly; we leave it to the body to separate the nutritional sheep from the goats. But we like our classifications. So if a food offers one nutrient in large quantities, it is accorded the questionable fiction of having a singleness of identity. Milk is spoken of as a calcium giver because it offers a preponderance of that mineral; cabbage emphasizes

¹ The "small round thing, as small as the hoar frost on the ground" sent down by God to Moses' people in the desert was something of this sort; manna was the only food available for forty years, yet all-sufficient until they reached the land of Canaan. In the distant future it may be that a synthetic pill, manufactured by superchemists, will be the manna of the brave new world; or perhaps it will only be necessary to draw out one's pocket hypodermic needle for a momentary injection. Whether, as in Huxley's novel, all the aroma and gustatory pleasures of a perfect beefsteak are tucked away in this synthetic substance, or whether there will be only a faint, almost indistinguishable sensation as it slips down the throat or enters the veins is something for the future to worry about. In such a world the intestines, confounded by a purposive and wasteless food, might become a vestigial organ.

MILK

vitamin C; lean round steak has plenty of protein and minerals; white bread is generous in calories and protein but deficient in minerals and vitamins. To the body they are all more than these; a little more of one nutrient means simply a little less of others.

This breaking down has been effected in the mechanical terms of chemistry. As yet it has been only imperfectly assimilated into the language of physiology. Yet the body does more than merely utilize the chemical constituents of food; it makes use of such curious substances as vitamins. They perform a number of diverse services—contributing to normal growth and vitality, increasing resistance to bacterial infections, aiding in the developing of bones and teeth, promoting well-being. These were discovered not by analyzing the food in the test tubes but in observing its effect upon the behavior of the organism. It is significant that the knowledge of vitamins came about from a shift in technologies. The analysis of food in terms of function rather than of chemistry is just making its start; it may mark the beginning of a new understanding of the metabolic process.

Differences among foods are more than a varying composition of the nutrients. The body also discerns a difference in quality. In vegetables the quality of the protein tends to make it less convertible to human tissue making; in bread it is somewhat better; in milk, cheese, eggs, and lean meats—the derivatives of animal products—the quality is high. Again, the calcium content of vegetables is large, particularly in the green leafy ones, but children seem to utilize the calcium in vegetables less effectively than in milk. The ordinary explanation is that other animal tissues resemble—more than do vegetable—our own; and much of the work of extracting the food values assimilable by the human organism is done by the animal.

If the organic needs of the body must find satisfaction in approximations from nature called foods, there is still further compromise in habit and custom. Hunger may be an instinct, but the means of relieving it are customary and institutional. What we eat, how it is prepared, and even the manner of eating it are a part of the traditional way of doing things.

Yet the diet is constantly undergoing change. New foods are being imported, discovered, or invented. Older and better known foods are given a new availability as the price cheapens. Broccoli came into this country recently as an alien but attractive dish; the milk shake is a product of soda-fountain inventiveness; oranges—once restricted to the consumption of a few—are now, thanks to the Italian, to refrigeration, and to improved transportation, a routine part of the diet. As soon as a food wins an acknowledged status in the dietary, it is accorded all the benefits of a prevailing technology. Highly polished white rice, despite

PRICE AND PRICE POLICIES

its lower nutritional value, is a cultural development of wild rice; the ordinary tomato or apple sums up physiological revolutions arising out of insistent breeding and cultivation. Sheer fashion has an important influence on the dietary. A desire for slenderness popularizes the salad and puts a heavy emphasis upon a vegetable diet. Changing notions about foods are constantly reforming eating habits. The incidence of vitamin research has been to lift spinach from a quiet obscurity; dieticians' experiments in grains have created a wide public demand for whole-wheat bread. Thus taboo and the availability of foods, the current technology, and knowledge about health conspire to select and limit the materials of the metabolic process.

But the diet, however changing or static, is not a thing distinct and apart from the body. Our notions about it are reflections of the more fundamental theories held of the human body itself; and in the prevailing intellectual temper they exercise a profound influence on the dietary. These notions set the limits within which the dietary operates and are of vital importance in determining the direction of development. As our ideas about the functions and operation of the human organism change, our dietetical habits are adjusted to fit the latest going belief. In a sense these dietary customs of ours are simply an aspect of the larger concepts held about human nature itself.

The savage has his own rude notions of the dietary. Since plants and animals possess that essential kernel of life—soul or spirit—which is the very essence of his being, they are capable after death of wreaking vengeance upon mortals for supposed injuries. Thus the dietetical rules of the primitive require a selection of foods whose spirits are not unkindly disposed toward the eater; and a complex system of taboos hem in the dietary. The Greek and the medievalist accorded the body very different positions in their cosmologies. To the Aegeans the human body was an organic whole rather than a multiple of intricate parts; they seem to have discovered internal regulators—hormones—which keep the body in harmonious balance.¹ Since the perfect was the normal and the normal was the temperate, the emphasis was upon moderation in the diet; and the simple life—plain food and high thinking—was the philosopher's ideal. In the Middle Ages the human body was looked upon, at least in the literature which has survived, as a battleground for the fleshly and spiritual worlds. The dietary suffered in this degradation of things material; a curiosity in new foods and strange dishes had to make its way against the lethargy incident to the widespread belief that this vale of tears was a vast penitential for the salvation of souls.

¹ It is interesting that this theory, proscribed in the nineteenth century, is being revived by modern medicine.

MILK

With the development of the combustion engine, it was inevitable that a later age came to view the human body as a rather miraculous super-engine. Its creator had mastered most of the tricks of modern engineers and in one or two places had gone them one better. In constructing the human organism it was noticed that he had ingeniously taken advantage of the orthodox principles of mechanics; the circulation of the blood was a rotary affair with the heart as the master pump; the different organs were cunningly contrived parts of a mechanism which had to be oiled, cleaned, and repaired to give smooth operation. This mechanical concept had an important influence on theories of digestion and the composition of food. The metabolic process, like the engine's consumption of fuel, was to supply energy to keep the body a going concern; the chemical union of oxygen and hydrogen in the muscle cells was similar to the combustion of gasoline in the engine. Thus the uses of oil, fuel, and water for the machine found an analogy in foods for the body. A corps of chemists and nutritionists set to work to break down the foods into their several elements; classifications were established; and an analysis, chemical rather than functional, governed the work of the day.

As the food explorers moved more deeply into the uncharted forests of the dietary, the simple conception of the machine came to be modified. Individuals showed wide variability in their assimilation of foods. Individual likes and dislikes were not without dietary significance. Unlike the engine, the fictions in the ordinary head about food were as important as the chemical properties discovered by the scientist. Now the prescribing physician or dietician began to think of his subject as a person whose habits, temperament, and even ideas could not be left out of account. In this building up rather than breaking down came the discovery of the vitamins. Regulatory in character, they do not regulate any specific organ such as the heart, the liver, or the stomach; their effect is upon the entire organism. Mysterious essences that they are, they cannot be seen when present; but their absence is manifest in scurvy, pellagra, and other diseases. Thus far our knowledge of the vitamin has gone little beyond its strange existence. But it suggests that we are on a new trail in the study of the human body. In this research it is probable that the conventional investigation of the mechanical parts will be supplemented by a study of the whole organism and its reactions. The human body, if it is a collection of wheels and screws and bolts, is so remarkable a mechanism that its own notions about food affect the utilization by the organism. With such an instrument hard and fast dietary rules would seem difficult. Instead of simply being good, food will be good for someone; and an estimate of the significance of any article in the diet will take account of individual metabolism and personal disposition as well as chemical properties.

PRICE AND PRICE POLICIES

This current conception has its influence upon notions of the indispensability of milk in the human diet. The approved norm for milk consumption is a quart for children and a pint for adults, but the norm itself must not be taken too uncritically. A single food does not have a stark independence; it is one aspect of the larger totality—the meal. Since foods are made up of a variety of elements, in any meal there is considerable duplication and overlapping of nutrients. Consequently, the need for milk depends upon the character and quality of all the other foods that make up the diet. Vegetables and fruits, for example, make their chief contribution as sources of minerals and vitamins. One of the greatest values accorded milk is its mineral content. A diet liberal with fruits and green leafy vegetables or other foods that contain these nutrients can reduce the need for milk. Moreover, personal idiosyncrasies disturb the equilibrium of a standard of milk consumption. For a few individuals some of the constituents of milk are poisons; for others the need is lessened or heightened by their mode of life. The quality of exercise, type of work, general physical condition, metabolic activity, and even plain preference play their part in the matter of individual requirement. Consequently, a rigid rule for milk consumption has no more validity than any other principle which is besieged with exceptions.

Nevertheless the prevailing dietetical theories have given milk a significant place in American food practices and concepts. Researches have proclaimed that its proteins are of a sort peculiarly useful to the human being; that the amino acids in animal and animal-product proteins are similar to those in the human body and valuable for tissue building. The sugar in the form of lactose—less sweet than cane sugar—is regarded as more acceptable to the stomach; it is believed that milk favors the growth of lactic-acid organisms which destroy bacteria dangerous to health. The butterfat is accounted a concentrated source of energy and a container of necessary vitamins. All the vitamins thus far known have been found in larger or smaller quantities in milk. No one food is an adequate source for all vitamins; such a permutation is too perfect even though nature processes the chemical product. Milk is believed to have rare qualities since it contains something of all. Another important constituent is calcium. This mineral, a necessity for healthy bone and teeth structure, has been particularly stressed by dieticians because of its evident lack; the casual development of American food habits has produced a diet with an insufficient calcium supply. Even where fruits and green vegetables are consumed in abundance, the use of milk is still emphasized; according to specialists, children and some adults seem to secure calcium less effectively from vegetables than from milk. And in a meager diet where the staples—grains, dried vegetables, and potatoes—

MILK

are the mainstay, milk has come to be accepted, in theory if not in practice, as an indispensable supplement for the maintenance of health.

As a result milk holds a dominant place in the American dietary. As a food for infants, cow's milk epitomizes in the popular mind the remarkable ingenuity of man for finding substitutes; with some chemical adjustment it is believed to be a satisfactory approximation to human milk.¹ As the child increases in vigor, the difference between animal and human milk fades in significance; and cow's milk changes from its position as a substitute to an assured status of its own in the diet. And if, in its individual properties, it is regarded as an unusual food, some dietetical experts have endowed milk with mystical properties. In terms of food value for the organism, the character of their researches indicate that it adds up to more than the sum of its parts. Regular consumption of milk is believed to raise the general level of physical well-being; it enables the organism the better to repulse the invasion of bacteria; children get an ideal start in sound healthy bones and physical development. Thus today milk, more than any other food, is widely regarded as an all but indispensable necessity in the diet. This emergence from obscurity has not been sheer accident. It has come about through the current character of the researches in foods and in the metabolic process; this investigation has in turn been determined by the current notions held of the human body. Gradually the views of specialists, through the popularizing of their investigations in books and magazines, the prescribing of diets and advice by physicians, and the deliberate propagandizing by interested groups in the industry, have found their way into the habits of consumption and have given milk a secure place in the standard of living. As this research continues and is disseminated more widely and more insistently, the chances are that milk will have a surer footing in habit and custom. It is only if the study of metabolism should depart from its present path and take a new tack that the supremacy of milk may be threatened.

This widespread dependence upon its product explains the current practices of the fluid-milk industry. For the moment at least there is no problem of a competing substitute, cheaper, more palatable, more suited to the organism. Consumption has not expanded to coincide with

¹ The composition of milk, human and animal, differs to suit the varying needs of the young. Since animals increase their weight so much faster than infants, the protein necessary for tissue building is twice and the minerals for bone construction are three times the amount of that in human milk. Even the quality of the protein differs rather considerably. The protein in cow's milk is largely casein; though very suitable for young calves, it forms a tough curd for the sensitive stomach of the infant. Human milk contains more lactalbumin, which makes for a softer curd. Subjecting animal milk to high temperature softens the curd; and usually cow's milk is modified with the addition of dextrimaltose or glucose to increase digestibility.

PRICE AND PRICE POLICIES

the norm established by dietary experts—the daily per capita consumption is less than a pint—but among those who are habituated to its use it holds a strategic place in the standard of living. The demand is so stable that milk can stand the impact of a price rise with only a temporary change in consumption; according to the trade, after a few months' interval the curve in sales occasioned by the higher price is smoothed out. If income slacks and the budget must be reorganized, the expenditure for milk is likely to be maintained, and cuts are made elsewhere. It is this idea of indispensability which has created the substantial stake in milk held by the public; and it is upon this notion, firmly embedded in custom, that the industry has been able to capitalize in the formulation of its price policy.

THE PETTY ECONOMY OF THE FARM

The source of this great stream is the cow. It is significant that as yet a synthetic milk has not been produced. For centuries the cow has been, and for decades at least promises to remain, the imperfect instrument for the production of commercial milk.¹ This source of supply has become so traditional that it is now difficult to realize that the cow was not originally designed by nature for this purpose. At one time the production of milk was a mere biologic incident in the breeding of calves. Then man came along and converted the cow into a miniature milk factory. Now all ordinary animal functions have been subordinated to a single office in a human economy. Instead of producing milk for calves, the cow produces calves for milk; and the maternal function is exploited to freshen the milk supply.

The cow, bred in terms of the function to be served, is a cultural product. In physical structure and milk yield the modern dairy cow is

¹ The choice of the particular animal—cow, goat, or sheep—for the milk supply depends upon the availability of grazing land, the type of farming, the state of the technical arts, mere accident, a host of incidental events which harden themselves into custom. The small farm with a narrow fringe of pasture, found in some parts of Europe, won an established place for the goat. It is superior to the cow where the problem of keeping the milk supply is serious; a goat can be milked whenever the pitcher needs to be filled.

In the United States the cow was admirably adapted to the expanse of grazing areas. In yield it is superior; one cow is equivalent to seven goats alike in amount of feed consumed and milk output. Since a large part of the milk is produced for sale, its regular supply is more suited; the extra time and labor involved in milking of smaller animals can be eliminated. Moreover, commercial milk must possess the quality of marketability; a lingering rumor in this country, not to be entirely excoriated by fact, persists that goat's milk is malodorous. And many cows are beef as well as milk producers; custom gives a greater palatability to beef than to goat's meat. A further difficulty is the prohibition against the importation of foreign goats. In the earlier imports there were found some milk goats carrying diseases which were communicable in milk; the maintenance of the barrier has been attributed to public sentiment and the continuous pressure of interested producers of cow's milk. At the present time the total goat population numbers only about 5,000,000 and the industry is comparatively insignificant.

MILK

very different from the wild animal; the entire organism has undergone transformation in response to the new duties. A marked difference is also to be noted between the dairy cow and the beef cow. In the beef regions the animal particularly cultivated is the steer; the cow's chief function is perpetuating the strains for the future production of beef. For dairy purposes it is the cow which is important; and the superior animal is one which yields large quantities of milk with a high butterfat. Yet the productive possibilities of the animal have scarcely been tapped. The average annual production is around 4,000 pounds of milk;¹ but the bovine blue blood can produce seven or eight times that amount. The purebred Jersey can annually attain 20,000 pounds of milk, and the Holstein has reached an all-high of about 35,000 pounds. This difference indicates the gulf between actual and potential capacity. For a small group technology has indicated the possibilities; the great mass still remain untouched.² Though the cow has been fitted to man's economy, the adaptation, in terms of potentialities, has hardly gotten off to a start.

The predominant dairy breeds are the Holstein, Jersey, and Guernsey. Over 50 per cent of the total are Holsteins and Jerseys.³ Roughly the Jersey and Guernsey breeds are characterized by a rather low milk productivity and a high butterfat. The Holstein is notorious as a prolific milker but is economical in butterfat. The breeds are distributed widely over the country, but there is a trend toward Holsteins in the North, beef breeds in the Northwest, and Jerseys in the South. The popularity of breeds varies among states and even adjacent counties. The selection depends upon the character of feeds available, climatic conditions, the market for milk, and the local prejudice for a particular species.

The farmer measures the productivity of his cows by their yield of butterfat as well as volume of milk. So far as the consumer of fluid milk is concerned, butterfat is unimportant. To be sure, fats are a concentrated form of energy; but modern food habits assure an adequate supply of fats in the diet. The inclination of nutritionists is to lay stress upon the minerals, vitamins, and building properties which are found outside of

¹ Until the milk reaches the consumer's bottle, the language of the trade is in terms of pounds of milk. Forty-six and one half quarts are equivalent to one hundred pounds.

² Of the 25,000,000 dairy cows in the United States, registered purebreds—constituting the first families—number about 1,000,000. Next in size are the "grades," daughters of a purebred and a scrub, or of parents not purebreds but with high social connections. The common cow whose genealogy is unknown is the most numerous of all.

³ A classification of the dairy population by breeds can attain only an approximate accuracy. To know the ancestry of the blue blood is one thing; to trace the confused lineage of the scrub or even the "grade" is quite another. The strains that are inherited stem back to the recent past, when breeding was an undeveloped art and parenthood was left to the fancies of the animal or the whims of the owner. An ordinary cow classed as a Holstein is frequently a crossbreed; the word Jersey covers a number of rather unclassifiable combinations. But if there are categories, cows must be found for them; and a multiple-breed falls into one of them because a superficial resemblance leans more one way than another.

PRICE AND PRICE POLICIES

the butterfat in the skim milk. So far as the producer is concerned, butterfat is of high importance. The reason is that in the trade producers' prices vary with the fat content; and the aim is to attain a high fat content to earn the extra dividend.

The explanation for this pricing custom—irrelevant from the nutritive point of view—lies in the history of the industry. At one time almost all the milk produced was used directly on the farm. The surplus which occurred with heavy production in the spring months was kept from going to waste by conversion into cheese and butter. Eventually, with the growth of cities, little creameries dotted the farm regions to supply the larger markets. Cheese and butter making left the home and entered the factory. For butter only cream was needed; and farmers were persuaded to separate the fat and sell it to these local processors. In this way emphasis upon butterfat got its start. For the same reason the custom has persisted. About two-thirds of the milk leaving the farm goes into manufacturing.¹ The vast bulk is still used for butter. Here butterfat is an essential test in measuring the milk. But the norm of a high fat content is carried over into the purchase and sale of fluid milk, where it is irrelevant. A chemical fact is stereotyped into a commercial practice which stands as a fixed custom. Suggestions have been made that a high fat content in milk attests the presence of other dietary values; but there is no evidence of this relationship; a milk high in butterfat may be deficient in other nutrients. Nor is this irrelevance confined merely to fluid milk. A large thriving business is done in cheese, condensed and evaporated milk, and various forms of powdered milks. For these products whole and skim milk are used, and a test of them by butterfat is dietetically beside the point. Nevertheless the prestige of butterfat persists. Under present marketing arrangements it is impossible to know how the milk will be used. The working hypothesis is that all milk will go into those manufactured products in which butterfat is the important ingredient. So the farmer cultivates dairy breeds in terms of the fat yield, though a large portion of the product is used for fluid milk and manufactures where butterfat is of little significance.

The cow's diet has an important effect upon milk productivity. The potentialities are fixed by the qualities which are inherited but the extent of their realization is determined by feeding and care. Here again an analogy of mechanics is inaccurate. The cow, like the human animal, consumes composites of proteins, carbohydrates, fat, minerals, and vitamins which are called foods; they are subjected to metabolism, con-

¹ Although the word in the trade for converting milk into butter and cheese and canned milk is "manufacturing," strictly speaking it is a form of processing. What occurs is a chemical change in the milk itself. In this study the trade term, inappropriate as it is, is used to distinguish the more complex processing of these products from the preparation of bottle milk.

MILK

verted into new substances, utilized, and digested. The mysteries of this process have been little penetrated. Some cows give a large production of milk only on the choicest of diets; others keep going at a steady pace on the most casual of foods.¹

The kinds of food consumed depend upon the local environment. In New York State the cow is pastured for about five months and for the remainder of the year is given a mixture of corn and oats, corn silage, and legume or grass hay. In Mississippi she is pastured longer and given a strong diet of cottonseed—in the form of straight cottonseed, cottonseed meal, and cottonseed hulls. In Wisconsin she eats alfalfa, alfalfa, and more alfalfa. In fact it is easier to say what a cow should eat than what she does eat. Among hays she may be fed alfalfa, clover soybean, sweet clover—all of the legume variety; or timothy, bluegrass, rye grass, Sudan grass, sorghum, or a dozen other kinds of grass hays. Grain hays are made from the small cereals like oats, barley, wheat, and rye; individually and as mixtures they form a part of the cow's diet. Silage—a crop taken in while green and allowed to ferment for preservative purposes—is a distinctive product of each farm; the word "pasture" includes almost every variety of grasses; the number of so-called by-products—wheat, bran, hominy feed, corn gluten, dried brewers' grains, cottonseed, beet and cane molasses—is not finite. All these are the raw materials of milk. The cow adapts itself to the environment, takes the grasses which are available, and converts them into food.²

Feeds may be grown or purchased; usually the farmer does both. Large dairy farms near metropolitan areas often produce less than 10 per cent of their feeds. General farmers with small herds customarily use their own farms for a large production of the cows' feed supply. The big item of purchase is grains. Whether the farmer can afford to invest in grains, which increase milk productivity, depends upon the prices he receives for his milk. If they are high, he will supplement his home feed with purchased grains, knowing that the additional quantity of milk will more than compensate for his grain expenditures. If low, he can ill afford to buy grains because they will cost him more than the additional

¹ The difficulties of generalizing are enhanced by the fact that foods themselves differ in nutritional value. One lot of hay may contain a high percentage of food constituents; another in the same load, cut in another part of the field, may have considerably less. The character of the soil, lucky breaks in rain and sunshine, the time and care in cutting—all play an important part in the nutritional worth of the food. A legume hay, for example, is generally supposed to be superior to a grass hay; but if the latter is grown in soil rich in lime and phosphorous, cut when young, and properly cured it may be superior to a legume.

² The contrast between the work of the cow and the milk plant is striking. The cow takes all the miscellaneous grasses and feeds, and converts them into a single commodity. The milk produced differs from cow to cow but in terms of the chaos of food source, it is uniform. In the beginning the complexity is great; the cow turns a metabolic trick; and the variation is markedly reduced. The factory receives milk, unstandardized but potentially homogeneous, and manufactures a milk product.

PRICE AND PRICE POLICIES

milk will bring on the market. Since he is only partially within a cash economy, he feels with great keenness increases in pecuniary expenses. Probably there is no cost tyranny like that on the fringe of a priceless economy. This anomalous position of the farmer makes for a recurrent problem. Burned crops and dried pasture lands occasioned by a drought send feed prices rising sharply. With his small supply of cash the farmer is ill-equipped for the emergency. Moreover, the prices he receives for his milk are made in an organized market less sensitive than grain to prevailing economic conditions. Unable to buy grain, he is forced to put his cows on the scantiest of rations until the appearance of new pastures in the spring. An abundance of new crops may lessen the discrepancy between grain and butterfat prices; the financial tension is reduced; and the purchase of grains may commence again.

The typical productive unit for milk is the small farm. Of the estimated total of 5,000,000 farms keeping cows, a little over half own from one to three; but they account for only 20 per cent of the cow population. Another 40 per cent are in herds of four to ten cows. That is, almost two-thirds of the cows on farms are in herds of ten or less. Thirty-three per cent are in larger herds, eleven to thirty; the big dairy farm, with thirty-one cows or more, constitutes less than 6 per cent of the total.¹

The size of the herd is the key to the technology that prevails. The small dairy producer cannot afford an exacting care. Heavy reliance is placed upon pastures; grains and other feeds come largely from the farm. The technical knowledge for a policy of breeding and culling to secure high production is absent; and the business is not of a size to warrant the use of labor-saving machinery. The Jersey is particularly popular upon the small farm; though the quantity of milk produced is low, it has a high fat content. The large farm operates quite differently. Here there is every incentive for a scientific method which gets high productivity both in milk and butterfat. Frequently the large herd is close to the market area for fluid milk. Since wide grazing lands are not available, much of the feed is purchased. The cows are fed with an eye to the maximum production, and all the latest developments in technology are enlisted in the campaign. In the large herd the Holstein—the heaviest milk producer—is most numerous; and by carefully feeding and culling, high butterfat can be secured with large milk production.

The folkways on the two types of farms have their incidence upon the whole scheme of dairy activities. For both, irrespective of size, the calf is essential for freshening the milk supply. On the small farm, the system is casual and indefinite; where dairying is conducted as a commercial business, usually less milk is fed to calves. Another difference

¹ Shepard, John B. and Richard K. Smith, *Large and Small Dairy Herds*, United States Bureau of Agricultural Economics, March, 1934.

MILK

is in the time of freshening—when the cow calves and starts a new flow of milk. Normally this occurs in the spring with the appearance of fresh pastures. As a result there is excess production of milk at that time and a falling off in the autumn. For small producers this is almost inescapable because so much of their food dependence is on fresh pastures. But in large herds, where food is imported regularly the year round, freshening can occur at any time.

All this has its effect upon pecuniary returns. The period of greatest milk productivity on the small farm is simultaneous with a similar spurt in production elsewhere. Consumption of fluid milk does not fluctuate in the same manner; and much of this "surplus" undergoes the preservative processes of manufacture. For such milk the farmer receives lower prices than for his product converted to fluid use. The large farm—by varying the time of freshening—can make capital out of scarcity. Usually the peak of its production coincides with a decline on the small farm; consequently, more milk can enter fluid use and thus command a higher price.

A stressing of the differences between small- and large-scale production is not to emphasize the importance of the commercial dairy farm. Its purpose is to indicate the petty economy of the small farm, where the bulk of the milk is produced. The ordinary milk producer is not engaged in the dairy business. His farm is his way of life. It earns a livelihood for himself and family, affords his chief form of recreation, and gives scope for any creative abilities he possesses. So completely is it the symbol of his own life that a neat classification into pecuniary means and ends is not possible. His cows are simply one division in the farm unit. He sows his fields with diverse crops, plants his vegetables, cultivates a few fruit trees. Something of all these he uses on the farm; something of all goes on the market for sale. The round of his crops is more than a seasonal affair. His exploited land must be refertilized. A pasture land is the grazing area for his cattle; often it is also his "fallow" land recovering from a surfeit of crops—after a rest cure it will again be sown with wheat and corn. Any one of these activities is not separable in itself. It is an integral part of the whole and a ceaseless process over the years.

In this general round of agricultural activities, the farmer cannot acquire a mastery of skills through specialization. A crude division of labor exists within the household, but it still leaves a diversification of functions undreamed of by the factory worker. A large mass of practical knowledge is acquired through the repetition of chores; some bits of technical information garnered from a casual perusal of farm journals or an excursion to the county fair aid in the conduct of his affairs. But after all his fate is largely pent in by the circumstances in which he finds himself. He has a large number of tasks requiring, for highest performance,

PRICE AND PRICE POLICIES

a command of technical information and specialized skills. His time for his herds is limited; his knowledge is inadequate. Even more his funds are too meager to permit of a scientific milk production through herd improvement and proper diet.

In the midst of this complex of agricultural activities, the farmer is asked to take a cost for milk. The tacit assumption of cost accountancy is a pecuniary economy. Raw materials are assembled at specific costs; they are subjected to manufacturing processes for direct pecuniary outlays; the marketers' margins include cost plus a reasonable profit. All along the line pecuniary gain is the purpose of industrial activity; and it is assumed that, with a fair degree of approximation, costs can be translated into monetary symbols. The difficulty lies in the complexity of modern industry. Almost every principle of cost accounting assumes a simplicity and pecuniary exactitude of which few businesses can boast.

The large commercial producer of milk is the link between business and the small farm. He is completely in the milk business. The cost of his machinery is easily ascertainable; labor cost can be calculated. He has some idea of the size of his investment and what it might be expected to realize if used elsewhere. A guess can be taken at depreciation on buildings and machinery. Purchased feeds can be set down at market prices. But the application of a borrowed technique to the affairs of the farm is at once beset with difficulties. Some feeds are grown on the farm; it is inaccurate to take either the purchase price of seed or the market price of grain plus the current wage rates for agricultural labor in arriving at actual costs, since they do not coincide with the farmer's actual pecuniary expenses. Depreciation of the herd is not easily calculable. The new calves are bundles of unknown potentialities; their productivity depends in part upon a lucky inheritance of strains from their parents. Since the prices paid to producers are variables depending upon the uses of milk, costs might be allocated on the basis of returns—a practice common in industry; but all of the farmer's produce is designed for the fluid market and the allocations to different products are made by the distributor and not the producer. And after all, since the larger farmer is not representative, he should not loom large in the picture.

The typical milk producer, the small general farmer, finds the system of cost accountancy worked out for business quite unsuited to his operations. A guess at his cost of investment serves little purpose; the farm is also the home for himself and his family; and it is impossible to separate the costs of the business from the household economy. He is engaged in a multiple of productive activities which are so integral in their nature as to be inseparable for cost purposes. The barn has functions other than furnishing shelter for cows; the farmer is asked to separate the

MILK

cost and write down depreciation on an indivisible whole. His pasture lands might, if his mind played with the calculus of opportunity cost, have been used for crops. He should estimate how much, if they had been planted, the produce would fetch on the markets. A calculation on the depreciation of cows should take account of future predictable production, the likelihood of loss through disease, a balancing of milk fed to calves as against the potentialities of the young when they enter production, a value of properties based upon cost of production new or upon prudent investment. And if the farmer sells the butterfat and uses the skim milk on his farm, some place must be found on the books for this increment of value which has never entered the pecuniary economy.

Then there is the problem of labor costs. When the farmer goes to the barn for a series of odd tasks, he must disentangle his dairy activities, allocate the fragment to the proper account, and set it down as a cost of milk production. When his son goes down to the pasture for the cows, he must figure how much that adolescent labor is worth. If his wife comes along to help with the milking, he has to call it labor and put a price on it. If he sits up nights to tend an ailing heifer, time-and-a-half should not be accounted an unreasonable charge. And when some neighbors come over for the afternoon to mix a modicum of haying with a heavy exchange of local gossip, that obtrudes as a pecuniary problem. Thus it is that the affairs of the household cannot be severed from the productive activities of the farm; nor can these activities themselves be broken up to ascertain the cost of milk production. The small farmer is really not a part of our money economy. He carries on his farming from year to year, works endless hours, and over a period of years knows only whether he has "broken even" or fallen into debt. If he used anything like the cost system practiced in modern establishments—counting in labor and capital charges—he would perennially file suit for bankruptcy.¹

But with or without a system of accounts, it is apparent to the farmer that his labor yields a meager existence. So he borrows a phrase from the businessman and demands a "fair return" for his products. Since his costs are incalculable, it is surprising that the farmer has not employed the rationalization invoked by the trade unions. They demand the inalienable right to an "American standard of life" which, it is argued, present wages do not furnish. The laborer never carries a

¹ Yet the farmer is not wholly separate from the pecuniary world. In his own field his is a priceless economy; his farm is his living and his way of life. When he steps out to buy foods or farm implements or to sell his milk, he is face to face with a price economy. He really operates on the fringe of both; and this dual position always keeps him hard up for cash. For a part of his needs he depends on the farm or engages in rude barter with his neighbors or the local store; but when he moves outside, he finds it difficult to buy because he is moneyless.

PRICE AND PRICE POLICIES

cost calculus into his personal economy—perhaps because a cost estimate for childhood, education, and depreciation of capacity for labor would be far higher than any anticipated wage could be made to carry. The farmer's position is midway between that of the businessman and the laborer. He produces goods for sale but his production takes place in a nonpecuniary economy where an invocation against "sales below cost" would be meaningless. He joins with the laborer in a quest for a decent standard of life but he rationalizes his demand in terms of the pecuniary rhetoric of the businessman.

The presumption that the costs of milk production should be recovered in price has resulted in numerous inquiries into farm costs.¹ Ordinarily feeds and pasture account for 50 or 60 per cent of the total estimated cost; labor takes another 25 per cent; the balance is assessed for depreciation on buildings and equipment, interest, breeding fees, veterinary, and medicine charges. Many of these calculations are based upon a philosophy of as-if. Feeds produced on the farm have to find some place in the formula; market prices are charged. Grain ground on the farm is charged at commercial rates; pasturage is put down at the current local prices for pasturing by the month, with minute adjustments allowing for varying volume and quality. Actually the farmer buys little feed; he purchases the seed, plants it, and grows crops; he pays no rates for hand grinding on the farm; any pasturage fees are obscurely lost in his mortgage payments. In assessing labor costs the presumptions of a pecuniary make-believe are stretched further. The hired man is the only worker who gets a money wage, and a part of even his income is his "keep." To get a real wage for the man-of-all-work—as well as the farmer, his wife, and children—the "value" of room, board, and laundry is added. The value is real enough; it is the translation of it into money which is difficult. The charge allotted to the work of members of the family is usually a percentage of the hourly wage paid the hired man; and, in lieu of a better system, the task of estimating its value is left to the individual farmer.

¹ See *Report of the Joint Legislative Committee to Investigate the Milk Industry*, New York State, 1933, Leg. Doc. No. 114, pp. 46-60; Kelly, Ernest, and Clarence E. Clement, *Market Milk*, pp. 148-162; United States Tariff Commission, *Report on Milk and Cream*, 1929; Federal Trade Commission, *Report of the Sale and Distribution of Milk Products in Connecticut and Philadelphia Milksheds*, 1935, pp. 50-55. See also hearings of the AAA on federal milk agreements in the several sheds, particularly those for Chicago, November 27, 1933, pp. 536 ff.; for Boston, January 28, 1935, pp. 55 ff., and New York City, February 10, 1934, pp. 1315 ff.; and Federal Trade Commission, *Hearings on the Sale and Distribution of Milk in Connecticut and Philadelphia*, 1935 (hereinafter cited as *F.T.C. Hearings*).

Studies of costs of milk production for a limited number of farmers, and studies of costs in particular areas are too numerous to mention here; in themselves they constitute a class, of no small proportions, in the vast literature on dairy farming. A large number have been collected by the United States Bureau of Agricultural Economics.

MILK

The farmer then—if he has a cost—takes it. But a cost system has little to do with the conduct of his farm. The seasonal productivity of his herd depends more upon the favors of nature than upon a neat price calculus of stimulus and response. With the arrival of new pastures in the spring, milk production shoots up regardless of price. During the food scarcity in the fall and winter months, the cow's productivity decreases. In the long run the factors in production—feeds, pastures, breeding, culling, and freshening of the herd—feel some incidence of high or low price for milk, but the response is slow and indirect. A prolonged visitation of hard times and low prices is necessary before the farmer is induced to break up the customary round of his agricultural activities. In the meantime the cow gives milk and the milk goes to market.

When the milk leaves the farm, it enters a different world. It is virtually a new commodity. Instead of being milk, it is now the raw material of cream, butter, fluid milk, cheese, and evaporated and condensed milk. The worker of this change is the distributor. The farmer brings to market the finished product of his farm; the distributor purchases a material to be processed. In that swift second of exchange milk becomes a commercial good.

THE WEDGE OF BIG BUSINESS

In the dairy industry the new order has come and yet the old has lingered.

At least three different types exist side by side. The farm represents the old order. In this self-contained economy the producer and consumer are knit in the integral unit of the family; neither process nor price intervenes between production and consumption. The milk is simply raw milk carried from barn to kitchen. At least a third of the population have this direct relation to their milk supply.

The intermediary order is the town. The cow has been pushed from the backyard to the country. But the relationship is still intimate and local. The near-by farmer may have a small clientele for his extra milk; or he may dispose of it to the milk peddler who plies his petty trade. The development of the chain store has added another factor in the marketing process; in some towns the bulk of the fluid milk sold is through stores. The product consumed is usually unprocessed raw milk; and lively competition may exist among producer-distributor, peddler, and grocery store. The market is open to all who wish to enter; price, except in the stores, is a consequence of a multitude of petty bargains between seller and buyer. At least another third of the population have this relation with their milk supply.

PRICE AND PRICE POLICIES

In the city the direct chain between production and consumption has been broken. The milk passes through the hands of an intermediary who receives it, processes it, and carries it to the consumer. This break in the chain paralleled urban growth. The cow and the dairy were pushed farther and farther out. The city grew so large that the petty produce of a single farmer was hardly a drop in the bucket of the municipal supply. Now the producer supplied a population scores or even hundreds of miles from the barn in which his cows were milked. Even if as an individual he could have brought his milk daily to the city, he was faced with the serious problem of its disposal. The picture of thousands of farmers plying urban streets seeking a market for their produce is hard to visualize; as the cities grew remote, the task of distribution became more and more unrelated to the functions of the farm.

The distributor took over this job. The process was sped by developments in technology which themselves had stimulated the growth of cities. The railroad effected a radical alteration in spatial relationships; it narrowed the distance between country and city, and permitted the shipment of perishable food products for city consumption.¹ This freedom was enhanced by inventions in refrigeration which allowed a longer time to intervene before nature busied itself with chemical change and deterioration of the product. Another factor was pasteurization. The thick congestion of the city was frequently mitigated by mysterious plagues which swept off portions of the population. The discovery that milk was an ideal medium for the growth of bacteria inimical to health came about during the seventies and eighties; by the turn of the century the new device of pasteurization, through municipal ordinances, was slowly getting its start. The swift spread of this practice from city to city transformed the business. Milk sold for drinking purposes had to be heated to temperatures destructive of bacterial life; a paraphernalia of machinery and skills foreign to the farm came into use. The old-fashioned milk can gave way to the sanitary glass bottle; again an investment in bottles and machinery for their sterilization was too much for the petty financial resources of the producer. It was also too much for the small peddler with a meager investment and an incapacity to adapt to the new order.² Over a period of fifty years—from 1875 to 1925—

¹ Before 1842 most of the milk consumed in New York City was brought by wagon from near-by counties. By 1870 a few milk trains extended beyond the 100-mile limit; by 1910 milk came in from points beyond 300 miles; and by 1930 milk traveled over 500 miles to market. In Boston all the milk consumed, prior to 1870, came from a radius of about 65 miles. By 1890 milk was transported 150 miles, and by 1910 exceeded 275. Federal Trade Commission, *Report on Milk and Milk Products—1914-1918, 1921*, pp. 105-106.

² It must be stated in fairness that the passing of the peddler has its compensations. Though he represented the era of free and untrammelled competition, he also symbolized waste and inefficiency. The mobility of the city population caused a constant withdrawal of customers from the limited beat of the peddler. The buyer's choice of a new distributor

MILK

thousands of itinerants disappeared; and a few giant companies in each local market came to dominate the milk trade.¹

In another intellectual environment the farmer might have seized this opportunity for a vast cooperative endeavor in the processing and marketing of milk. But in the America of the early twentieth century this was impossible. Indoctrinated with a stern individualism—partly the result of the isolated character of his activities and even more an expression of the predominant ideas of the time—the farmer was unequipped to make the attempt. Remote from the city, he was hardly conscious of the changes that were taking place. Even if he knew, his position on the fringe of a pecuniary economy was fatal; he lacked the funds to make the start.

So the opportunity slipped into the hands of the city man, experienced in business, with the financial resources to set himself up, and with a great zeal for private gain. The flow of milk from one petty economy to another was interrupted by the alien pursuit of profit. For the distributor's world was a distinctly pecuniary one. He counted his investment, figured depreciation on machinery and plant, paid wages which were a determinable cost, returned interest on his investment, and voted himself bonuses for superior management. Indeed as a member of the system, the distributor accepted the ways of doing business which he saw about him. The newer schemes of financial control and the practices of big business, calculated to dazzle the petty producer and petty consumer, were not neglected. The large chain gobbled up prosperous independents; the interlocking directorship and holding company flour-

was accompanied by serious hazards. The canons of the trade were not of the highest. Milk was a vendible commodity rather than a food; the crude methods of handling were not conducive to a fresh and clean supply; the accrued sediment sometimes gave the potion a foreign taste. Little was known of the existence and danger of bacteria, and the protection to health was a matter of unconcern to the seller. In respect to a commodity vital to the public welfare, the adage *caveat emptor* prevailed. When the large dealer appeared, control became easier, and a safer and more palatable milk was on the way.

¹ In some cities the number of peddlers rapidly declined. There were 158 milk dealers in Detroit on May 1, 1915, when the pasteurization ordinance went into effect; three months later there were 68. At the present time there are between 30 and 40 distributors, of whom the two largest control around 50 per cent of the distribution. In 1914 the city of Milwaukee passed an ordinance requiring that milk sold within city limits must be pasteurized. Between 1914 and 1920 the number of distributors declined from 200 to 32. In 1930 it was estimated that two companies controlled 84 per cent of the total fluid milk distribution, 83 per cent being handled by National Dairy Products Company and 51 per cent by the Borden Company.

In Boston in the middle eighties there were 1,500 peddlers, most of them producing their own milk and operating a single wagon. By 1914 there were around 200, and by 1923 there were 181. During the depression a large number of producer-distributors entered the market, raising the total to 575 in 1934. According to the Federal Trade Commission, in 1936 in the Boston market, 108 were regular dealers, 56 were brokers and bobtailers, and the remainder were producer-dealers handling a small volume. However, two distributors in 1935 accounted for approximately 63 per cent of the total fluid-milk sales.

PRICE AND PRICE POLICIES

ished.¹ Organizations educating the public to the food values of milk were established on a national scale; the public schools were stumped in glorious campaigns; the healthy infant complacently sipping his daily quart of milk was a commonplace in every newspaper. Everywhere the promotion of milk was the promotion of business. Lobby fortifications were run up in state and national capitals; pious denunciations of statutes inimical to distributor interests blared symphonically throughout the land. It was fitting and proper that the sanctions of public health and the ideals of free enterprise blended mercifully to make this position well-nigh impregnable.

Milk Goes to Market. The adventure of milk after it leaves the farm is simple in outline. The two important elements are transportation and pasteurization. In the myriad variations in the different markets, the picture grows complex.

First, the milk goes to the pasteurization plant. Since the commodity is so perishable, it cannot be held for more than a few hours before shipping; it is customary for the fluid-milk producer to make a daily disposal of his supply. If the city is small and the plant near, the milk may be hauled in directly to the plant. The individual farmer cannot take time to make this daily trip. Sometimes a group band together into a cooperative and jointly defray the costs of a truckman to haul their milk cans into the city. More frequently the distributor lends the services of his truck and deducts a transportation fee from the producer's milk check. If the milkshed is large and the farmers many miles from the center of consumption, the milk is carted to the country station plant. Here it is weighed, tested, and assembled, and shipped to the city pasteurization plant. At one time transport was almost wholly by train; now the large tank truck is gradually taking business away from the railroads. In most large markets costs for the country station and for transportation are assessed against the farmer and deducted from his check.

The payments which the farmer receives for his milk depend upon weight and butterfat. When the milk arrives at the country or city plant,

¹ It is significant that this trend dates from 1923, when the National Dairy Products Corporation was organized. Expansion has come about largely through the acquisition of established concerns; in most cases the deals were made through an exchange of stock of National Dairy, and little cash financing was required. Over 300 acquisitions were made. This development was paralleled by a similar policy of acquisition on the part of the Borden Company, a holding company organized in 1899 to take over a business established in 1857. Between 1928 and 1932 the company acquired over 200 companies, largely through the exchange of stock. In 1936 the Borden Company became an operating company, and its subsidiaries, with some few exceptions, became divisions of the major company. See Federal Trade Commission, *Report on Connecticut and Philadelphia Milksheds*, op. cit., pp. 38-50; Federal Trade Commission, *Report on the Sale and Distribution of Milk and Milk Products, New York Sales Area, 1937*, pp. 56 ff.

MILK

it is poured into a large vat and weighed. Often the odor test is given; a professional nose is dipped into the can to ascertain its freshness. The butterfat test is less simple. Usually a sample of the farmer's milk is taken daily; the combined sample is tested once a week or twice a month. The method commonly used is the Babcock test. Such a test has only an approximation to exactness; much depends upon the skill and care taken in its preparation and performance.¹ Similar variations are true of the bacterial analysis. The bacterial count is necessary if the milk is to be sold in raw form; producers' payments vary with the size of the count. Sometimes the test is made even where the milk is pasteurized. In this case its effect upon price is negative; if it runs high the producer may be deprived of his market. The test commonly in use is the plate method. Temperatures within laboratory incubators vary sufficiently to have considerable effect upon the growth of bacteria; even the composition of the plate upon which the bacteria are developed is known to change their numbers.

All these tests are performed by agents of the distributor. This practice developed rather naturally under the exigencies of the situation. The ordinary producer does not have a supply large enough to make it feasible to invest in measuring apparatus; his milk is simply one trickle in the mighty stream which pours into the pasteurization plant. And the nature of the tests place them at the point where milk comes together in the common pool. They are a prelude to pasteurization rather than a part of the farmer's operations; the technical skills are more related to the city than to the farm.

The performance of these functions by the distributor has evoked widespread discontent among producers.² They are forced to put their

¹ Milk is poured into a small bulb with a narrow neck graduated so that the percentage of fat can be read. Sulphuric acid is added, and the bottle is whirled in a machine for several minutes. This sets the fat free from the emulsion, and the fat globules lose their separate identity and coalesce. Hot water is added until the liquid reaches almost the top of the last graduation mark. There is more whirling; the butterfat rises into the neck and can easily be read on the scale. A deficiency or excess of sulphuric acid can spoil the process. And insufficient whirling will leave much of the fat still in the liquid. Even where the test is adequately performed, some of the smaller globules never reach the neck of the bottle. To allow for this, the meniscus—a curve higher at the edge of the glass and lower in the center—should be read liberally. Philip A. Wright, *Testing Milk and Cream*, U. S. Dept. of Agriculture, Farmers Bulletin 1626.

² A summary perusal of the testimony of producers at the hearings of the Federal Trade Commission and the AAA indicates something of the bitterness felt over this type of price chiseling by distributors. In informal conversations with farmers the point is reiterated in language more picturesque and profane. A common complaint is that this control is also used as an instrument of discipline; a high bacterial count or an odor in the milk is the distributor's ascribed reason for refusing the supply of a farmer who is active in stirring up disloyalty among other producers. It is impossible to check the validity of these statements since the produce has perished and the remaining evidence is in the files of an interested party, the distributor.

PRICE AND PRICE POLICIES

trust in the buyer's scales; they must accept the results of butterfat, odor, and bacterial tests made under the auspices of the buyer. The point is that under existing arrangements an interested party has this matter almost wholly under his power. However honestly the distributor may perform his judicial office, he cannot escape the suspicion that it is being used to serve his own advantage. He stands to gain if the weighing machine engages in a shadow of understatement. The careless tipping of the milk can is a common practice; the milk that drains out later enters the supply but is unpaid for. A conservative reading of the butterfat scale means an additional increment of profit. Unfortunately there is no impartial agency to which appeal can be made for hearing and redress; the only resort open to the producer is an appeal to his cooperative for pressure upon the dealer.

Some of the cooperatives have attempted to meet this problem by borrowing a practice common in other industries. In the coal mine the check weighman—a representative of the union—protects mine workers by checking the accuracy of weights and measures. But here the task is simple compared with the tests of milk; a casual observation of procedures by representatives of the milk cooperative is inadequate. The techniques are too complex; the details are too minute and complicated. What is needed is an impartial agency, independent of the two parties to the transaction. Such a precedent is found in the cotton industry in the South in the office of the public weighman. It is argued that some agency in the government might undertake the supervision of tests. The need for reform is generally recognized by producers; but suggested remedies have been received with discouraging silence by milk distributors.

Raw milk is converted into fluid milk by the manipulation of temperature. While the milk remains with the cow, nature obligingly performs the offices of preservation and refrigeration. Once the milk is in the can this must be done artificially. So the way of milk is an icy path. The farmer must provide some mechanism for cooling his milk; usually it is placed in cold water until moved to the wagon for delivery to the plant. Trucks and freight cars carrying milk long distances are often refrigerated; if the milk goes first to the country station, it is kept on ice until ready for transportation into the city. At the plant the business of cooling, heating, and recooling is reduced to the minimum of effort. Upon arrival the milk is placed in refrigeration until it is time for pasteurization. In the newest plants this equipment is stationed on the top floor, and the milky way is downstream from one step to another in a continuous process. After pasteurization the milk may go into holding tanks or flow directly into the bottling machine.¹

¹ Here again, where the volume is large enough, the machine process has proved greatly superior to the old hand techniques. The bottles are cleaned with alkali, which combines

MILK

The interval between production on the farm and its consumption in distant cities makes raw milk potentially dangerous to health. A commercial product must be produced to meet the exigencies of urban use. This has been made possible by a device borrowed from the wine industry.¹ It was not until fifty years after its discovery that pasteurization came to have commercial importance in the processing of milk. The initiative came from the cities. Pasteurization of milk was begun in Cincinnati in 1897; in New York, 1898; in Philadelphia, 1899; in St. Louis, 1900; in Chicago, 1908.² As late as 1900 only 5 per cent of the milk consumed in New York was pasteurized. But between 1900 and 1920 most of the larger cities took the pledge. In 1910 it was estimated that about 50 per cent of the milk sold in cities was pasteurized; by 1915 the volume had increased to 80 per cent. Each municipality wrote its own ordinance and the technique could hardly be called standardized. The temperature to which the milk was heated varied between 100° and 160° Fahrenheit and the length of time was anywhere between fifteen seconds and thirty minutes.

Now almost 90 per cent of the milk consumed in cities of 10,000 or over is pasteurized. Within the last decade the practice has spread to the small community. A movement toward standardization has resulted in some success, though great variation, particularly in the smaller cities, still exists. Two principal methods of pasteurization are in use. The "high temperature-short time" device consists in heating milk to 160° for a period of fifteen seconds. In the "low temperature-long time" method, the milk is heated to 142° for a period of thirty minutes.³ The

with butterfat clinging to the used containers and forms soap. Washed and rinsed, they move automatically onto a conveyer to the bottling machine, where they are filled and capped. Where these machines are used, the entire operation is automatic. The few workmen needed function merely as checkers upon the operation of the machine. Still on the conveyer the bottles parade slowly into the refrigerated storage room; there they wait until they go on the wagon for store or house delivery.

¹ In studying the strange fermentations occurring in French wines, Pasteur experimented with temperatures. The discovery that heat immediately after fermentation prevented the ravages of microbes in wines was eventually carried over into the milk industry.

² Some plants were secretly pasteurizing before this time but dared not disclose this practice to the public. That heating delayed the period before deterioration set in was known, and was used to cut down the wastage of the dealer.

³ The thirty-minute method is carried out in different ways. The most common, especially in small plants, is to place the cold milk in a vat, heat it to 142°, hold it at that temperature for thirty minutes, and then discharge it over a cooler. In larger plants milk is heated in a tubular or plate system and then pumped either into vats for thirty minutes' quiescent holding or through a holding-tube system which requires thirty minutes to traverse it. The latter, called a regenerative-cooler-heater system, is an ingenious device which uses the product itself for heating and cooling. The milk flows continuously through double tubes; an inner tube of hot milk is surrounded by a larger tube of the cold liquid just entering to be pasteurized. Though the system is very economical, both in saving hot and cold units, it has one disadvantage. In some cases the actual flow of milk through the pipes

PRICE AND PRICE POLICIES

latter is more widely used, though the use of the fifteen-second method is still popular because of the small space occupied by the apparatus. As an instrument for promoting uniformity in milk practice, the United States Public Health Service recommends a standard ordinance for municipalities or health districts. Its definition of pasteurization provides that "every particle" of the milk shall be heated to a temperature of not less than 142° for thirty minutes. The ordinance also sanctions the fifteen-second method.¹

The function of pasteurization is to render pathogenic bacteria harmless. Not all the organisms in milk are pathogenic. The lactic acid bacteria cause milk to sour by changing lactose into lactic acid; this chemical change does not render the milk unusable; it is nature's way of preserving a perishable product. The agents themselves are beneficial to the human body; their presence in the intestinal tract hampers the activity of their putrefactive brethren. Other classes of bacteria serve an indifferent end; at least their functions have not yet been discovered. Another group—peptonizers—cause decomposition. Thus the need in pasteurization is for a temperature which will destroy the bacteria causing disease—tuberculosis, undulant fever, diphtheria, septic sore throat, typhoid—but which will allow other bacteria to survive to perform their good offices.

The "low temperature-long time" method rather adequately meets this need. Luckily, most pathogenic organisms have a low thermal death point; the others survive to higher temperatures. If milk is pasteurized at 142° for half an hour, the disease bacteria are destroyed; yet there is no appreciable effect upon other qualities of the milk. However, this practice is not completely immune to error. Some cells, normally susceptible to low temperature, occasionally have resistance enough to survive; and there are a few pathogenic bacteria whose death point is above the temperature of this type of pasteurization. But the hazard is rare, as evidenced by the singularly few instances of epidemic now caused by a city's milk supply. On the other hand, if milk is heated to 160° or 180°, there are decided changes in the constituents. The lactic-acid bacteria succumb and there are losses in food value. Then only the hardiest organisms—the peptonizers—remain to have free rein in their function of decomposition. In both types of pasteurization there is little doubt that some of the vitamins are destroyed. The disappearance must find its justification in safety from disease-producing bacteria.²

does not coincide with its theoretical movement; a part of the milk may speed through at a more rapid rate. In that event annihilation of the pathogenic bacteria is not complete.

¹ United States Public Health Service Milk Ordinance and Code. About 600 communities are now operating under this ordinance. A list of these cities whose milk sanitation rating for market milk is 90 per cent or more is published periodically by the Public Health Service. About 100 cities are on the list.

² Though pasteurization has become widely established in business custom, occasional

MILK

Out of pasteurization emerges "market milk." By the time the farmer's produce is communized into a single pool and sent through the pasteurization plant, it is a new substance. In taste, odor, butterfat, bacterial count, and safety, it differs markedly from the miscellaneous raw milks brought in by the farmers. Indeed, though organic in origin, milk might now be called a synthetic product. The machinelike precision of the processing plant creates, within the confines of a market grade, a complete uniformity of commodity; it is not on record that any consumer, however meticulous, has ever scanned a number of a distributor's Grade B bottles for a better bargain. This standardization—within the grades in use—extends to all the distributors operating within a municipality. The raw-milk supply comes from a limited production area; shippers are subject to the same health regulations in the operation of their farms. The distributors must comply with identical city and state laws in the preparation of fluid milk. Each dealer hews closely to the line within the limits of obedience to the law and zeal for profit. The result is an identity of ware among competitors which few industries can equal.¹

Yet the fiction of a buyer's choice is maintained by the industry. Distributors seek to persuade customers that their fluid milk has inestimable—if intangible—values unequalled by their competitors; through advertising and salesmen's good-will visits, buyers are made sensitive to particular brand names. Yet differences cannot be detected; nor does price give a clue. In some cities a cent or two differential is allowed between advertised and unadvertised brands, but this represents a market custom rather than reflects a quality difference. The dealer who does not engage in advertising must offer price concessions in order to find a market for his wares. Elsewhere, where price is identical, competition has been relegated to the nonpecuniary aspects of the sale. The emphasis of large distributors is upon the quality of their service—the inevitability of the morning wagon, the smartness of equipment, the willingness to correct an error in delivery by a special trip to the consumer's door. It is this

attacks are still made. The argument usually comes from one of three possible sources. The critic is a distributor who uses the high-temperature method and finds that the chemical changes resulting reduce the cream line of his milk. Or he is a producer-distributor selling raw milk, who is deprived of a market through pasteurization regulations. Or he is a consumer who believes that the taste of milk has been irretrievably spoiled by processing.

¹ In earlier days the milk peddler who poured into the pitcher could indulge in a bit of extra gain by measuring off a scant quart of milk. This type of chiseling was eliminated by the use of the standard glass bottle, whose volume could easily be checked by city authorities. A consumers' organization in a midwestern city made an investigation of the milk of several distributors in 1935; it was discovered that a few were supplying less than the city requirement of butterfat content per quart of milk. There are probably some butterfat differences among distributors' products in most cities. But, as has been said, butterfat is one of the least important nutrients in milk; it is the mineral and solids content which give to this food its nutritional values. According to food experts at the Department of Agriculture, the differences here would be so minute as to have no commercial significance.

PRICE AND PRICE POLICIES

type of intercompany competition which constitutes a major factor in the distributor's costs of doing business.

The Costs of the Middleman. Since the middleman operates in a pecuniary economy, distribution expenses should be easier to ascertain than the costs of milk production. Numerous factors have made this difficult. First, there is the attitude of the dealer. Until a few years ago the company account book was a highly personal affair; a review by the government was regarded as an unwarranted interference in private business. This concept was modified by the crisis of 1933. The milk industry was shaken out of its customary beliefs; privacy in accounts was subordinated to the cause of industrial recovery. Now once again the trend is in the opposite direction. The industry speaks bitterly of the evils which follow in the wake of publicity of accounts and has marshaled all its pressures to put a halt to this nefarious practice.¹ The result is that an inquiry into distribution costs has been received with a grudging acquiescence—if not outright hostility—by the milk dealers.

Even where figures have been made public, confusion persists respecting costs and profits. Accounts are merely a pecuniary shorthand for real transactions and may reveal or disguise the actualities. The typical business is a complex tangle; the simple principles of cost accountancy can be made applicable only with the aid of the imagination. And where this obtrudes, there is no entry which is inherently right or wrong; each reflects a studied judgment upon considered items set down as a pecuniary notation. The lack of uniformity in systems of accounts is also a serious problem. Since accounting is an instrument of business, the system used is adapted to the peculiarities of the individual company, the wishes of its management, and the results that are to be shown on the balance sheet. The consequence is a diversity from one company to another which frequently makes comparison impossible. Moreover, the task of going through books is a tedious affair; the mechanics of the procedure are slow and costly. The time which intervenes between an event and its detection through the unraveling of accounts can blur the item in human memory or signify the discovery of a mere pecuniary mistake.

¹ A representative of the Dairy Industry Committee, a lobby organization for distributors, sharply reflected the current point of view in testimony before a Senate committee on amendments to the AAA. The issue was the publication of general statements by the Secretary of Agriculture on profits in the industry. He stated: "The Secretary issued the statement a year ago pointing out profits of milk distributors in certain markets based upon the Administrator's interpretation of accounting methods. The net result of this did not enhance the interests of the producer nor of the consumer. . . . The consumer confidence was depreciated with the resulting shrinkage in the sale of milk, the greatest effect of which is less money to the producer. There is no way to tear down an industry through unwarranted publicity or criticism and thereby improve conditions for the producers of raw material." See statement by W. A. Wentworth, Secretary of the Dairy Industry Committee, Hearings before the Senate Committee on Agriculture and Forestry to Amend the AAA, March 14, 1935.

MILK

Another difficulty in securing costs on milk is the inseparability of one item in a multiple business. For the ordinary distributor, fluid milk falls in the category of a joint product; a part of his raw-milk supply is diverted to the manufacture of such products as cream, buttermilk, chocolate milk, ice-cream mix, cheese, and butter. His business is an organic whole; his plant and equipment and labor are united in the processing of several products. Even where the business is large enough to permit the construction of separate plants for the manufacture of butter, cheese, and canned milk, there is still a problem of joint costs; the fluid-milk plant is engaged in the production of several grades of milk as well as chocolate and buttermilk, and frequently cream and cottage cheese. As a result, the cost of standard-grade milk cannot, with strict accuracy, be separated from the cost of luxury milk and other processed products. Whatever costs are allocated must be in the nature of arbitrary selections by the dealer. This has its incidence upon the point at which a distributor calculates that he derives profit from his operations. One company realizes the bulk of its pecuniary gain from the sales of fluid cream, buttermilk, and ice-cream mix; while sales of fluid milk and butter consistently show losses. Another company shows exorbitant profits in fluid milk and cream, but losses in all other branches of the business. Still another reports a moderate profit in the sale of all products.¹ The variation depends, of course, upon the system of cost accounting in use in the plant.

Nevertheless milk costs have been sought relentlessly; and the results, crude and approximate as they are, give some hint of the distributor's pecuniary conduct of his business. The cost of raw material is a variable. The complex arrangements relating to producers' payments are discussed in detail in a later section; here it is only necessary to state that distributors' raw-material expenses vary from market to market and frequently within a single market. Even where pecuniary quotations are identical, customary deductions and charges upon producers make for different prices paid by distributors. The cost of processing is easier to arrive at. The variety of studies made indicate that plant costs are in the neighborhood of $\frac{1}{2}$ or 1 cent a quart.² This depends, of course, upon the efficiency

¹ See Federal Trade Commission, *Summary Report on Conditions with respect to the Sale and Distribution of Milk and Dairy Products*, 1937, p. 30, for specific examples of the wide variation in return from fluid milk and other products, based on the companies' own methods of allocating expenses.

² A vast literature on milk distribution costs is available. Many of the studies have been financed by the milk industry and their evident purpose is to show that costs are low and profits are at a minimum. The most useful to the author have been Max Wasserman, *Report on the Financial Results of the Operation of the Chicago Market*, 1934 (confidential files of AAA); AAA, *A Survey of Milk Marketing in Milwaukee* (confidential files); Kelly and Clement, *op. cit.*, pp. 410-439; *Report of the Joint Legislative Committee to Investigate the Milk Industry*, New York State, *op. cit.*, pp. 180-238; Leland Spencer, *Costs and Profits of*

PRICE AND PRICE POLICIES

of plant and machine, the number of laborsaving devices in use, the volume of fluid milk pouring through the plant, the processing of other milk products, and the overhead allocations incidental to such manufacture. In general the low plant costs indicate a rather high degree of efficiency in the pasteurizing and bottling of milk.

The estimates of the cost of distribution present a striking contrast. Surveys indicate that an average delivery cost of 2 to 4 cents per quart is typical for the large cities. Here averages are particularly deceptive, however; the method of calculation tends to make for the showing of lower unit costs than actually exist. Since it is impossible to separate fluid milk from other milk products, total quart volume for all products is used as the base into which delivery costs are divided. This is secured by reducing all manufactures to their milk equivalents—the amount of milk *used* to obtain the product. The number of quarts thus derived for cost purposes is quite fictitious. A milk-equivalent figure for converting milk into butter or cheese or ice-cream mix is a dairy fact; it is concerned with the physical conversion of milk into a milk product. It is not relevant to the calculation of the manufacturer's distribution costs. As used here it serves merely to increase the number of units over which a cost is to be spread, and unit delivery costs are made to appear smaller than they are. Moreover, a large portion of the distributor's business in fluid milk, butter, cheese, and other products represent bulk sales to hotels, restaurants, and stores. The lower costs for such distribution are averaged against the higher expenses for home delivery of milk; again the result is to make unit costs for the more costly distribution appear deceptively small.

The extrapecuniary forms of competition among distributors for business play a significant role in the price of milk. Approximately one-third of the retail price is assessed for the expenses of distribution. The emphasis upon service has made for an inordinate duplication of routes; a dozen or more distributors' wagons may ply the same city streets, each holding and trying to expand—by means other than price concessions—its pittance of business. In some cases this cost exceeds the price paid to the producer for his milk; on the account books the expenses for transporting milk from the pasteurization plant to the consumer's door are greater than all the services performed by the farmer in producing the distributor's raw material. The identical character of the milk thus peddled makes the cost all the more anomalous. Where a food necessity such as milk is made the

Milk Dealers in New York City and Costs and Profits of Milk Dealers in Upstate Cities, Reports to the New York State Milk Control Board, 1934; testimony and interrogation of Leland Spencer on distribution costs at AAA hearings in New York, February 9, 1934, pp. 890 ff.; Federal Trade Commission, *An Interim Report with respect to the Sale and Distribution of Milk and Milk Products*, 1936, and *Report on the Distribution and Sale of Milk and Milk Products*, Boston, Baltimore, Cincinnati, St. Louis, 1936, pp. 167 ff. Even more helpful have been interviews with the individuals engaged in making cost studies.

MILK

instrument for private profit, competitors in the game set up a fiction of difference among their wares; and then proceed to erect upon this hypothesis an elaborate structure of costs which is passed on to the consumer.

Yet costs are more than a simple addition of items of expense. The difference between the price paid to the producer for raw milk and the price paid by the consumer for fluid milk constitutes the distributor's spread. In most markets this is in the vicinity of 5 or 6 cents a quart on retail sales. Any precision in statement must be modified by the varying prices which dealers pay for their raw material, the volume of wholesale sales, and, where price competition is more active, the differences in prices and sales volume of milk sold in quart, pint, and half-pint containers. But whatever the spread, there is no cost accountancy so rigid as to fail in allocating total outlay among a number of seemingly justifiable expenses. Thus it is that price, supposedly determined by costs, can also influence the nature and size of the expenditures in the conduct of a business. This is particularly true where price competition does not exert an insistent pressure for lowering of costs and traditional practices are not exposed to the iterated beat of industrial reexamination which aims at cutting every unnecessary expense. In milk, where the dealer's spread is fixed by private agreement in industry, the anxiety to denude costs of the superfluous comes only indirectly in the zeal for greater profit. Thus it becomes impossible to tell whether a particular cost is a just, proper, and necessary expense of production or whether it is a pecuniary expression of a wasteful method or an entrenched interest.

FLUID MILK—A SHELTERED MARKET

The stream of milk from the farms is the raw material for a miscellany of milk products. The milk leaves the farm and as a single liquid substance enters the distributor's plant; when it emerges from processing, it is a variety of distinctive milk products. These products find their way into different markets where customs are unlike, ways of thought are different, and the mechanisms for price making bear little resemblance to each other. Yet all of them stem directly from the raw milk produced on the farms.

A mixed blend of elements of a free and of a sheltered market—in different combinations—characterizes the sale of these products. At one extreme is butter. The market is open; there is no insurmountable pecuniary barrier to entrance into the business; knowledge of market conditions is disseminated quickly; prices fluctuate daily on the exchanges. Yet even here the norm of perfect freedom is only partially realized. The performance of function must make its compromise with established custom; the arrangements for bringing the ware to market, necessary as

PRICE AND PRICE POLICIES

they are, stagger the process; the translation of economic fact to human consciousness and the judgment in response are quick but not instantaneous. The position of cheese is between that of butter and fluid milk. Its production is concentrated in fewer hands; processes are more complicated and require a heavy investment of capital; and the large companies, through their national hold on marketing arrangements, have been able to exert a powerful influence over price.

At the other end of the scale is fluid milk. The milk supply of a city is limited. A barrier of public regulation intervenes between shipper and market; producers are not free to enter and dispose of their wares as they please. A pecuniary barrier limits the number of distributors; the requirement of pasteurization demands a capital investment which discourages entrance into the business. The making of price by free and none too orderly competition has given way to private agreement within the industry. Yet fluid milk is not completely immune to the impact of open markets which impinge; and it is more correct to speak of its arrangements as a sheltered than as a closed market.

The very economics of the situation makes a complete monopoly impossible. Fluid milk is only one branch of the great stream of raw milk, and in terms of quantity is not of major significance. Less than a third of all the milk produced makes its way into the cities as bottle milk or cream. The largest single use is butter, which accounts for almost half; another fifth is consumed directly on the farm; the remainder enters manufacturing.¹ Freer than fluid milk, the manufactured products are a constant danger and challenge to the established fluid market. Since producers secure a higher return for milk for fluid use, large volumes of their supply—in practice diverted to manufacturing—are always ready to enter the sheltered market. A wall of statute and custom has been erected to shut out this supply; but so interrelated are all the milk products that the protection these barriers can afford is never absolute.

The eclipse of the free market has been made possible by a system of local inspection which has split what might have become a national milk market into a series of distinct, but partially interlocking, segments. That milk alone may enter the city whose source has been inspected by the local health authorities. Thus at its origin the supply of fluid milk for any locality is segregated from the great stream of milk which pours from the farms into the national economy.

The purpose of health inspection is legitimate. No milk should be sold to the public which is unfit for human consumption. But that the relatively small unit of the municipality performs this service for a national industry seems like an extravagance in paradox. The current practice is

¹ See estimates of utilization made annually by the Bureau of Agricultural Economics, United States Department of Agriculture.

MILK

really a matter of historical accident. It was in the city that the first recognition came that milk could spread disease. The state and federal governments did not feel immediately concerned; the issue was regarded as a purely local matter with which the city governments could cope. At that time pasteurization was unknown. The only safety measure available to the cities was a rigid regulation of the conditions under which milk was produced. To make this effective it was necessary to take inspection to the farm. Between 1875 and 1910 all the larger cities had passed laws providing for farm inspection; it became an established practice for local authorities to prohibit the entrance of milk unless its source had first been approved by a health inspector. Thus by local statute, innocent of any ulterior intent, the stage was set for the sheltered market.

The future economic consequences of farm inspection were not foreseen by the city officials. Their sole concern was to protect the public health, and the effects of their action could hardly be predicted at the time of its initiation. Cities were few in number; they were widely scattered; at that time the natural barriers of distance and inconvenience hindered the unrestricted flow of a perishable commodity. The new arrangement was merely a response to a situation, an answer to a necessity. Fluid milk came from the farms immediately adjoining the cities; the only change contemplated was an inspection of these farms.

A local regulation, obsequious in its beginnings, has persisted despite the great economic changes which have occurred. As cities grew in size and proximity, their natural insularity faded and disappeared. Almost unnoticed the areas of supply for these centers of consumption widened beyond state borders, overlapped each other, and formed confused tangles. Yet the laws and customs governing the marketing of milk remained local and provincial. Swift transportation and the newer devices of mechanical refrigeration were creating around cities as centers large sectional markets for milk. Yet the continuance of local inspection and the usages built around it kept them distinct and separate. The natural barriers to the movement of fluid milk had disappeared, but artificial ones had taken their place.

In this new scheme a system of multiple inspection has made its haphazard appearance. The frontiers of the milkshed—the territory from which the city secures its supply—were extended farther back; overlapping territories developed; and areas here and there were subjected to conflicting systems of inspection. As the accent of regulation fell more keenly upon the values of public health, other political units such as the county and state came to interest themselves in the protection of the milk supply. The result is now a bewildering complexity of jurisdictions and of regulations. So diverse and even chaotic are the arrangements that generalization is virtually impossible. Even if neat summaries can be drawn

PRICE AND PRICE POLICIES

from ordinance and statute, they would give but a part of the picture; a knowledge of regulations on the books and regulations as they are in practice requires detailed analysis of the individual milkshed.

Ordinarily the state sets minimum requirements regarding the fat and solids content of fluid milk.¹ These may represent merely pious hope or a policy stringently enforced. Some state regulations provide only for inspection of city pasteurization plants; others require that the state inspectors actually travel to the farms. In the North, where the county is a fading political authority, the county health officer is the rare exception; in the South, where it is still a vital political unit, almost full reliance for inspection rests upon county officials. A few municipalities have united to form districts which constitute a single area for the work of the health service.

As it began, so to a large extent inspection remains with the city. The larger administrative units have added regulations; but they have been intended to supplement, not to supplant, the work of the municipality. And since conformance with the municipal regulations is a prerequisite to shipment to consuming centers, real power centers in the city authorities. How regularly and efficiently such inspection work is carried on varies widely from place to place. The United States Public Health Service in its standard ordinance sets the "legal minimum" of inspection of dairy farms and milk plants as once in six months.² It is the general belief among experts that merely a handful of cities come up to this standard. A usual difficulty is insufficient funds and a consequent inadequacy of competent staff.

To supplement further the work of all these administrative agencies, one section of the industry has engaged in policing services on its own behalf. In some markets inspectors have been hired by the distributor to examine the farm whence comes the milk to his pasteurization plant. But he too is subject to the law. In his zeal for the compliance with multiple regulations beyond probable or even possible doubt, the distributor has summarized these into his own more strict—and more arbitrary—

¹ It cannot be emphasized too strongly that the customs of inspection vary markedly from one milkshed to another. The discussion here is intended to show a general picture of the situation; it is too brief to set down the niceties of current practice in particular markets. A valuable contribution to a knowledge of the milk industry would be a detailed analysis of the scheme of inspection in a score or more of separate milksheds.

The evidence which has been employed here has been taken largely from oral or unpublished sources. The illustrations in the footnotes—to give concrete expression to the argument—are taken wholly from the hearings of the Federal Trade Commission; there is no other recent material in documentary form readily accessible to the reader.

² It recommends an even more frequent inspection. "In actual practice it is desirable to inspect every dairy farm at least two or three times during each grading period (a period not to exceed six months) and every milk plant at least every two weeks." United States Public Health Service Milk Ordinance, July, 1935, p. 21.

MILK

scheme. Such private supervision, where it exists, has become a part of the law of the industry; often it is more rigidly enforced than public regulation, since the producer is directly dependent upon the dealer for a market for his milk.¹

The character of these regulations is determined by the local boards of health. Like many other institutions in our society their functions have been diverted to an alien purpose. Originally they were set up in response to a pressing need for milk sanitation. Then the devices for this purpose became ends in themselves; their practicability of operation and incidence upon the industry became secondary. A host of minute and often unnecessary regulations developed whose added cost to the product often outweighed the modicum of safety insured. Since these rules were rationalized on the high plane of public health, their sanctity could not be questioned. By the time pasteurization came into use, the inspection service was well established and the possibilities of this new device as a substitute for the older method were not raised.

The very mechanics of inspection has tended to freeze the structure of the milkshed. With a large number of farmers clamoring to ship in their milk, it appeared a waste of time and public funds for inspectors to go far out into the country. Since it was the near-by rather than the distant farmers who spent their small hoards of cash in the city, it was only good business to supply the wherewithal for the purchase of merchandise from the urban center. So the overworked inspectors confined their energies to the farms easily available. In consequence the arrangement of their duties was more systematic and efficient, and a time-honored mercantile system of exchange developed between the agricultural and industrial economies. A prolonged delay in initiating inspection also served to discourage distant farmers. Where the staff is small, petitions for the inspection of new farms cannot receive instant attention; they must wait until the inspector's work carries him into the vicinity. Some cities feel they cannot afford to carry the burden of this service themselves; inspection is made self-supporting by charging the farmer on a mileage basis. This has the automatic effect of shutting out producers many miles away. Elsewhere this state of affairs may be crowned by

¹ The testimony before the Federal Trade Commission illustrates the situation. The city of Philadelphia in 1934 employed eleven inspectors at annual salaries of \$1,700 to inspect pasteurization plants in the city. The state of Pennsylvania had fifteen men, at salaries of \$2,400 a year, who duplicated this plant inspection, covered 5,000 producer-distributors, and "checked" on 350 approved inspectors employed by dealers. Such a small staff could not inspect the 80,000 farms in the shed; the practice was to take a sample which, if satisfactory, did duty for the whole. The director of the State Bureau of Milk Sanitation estimated that an additional force of forty-five was required for inspection of farms twice a year and for proper supervision of pasteurization plants. *F.T.C. Hearings*, p. 794.

PRICE AND PRICE POLICIES

statute; in Baltimore the purchase of milk for fluid purposes is prohibited, except in emergencies, outside a 50-mile limit.

The details of the regulations with which the farmer must comply are often unnecessarily minute and rigid and even ritualistic in character. The concrete problems which are faced do not allow an easy emergence of the alien values of economics. The officials in charge are health experts rather than industrial economists; they are more concerned with a conformity to standards than with the industrial effects of their regulations. Yet a slight gain in safety may be won at a heavy industrial cost. A rule that milk must be cooled to 60° rather than 70° may mark the line between cooling with water and the installation of ice or mechanical refrigeration. A requirement that the entrance to the cooling room shall not be closer than 10 feet and not farther than 50 feet from the door of the cow stable may necessitate a rebuilding of the barn. A demand for construction of openings in the milkhouse to ensure increased ventilation may subject the farmer to a heavy expense. The degree to which these regulations further public health is not beyond the domain of opinion; the values attained belong to the aesthetics of milk production.¹

In most cities the health commissioner has been granted wide discretion in the performance of his duties. He can issue rules and regulations to facilitate carrying out the law; and as particular problems emerge, interpretations of the original rules are added. Frequently these occur with a change in personnel.² The incoming official, not unnaturally, likes to leave the imprint of his personality on his office by improving milk inspection with a new and slightly different version of the law. Under one regime, for example, farmers are allowed to strain their milk in the barn and the milkhouse is located close to the best source of water supply. Under another, farmers are required to strain their milk in the milkhouse. This change, slight as it is, accompanies no alteration in the law; it is simply an interpretation of a ruling by the health authorities. The result, however, is to force the farmer to carry each cow's milk from the barn to the milkhouse in order to strain it or to put up a new milkhouse at the barn. And there is no surety that a costly adaptation of equipment or structure to a new regulation will continue for long to suit the officials.

¹ The head of the Pennsylvania Bureau of Milk Sanitation put it more trenchantly: "It has been the practice of the dealers to enforce as a maximum requirement, or rather a minimum requirement, the state regulations, particularly in New Jersey and New York, and they have very different requirements, many of which have nothing at all to do with the quality of milk. They are simply the aesthetics. They are nice, if you can afford to have them, but they have little to do with producing a clean bottle of milk, but the dealer is forced to enforce them, and that is the situation." *F.T.C. Hearings*, p. 799.

² For example, the Secretary of the Philadelphia Interstate Dairy Council testified: "In our own Pennsylvania regulations and requirements, they do not frequently change but the personnel administering them frequently changes, and in many of our regulations it much depends on the interpretation made by the administrator." *Ibid.*, p. 507.

MILK

Yet rules, no matter how minute, cannot be devised which will adequately fit the miscellany of activities on the farm. In most markets the inspector grades the farm on score cards; to pass the test and become a shipper a certain score is required. The items—stable and yard, milk-house, utensils, water supply—are subdivided and graded for construction, cleanliness, location, and other factors. Here the mechanisms for sanitary milk tend to become crystallized into ritualistic compulsions; and alternative ways of handling the milk, equally instrumental to the end to be achieved, are rigidly rejected. To make the system more flexible, inspectors are supplied with a complex "interpretation" of the dairy score card and, in the multiplication of items, some variation is permitted. This puts discretion likewise into the hands of individual inspectors. Even among the most impartial of agents, a complete identity of agreement on a farmer's score would be unusual; there are too many variables to be taken into account. A common complaint among producers is that inspectors fail to agree among themselves on the standards that are to be maintained; the arrival of a new inspector may require a host of improvements, which entail costs out of all proportion to their contribution to the sanitation of the milk supply. Still others report that some inspectors feel they must curry favor from their superiors by citing a variety of improvements to be made. And it is a not unknown complaint that some inspectors have not been above exploiting a personal grudge or accepting a pecuniary courtesy in the fulfillment of their duties.

The control exercised by these local boards of health is virtually final. It is true that the decision of an inspector regarding the sanitary conditions of a farm can be appealed to the health department; and if it is sustained there, an appeal can then be taken to the courts. But the farmer is often unaware that he has a resort to the courts; and since he cannot afford to indulge in litigation, awareness or unawareness is of little consequence. Only occasionally has this regulation come to the attention of the courts. The cases have usually come up in two distinct ways. In one class of cases the relevancy or justice of the regulation is questioned; in the other the refusal of the health department to inspect is brought to the courts. The financial stringency of the farmer is such that the cases brought by him are negligible. Exactly the same questions are raised, however, in the suits of distributors for the privilege of operating in the market.

The police power has been interpreted by the courts to give health commissions wide latitude in the regulations which they may impose to promote the public health. The court approaches the case with the presumption that the board has a wide choice of ways and means for reaching its objective, and that discretion in so technical a matter as instrumentalities for promoting the public health is not within its province. In most

PRICE AND PRICE POLICIES

instances the court finds that the making of rules and regulations is quite within the power of the board; it is only when the questioned legislation is "on its face and according to its plain language" unreasonable and arbitrary that the court has interfered.¹ Where the issue of refusal to

¹ A few instances will indicate the prevailing judicial attitude upon the subject.

Polinsky v. People, 73 N. Y. 65 (1878). A dealer was cited for "exposing for sale" in the city of New York impure and unwholesome milk adulterated with water. The court stated, "That the Legislature in the exercise of its constitutional authority may lawfully confer on boards of health the power to enact sanitary ordinances which have the force of law within the districts over which their jurisdiction extends, is not an open question. This power has been repeatedly recognized and affirmed. And ordinances designed to prevent the flow of adulterated milk are manifestly within the scope of sanitary regulations."

People v. Dept. of Health of City of New York, 82 N. E. 187 (1907). The board of health revoked a dealer's license for violation of their regulations. The court held, "The powers of the members of the board of health being administrative merely, they can issue or revoke permits to sell milk in the exercise of their best judgment, upon or without notice, based upon such information as they may obtain through their own agencies, and their action is not subject to review either by appeal or certiorari. If, however, their action is arbitrary, tyrannical, and unreasonable, or is based upon false information, the relator may have a remedy through mandamus to right the wrong he has suffered."

Walton v. Toledo, 23 Ohio C. C. 547 (1902). The city ordinance provided that no person should sell milk in the city without a permit from the board of health; it authorized inspection of milk sold in the city, the places where produced, and the cattle producing it. The court said, "Criticism is made in regard to the ordinance and the powers which are given to the inspector. We see nothing in that law that is inimical to any provisions of the constitution or to the laws of the state in regard to the powers which are granted, nor do we see anything that need to frighten or trouble any person who is intending to perform his duty of having cattle that are healthy and stables that are clean and who is intending to sell milk that is pure to the inhabitants, but it should rather be presumed that all will desire to do that, that they will comply with the statute. . . ."

Billings et al. v. City of Hutchinson, 49 Public Health Reports 684 (1934). The city adopted the milk ordinance recommended by the United States Public Health Service. An injunction was sought by the plaintiffs, who contended, among other things, that the milk inspector was given arbitrary powers. The court replied "The milk inspector is clothed with power. An inspector without power would be useless. True, he can revoke permits and do a great many other things under the ordinance. . . . He does not have arbitrary powers, because they are all subject to review, first by the commission and then by the courts. Should he attempt to exercise arbitrary powers, that matter can easily be taken care of when the time arrives."

Loftus v. Dept. of Agriculture of Iowa, 232 N. W. 412 (1930). The court, in holding that the state law for the control of bovine tuberculosis was within the police power, said, "Power to legislate was significantly and intentionally conferred upon the legislative department. Consequently the courts cannot interfere with the exercise of that power and authority by the Legislature. It is only when the Legislature attempts to exercise a power which it does not possess, because of state or federal constitutional prohibitions, that the duty devolves upon the court to declare the act unconstitutional. . . . Health measures, generally speaking, are within the police power. But labeling an act a health measure does not make it such. If, in fact, the subject-matter thereof does not relate to health in the way required for due process of law. . . . So, too, the method prescribed for enforcing a given statute may be so arbitrary and unreasonable as to subject such legislative enactment to judicial interference."

Mints v. Baldwin, 289 U. S. 346 (1933). The United States Supreme Court upheld as a valid exercise of the police power an order by a state commissioner of agriculture and markets designed to prevent the importation of cattle infected with Bang's and other contagious diseases into the state. "The order is an inspection measure. Undoubtedly it

MILK

license is squarely raised, after all health requirements have been met, the courts usually conclude that an industry is legally open to all who care to take its chances. Licenses have been made contingent upon the expanded needs of the market, producer-distributors have been refused admittance on the grounds that they are "nonresidents." Such actions by the local boards of health have been rejected by the courts. In a suit in New Jersey in 1935 all the standard arguments for refusal to grant a license were paraded by the local health officials. The supply of milk was already "adequate"; the health bureau had the milk supply "well in hand" and an additional burden would "embarrass the present system"; the limited budget did not permit the inspection of "additional sources of supply at distant points"; one more distributor would bring about a "surplus supply of milk which may prove a menace to health and a nuisance to the public"; the business of distributing and selling milk was a "privilege by reason of the nature of the product and not a right." The court, however, regarded such a position as "unreasonable, arbitrary, capricious and discriminatory."¹

was promulgated in good faith and is appropriate for the prevention of further spread of the disease among dairy cattle and to safeguard public health. It cannot be maintained therefore that the order so unnecessarily burdens interstate transportation as to contravene the commerce clause."

¹ *Sheffield Farms v. Seaman*, 177 A. 372 (1935). The court said further, "It unlawfully curtails a prosecutor's common-law right to engage in lawful business, notwithstanding that it has fully complied with the requirements of state and city. This the city cannot lawfully do."

Whitney v. Watson, 157 A. 78 (1931). A producer-distributor was refused a license after the health board had voted to discontinue granting further licenses to nonresidents. The court declared, "It is in the interest of the purchasing public as well as of the producer that a license be granted the latter when he has fulfilled the legislative requirements. . . . The Legislature meant to enact a workable law, and therefore to impose such a limitation of the field of its operation as permits of the supervision for which it provided without unreasonable expense. The search being for the line limiting the area of practical administration, the city boundary considered alone has no significance. Distance, moreover, may not be the test. Topographical transportation and other conditions may figure in the problem. What are reasonable limits under all conditions is a question for the Board, subject to revision by the court if not fixed by the exercise of reasonable discretion."

Miller v. Williams, 12 F. Supp. 236 (1935). This case involved the validity of a regulation by the Baltimore Health Commissioner prohibiting the sale of cream for ice cream where the cream was produced outside the 50-mile limit. "The real objection of the Health Department to the foreign cream is based on the alleged impracticability of adequate and effective supervision by its own representatives of the dairy farms which produce the milk supply from remotely situated foreign dairy plants. This of itself is not a sufficient basis for excluding the cream although very probably it would support regulations of a somewhat different nature than those applicable to the local supply. . . . In short, the police power of the State and its municipal sub-divisions can be exerted to any extent necessary to insure the health of the community against impure or unsanitary foreign cream, but it may not be exerted as a barrier against all foreign cream, even though not deleterious to health, on the mere ground that the local supply is adequate."

New State Ice Co. v. Liebmann, 285 U. S. 262 (1932). This is the classic statement on the limitations of the state's power. ". . . nothing is more clearly stated than that

PRICE AND PRICE POLICIES

The economic incidence of the work of the local health boards has in general escaped notice. The chain of events stem from the size of the unit which exercises control; the supply of milk which enters any city is initially limited to the amount which has been inspected. As the ends to be attained have been enveloped by the means employed, the device of inspection has tended to become an instrument for further limiting the supply. In many markets the regulations are so rigid that a farm must virtually be constructed to specifications set by the health department; or it must be considerably overhauled before it can comply with the minute requirements. A deliberate motive on the part of health officials cannot be ascribed; their duties place an emphasis upon health regulations irrespective of the economic effects which might follow. And the finality of their decisions has tended to erase a true appraisal of the incidence of the functions performed. An appeal from the decision of an inspector to the health department still leaves the issue in the hands of a party not wholly disinterested. Where the complainant has inadequate funds to initiate court proceedings, the right to appeal—no matter how inherent or constitutional it may be—serves little purpose. And the courts themselves, when given an opportunity to intervene, have not been equipped to handle the particularities of these health questions; they have been in no position to estimate how essential a regulation is to the public health or how far it goes to make a sheltered market.

The atmosphere in which the health departments operate contributes to the same result. A local mercantilism has encouraged the preservation of the market for producers within their own state; some health officials have admitted that inspection has been used to preserve the milk market for the farmers in their own areas. A typical device for securing this end is to allow a touch of indulgence to fellow citizens in the meeting of regulations and to compel producers outside the state to come up to full requirements.¹ And it is true that the environment in which the health department operates is political in the extreme. The producers organized inside the milkshed resemble in many respects the

it is beyond the power of a state under guise of protecting the public, arbitrarily (to) interfere with private business or prohibit lawful occupations or impose unreasonable and unnecessary restrictions upon them."

¹ The Secretary of the Philadelphia Interstate Dairy Council testified before the Federal Trade Commission: "For instance, I have always felt that New Jersey inspectors require a more strict adherence to the New Jersey regulations in Pennsylvania than they did of a farmer in New Jersey. I do not think there is any question about that—that when the Board of Health in New Jersey inspected farmers in Pennsylvania, they expected a 100 per cent compliance with the New Jersey laws. Then, when these same inspectors visited farmers in New Jersey, they were very apt to wink at things that would shut a dairy off over in Pennsylvania. That same thing, I might say, is also true on the part of the Pennsylvania boards of health, in that they are much stricter with farmers in Delaware and Maryland than with farmers in Pennsylvania, according to my judgment—and so on in places up and down the line." *F.T.C. Hearings*, p. 512.

MILK

craft union. Their goal is control of production to the consequent end of higher prices. The position of the distributors is identical; a curtailment of supply and a limitation on the number of dealers means a more efficient control and, consequently, higher prices. In the effort to keep the market sheltered from outside milk, a heavy reliance is placed upon inspection. As a result, the local health agencies are subject to a continuous pressure from producers and dealers alike to make of inspection an economic weapon for the protection of vested interests. In almost every instance the argument is couched in terms of public health regulation. Undoubtedly, the more transparent appeals receive little sympathy; but more than one request—its economic purpose cloaked in the ritual of public health—has passed a board whose sole concern is with the sincere performance of its duties.¹

Inspection and Tariff Wall. The economic effect of local inspection is to erect about each city a tariff wall for fluid milk. This is not written in statute; nor does it find explicit recognition in the promulgation of any health commissioner. It represents a slow accumulation of an infinitude of petty judgments; like the law, it is a mass movement whose results can be seen only after the minor event and its detailed decision have faded into precedent for later judgment. The institution of the milkshed is the product of a social process which operates without conscious design or economic plan. In consequence, the territory constituting the shed does not inevitably conform to the contiguous area of natural milk production. On a map it appears to be a collection of counties hopelessly gerrymandered by the dominant political party. Undoubtedly to some degree its sprawling contours represent the natural expansion to new areas of supply to meet the needs of a larger market. To an even greater degree it is artificial, reflecting the incidence of local inspection and the pressure of organized groups within the shed.²

¹ The files of the AAA hearings and the testimony before the Federal Trade Commission are replete with complaints that health departments have used their offices to promote particular interests. How true this is, it is impossible to say. When, as in New Jersey, a local board of health excludes a distributor on the ground that there is an adequate supply of sanitary milk already entering the market, is this a concession to economic pressure or is it a genuine attempt to protect the milk supply? When a city excludes producer-distributors by passing an ordinance that all milk sold within its domains must be pasteurized, is it economic in intent or does it represent a concern for the public health? When a new regulation is promulgated by the health commissioner compelling producers—or distributors—to make heavy financial outlays, has economic incident become essence?

² Some of the early marketing agreements of the AAA embody the established structure of the shed. The following is typical:

“‘Richmond Production Area’ means the territory lying within the counties of Henrico, Hanover, Goochland, Powhatan, Amelia and that territory, part of the country of Chesterfield, lying within the following lines:

“Beginning at Farrar’s Island on the south side of James River and thence along Island Road County 281; thence westerly to County Road 100; thence south along County

PRICE AND PRICE POLICIES

The initial limitation of the milk supply by farm inspection has also made possible a scheme of private arrangements by which the industry operates. In every shed a flood of milk, produced in accord with local health regulations, is available for fluid purposes; and this volume, to varying degrees in different sheds and at different seasons, exceeds the demand at the current market price. In the large dairy areas, a heavy surplus is always pounding at the door of the fluid markets; even in the East, in the so-called deficit areas, spring production makes for a recurrent surplus problem. If the total supply were thrown daily upon the fluid-milk markets, it would regularly break the price structure. Milk is too perishable to be held in fluid form; dealers would be forced to dispose of it at any price. In consequence, it has been necessary to develop a system of market controls which will prevent the excess of inspected milk from entering the fluid channels.

This end—essential to a sheltered market—is accomplished through the utilization plan of payment. Whether this could have been initiated in large sectional markets or a national market, it is impossible to say; certainly it would have been difficult to arrive at the community of understanding necessary to its success. The sheer provinciality of the current market structure has made feasible an organization of the groups within the industry; this in turn has facilitated a replacement of market mechanisms of price making by a system of private control. Under the utilization plan, to be discussed in detail in the next section, milk is divided into classes dependent upon its use. The retail price for fluid milk elicits a certain demand; to meet this the supply is measured off with precision; and the surplus enters the butter and other manufacturing channels. The more inclusive markets for milk manufactures are not susceptible to a similar control. Their source of supply is all farms, inspected or uninspected; their markets are national; in general their prices bear the incidence of competition. Excess inspected milk is thrown

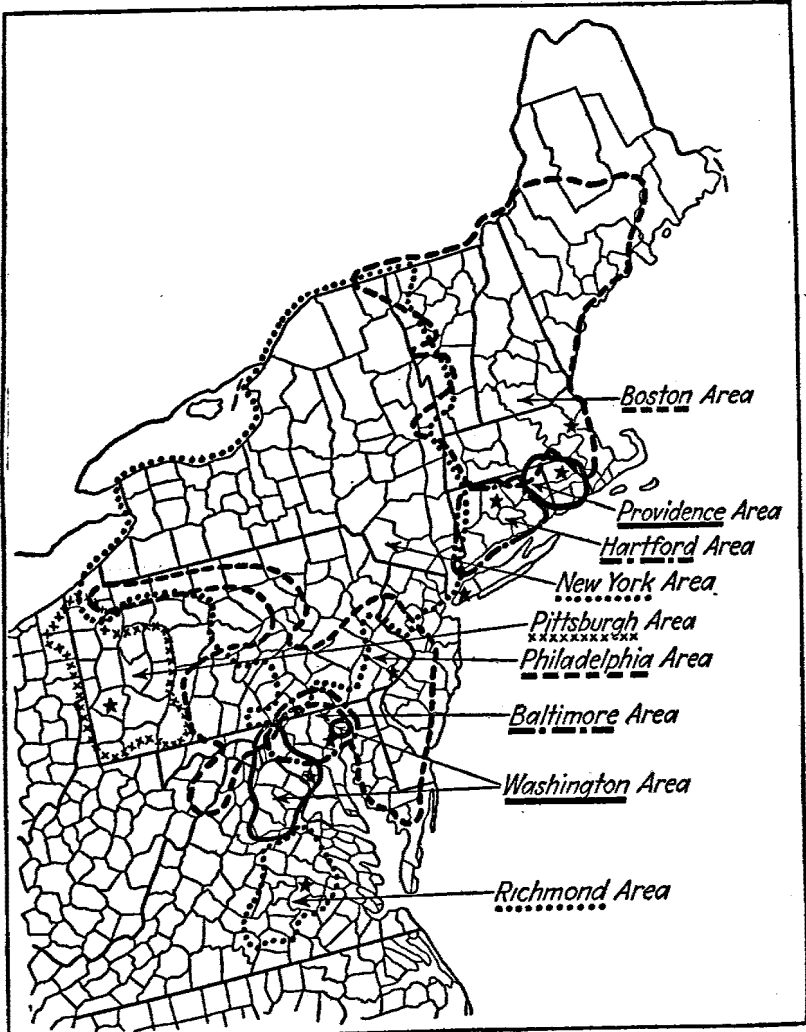
Road 100 to State Road 407; thence westerly along State Road 407 to Chesterfield Court House; to County Road 13; thence along County Road 13 to County Road 15, thence west along County Road 15 by way of Beach to County Road 121; thence west along County Road 121 to Winterpock; on County Road 238; thence southwesterly along County Road 238 to County Road 117; thence westerly along County Road 117 to Bevil's Bridge on Appomattox River; thence northwesterly up the said river to the county line between Powhatan County and Chesterfield County; thence northeasterly along the County line between Powhatan and Chesterfield Counties to James River; thence down James River to starting point at Farrar's Island.

“ ‘Richmond Production Area’ also means those farms now holding permits from the City of Richmond and now selling milk pursuant to such permits in the Richmond sales area.” Marketing Agreement, Richmond, Virginia, December 20, 1933. The similarity to the boundary lines in a deed of property is obvious.

MILK

into butter and cheese where prices are more sensitive to supply than are the prices of fluid milk. Thus the markets for these other products

MILKSHEDS OF NINE EASTERN MARKETS



Courtesy of Farm Credit Administration.

are caught up in the strategy of control and are used to buttress the fluid markets.

PRICE AND PRICE POLICIES

A system of local control has also tolerated the growth of a unique set of property arrangements within the milkshed. These have had their inception as an incident of the utilization plan. The right of producers to a share in the fluid market depends upon their ownership of a "base"; the system of equities arising out of the complex operation of the base surplus plan has a significant effect upon the size of the producers' returns for their raw milk. It has also been caught up into the control of the dealer; and the intricate workings of both the utilization and the base surplus plans have served to create a collection of perquisites for the distributor. So multiform are these and so distinctive to the various sheds that it is possible here only to set forth briefly the general characteristics and their incidence upon the groups in the industry.

THE POLITICS OF PRICE

In milk a multiple price is paid for identical units of the same commodity. These units are interchangeable. They come from the same stream of milk, are produced in accordance with the same health regulations, and are alike designed for the same fluid market. For this milk there may be from two to six or eight different prices in one market. Such a miscellany of quotations for a single good distinguishes milk from most commodities and does not lend itself to the formulations of a simple theory of price. Nevertheless the situation is general and has persisted for many years.

In the industry this multiple price is not regarded as extraordinary. It is accepted as a matter of course and is given currency in the fiction that milk is not one but many different commodities. Actually, the thing purchased by the dealer is raw milk; but his payments to farmers are made in terms of the finished products for which each is used. This is effected through the division of raw milk into classes. In its simplest form, Class 1 constitutes all milk sold for fluid purposes; Class 2 is fluid cream; Class 3 is the miscellany of manufactured products into which milk goes. Such is the rough and basic division but in different markets infinite variations are rung on these primary classes.¹

Boston has two classes: fluid milk and "all other milk." In Detroit there are three classes: fluid milk, fluid cream, and all milk in excess of

¹ The development of this practice coincided with the growth of producers' cooperatives following the World War. Prior to that time all milk was purchased on a flat price basis; the distributor sold all he could for fluid use and manufactured the remainder. As cooperatives came to have bargaining power, they demanded higher prices for their members, but were informed by distributors that their sales of milk in surplus channels were so great as to make this impossible. Producers then proposed that they see exactly how their produce was allocated, and that a basis of payment be arranged according to the quantities of milk sold for the several uses. In consequence, the "classification" or "use," plan came into trade practice.

MILK

these. In the Connecticut shed there are four: fluid milk, fluid cream, manufactured products, and butter. In Denver a different system beyond Class 1 and 2 is orthodox; Class 3 is milk used in the manufacture of malted milk; Class 4 is all other milk. In Los Angeles Class 3 is all milk in excess of Classes 1, 2, and 4; Class 4 is milk for "cheese (except cottage cheese) and butter except butter produced for the purpose of making ice cream and/or ice cream mix." Atlanta is a case by itself. Class 1 is fluid milk; Class 2 is fluid cream, flavored milk, and buttermilk (except when skim milk is used); Class 3 is milk used for ice cream and ice-cream mix (again if no skim is used); and Class 4 is all milk in excess of these classes.¹

The actual course of a producer's milk is unknown. At the dealer's plant it pours into the common pool; and as a part of the pool is allocated to the various milk products. Nevertheless it is assumed that his milk enters the various uses in particular volumes; and he is paid on this hypothetical basis. The effect of the plan is to make prices for raw material vary with the prices realized for the finished products, and to distribute costs and benefits on sales among the suppliers of the dealer. In many markets this arrangement is formal and recognized and admittedly governs the pecuniary relation between producers and dealer. Elsewhere it is informal; the dealer, though he pays a flat price for raw milk, takes into account the customary uses of milk in his business before naming the price he is willing to pay. In the larger markets frequently both schemes are in use; and even a single dealer may purchase a part of his supply on the utilization plan and a part on the flat price basis.

The trend in the making of fluid-milk prices has been away from the market toward arrangements political in character. As has been indicated earlier, this is by no means complete; fluid markets are in various stages of development. In communities that are small the open market prevails; in others the making of price has graduated into a dominant control by a few dealers. In the large cities it has moved into the stage of collective bargaining between organized producers and dealers. Recently the state has entered some markets through the operation of state milk control boards or federal marketing agreements. If, in this miscellany, selection makes possible a norm, it is the collective action of organized groups in the industry. It will never be universal; such a complex mechanism is hardly suited to price making in the small town. But for the larger community, whether already established or in process of achievement, it is typical. Even under government regulation the organization of producers and of dealers has set the stage and has largely

¹ These are taken from the AAA contracts, which generally embodied the established organization of the shed.

PRICE AND PRICE POLICIES

dominated policy. These arrangements for the marketing of fluid milk have a distinctive industrial pattern and require detailed analysis.

Combination to the end of controlling prices, though it was not their invention, began with the distributors. In the eighties and nineties it was a reflection of the business spirit of the day. Industries like oil, steel, and the railroads had already pointed the way for their lesser brethren. It was not long before the gentlemen in the milk trade came to unwritten, and even informal, understandings respecting prices. Its initial effect upon the industry was the creation of a buyers' market; the prices to be paid for raw milk were offered to the producers, who could take or reject them.¹ Organization by the producers became a necessity of economic self-defense; as individuals they were virtually powerless in the bargaining process. To succeed where singly they had failed, they proceeded to get together; their aim was to get in at the point where the bargains were being made. As the dual organization of producers and dealers grew stronger, the powers normally residing in the automatic adjustments of the market slipped into receivership. The price of fluid milk was no longer a matter for the market; it had been made subject to a series of private arrangements within the industry.

Price negotiation between these two groups is now integral to the organization of large markets. In some the agreements are confined to the prices to be paid for raw milk; in others they extend to the retail prices to be charged. To the producers' cooperative, as the organization of farmers is called, these conferences are essential. They provide a mechanism for collective bargaining which makes for a uniformity, at least of producers' quoted prices, over a large part of the shed. The alternative—isolated bargaining with each distributor—would be unwieldy and cumbersome; and it would supply an opportunity for dealers to play off one against the other in a prolonged campaign. So obvious is this that the cooperative has, in some markets, found itself in a position of encouraging dealers to enter into combination. To ensure the ends of the competitive system, it has been necessary—even in defiance of the

¹ "The New York distributors formed a purchasing association in 1882, known as the New York Milk Exchange. It included no producers as members. Its function was to buy milk for the distributors, on a commission of about 3 cents per 100 pounds, and to fix the price paid to producers. Each distributor held stock in the exchange. About 1891, action was brought against the exchange on the ground that it was a combination to control prices, and it was finally dissolved in 1895. Upon its dissolution a similar organization composed largely of the membership of the previous exchange and known as the Consolidated Milk Exchange (Ltd.) was formed. Its membership discussed the value instead of the price of milk at their meetings and, on the basis of these discussions, prices were made by each distributor individually and quotations were issued." Hutzler Metzger, *Cooperative Marketing of Milk*, United States Department of Agriculture, Technical Bulletin 179, 1930, p. 6.

MILK

antitrust acts—to depart from its practices. Under the Capper-Volstead Acts a farmers' cooperative may legally come together to bargain on price; but a similar organization of dealers is termed a "combination in restraint of trade" and is subject to the antitrust laws. Yet without a group of distributors with which to deal the cooperative is handicapped in the performance of its own function. A neat verbal distinction has been invented to bring the legal formalities in accord with the economic necessities. The producers' representatives meet as a group; the distributors' as a mere aggregation of individuals.¹ It is a legal paradox that at these meetings the gentlemen on one side of the table are subject to one federal statute and those who sit opposite, to another.

In the several markets the practices of bargaining follow established procedures. In general, the technique lends itself to representative government. A calling of all producers to participate in price discussions would not be feasible; and a general referendum upon each proposed change in price would be a slow and clumsy mechanism. Moreover, the problem is not one of flat acceptance or rejection of a clearly defined plan; on such a rigid formula an agreement satisfactory to both parties could never be reached. The process necessitates prolonged deliberation; and a mutual understanding must be attained through trading and compromise. In consequence, it has become customary for the interested parties to set up committees which sit for an extended period. If these committees can come to no agreement, the industry calls in an arbiter whose decisions are accepted as final.

Thus a heavy responsibility devolves upon the committees. All members of the cooperative and the dealers' exchange are bound by their agreements. And their task is exceedingly complex. A change in price covers a number of imponderables—current market conditions, costs of feed, the expense incident to inspection, an estimate of the demand for milk at the new price, the comparison of the fluid price with that in near-by cities, the diversion of inspected surplus milk to fluid channels, the anticipated reaction both of members of the industry and of the public to the proposed price. The extent of the change is limited by the quotations in vogue; the negotiators cannot, with impunity, make radical departures from the current structure. Amid this complexity of factors, a simple check upon the wisdom of the outcome is impossible. To ensure a full representation of all interests in the industry, the com-

¹ This verbal compromise has done no violence to the fact of bargaining. Nor has it wholly assuaged the fear of the bargainers. The specter of illegality hangs heavy over their heads. In consequence, minutes of meetings are rarely kept and written references to the price conferences are meager. The absence of records occasioned inquiry by the Federal Trade Commission; the sales manager of the Philadelphia cooperative was frank to admit the inconvenience of "certain features" of the antitrust laws. *F.T.C. Hearings*, pp. 385 ff. See also AAA hearings on price-making practices in the various sheds.

PRICE AND PRICE POLICIES

mittees should have an intimate and direct relation to their constituencies. Nevertheless direct election of these agents is the rare exception. In the dealer exchanges voting power usually varies with volume of business; and the result is that the large dealers dominate the committee. In the producers' cooperatives selections are made by the board of directors from its own membership. The board itself is chosen in accord with older schemes of representation marked by indirection. Its members are elected at annual conventions of district delegates, who in turn are chosen by their local constituencies. In consequence, the connection of the all-powerful price committees and their electorate is indirect and often distinctly remote.

Its incidence has been to give to price making a distinctly political flavor. Even in those markets where the cooperative has not been converted into an office-holding machine, there has been a tendency toward an insensitivity to, and an unawareness of, the attitudes of the mass of small producers. The leaders of the cooperative, skilled in political tactics, hold offices for ten or fifteen years, or even longer; power gravitates into the hands of the larger producers, some of whom do not scruple to divert the instrument to their own advantage. And the very atmosphere in which the cooperative operates tends to dull its leaders to an energetic performance of their functions. They must handle thousands of farmers whose interests are not identical; and the necessary compromise can easily be deflected to the advantage of a group, vociferous, alive to their own interests, or tied by close personal relations to the officers. The slowness of turnover among elected representatives makes for an acceptance of the *status quo*; mere propinquity to the established order of things tends to dull the senses toward the need for reform. The leaders have been backward in recognizing the changes in economic conditions and in attempting to make an adaptation within the organization. They are faced with difficult problems; they must work closely and harmoniously with dealers who are the market for the farmers' produce. A reiterated compromise is the insistent order of the day; and a direct visual perception of the problems faced by the distributor has the effect of making the leaders sympathetic to, or at least tolerant of, their demands. It is a common complaint among the mass of producers in a milkshed that its officers in the cooperative are "distributors-in-overalls"; the very nature of the situation in which the officials find themselves and their response to it make this accusation inevitable. The result is to add an element to price bargaining which cannot be measured nor given statistical evaluation; yet it is inherent in the terms of the agreement which emerge from conference.

The Exercise of Control. The substitution of collective bargaining for the free play of the market has a profound influence upon the function of

MILK

price. The market-made price presumes the operation of a mechanism fitted out with an internal system of checks and balances. A shift in price is expected to stimulate the disposal of accumulating stocks or act as a check upon imminent scarcity. Theoretically, this is not conscious in general intent and represents no unison of action. It is the inevitable consequence of the infinitesimal activities of numerous buyers and sellers. The making of price thus becomes, in a sense, a continuous selection by minorities in the business electorate. Each individual acts upon a limited information to the end of his own particular gain; and price policy emerges as the residue of an acquisitive instinct operating through many individuals.

When price emerges from collective bargaining, the process is very different. Discussion and agreement take the place of the mechanisms operating in the market. All the factors normally affecting price may be taken into account; but a multitude of petty decisions are caught up and focused at a single point, and a few judgments are made by a limited number of bargainers. Price policy does not evolve as a generalized statement of the result of a stream of individual judgments; it has an a priori character to which the actions of the individuals concerned must be made to conform. The power of the bargaining interests—not so calculable when functioning through a continuous series of individual judgments—is massed and concentrated in the conference room. As a result, the power of the opposing forces is flung out into the open, and price policy can more easily reflect the wishes of the dominant group or groups in the industry.

The mere fact of negotiation between producers and dealers does not indicate an equality in shaping the terms of the bargain. The real issue is the relative power of the contestants. In milk a number of factors give to the distributors a singular control over the prices they pay for raw milk and the prices they charge in the retail market. Milk by its very perishability lends itself to a buyers' market. Many commodities, even those susceptible to artificial obsolescence through style changes, can be held for weeks or longer without deterioration of the product. But raw milk, like labor, is a day-to-day affair; it cannot be stored for better market prices. Some fluid producers, who have temporarily lost their markets because of a failure to meet inspection requirements or through the determined withholding of their supply during a strike, turn to the processing of butter and cheese as a way of preventing their raw milk from going to utter waste. But this requires machinery, technical skills, and distributive outlets which are not generally available, and it throws high-cost inspected milk into the competitive channels. Milk for fluid use must be marketed quickly or else the value is gone. This makes for an insistent pressure upon the producer to dispose of his wares—at whatever price he can get.

PRICE AND PRICE POLICIES

The strategic position of the dealer is superior. His source of supply is a multitude of fluid producers scattered over the milkshed. The refusal of one to sell is counterbalanced by the acceptance of others; and a selective boycott can usually bring recalcitrants to terms. Even a strike by producers need not seriously endanger the supply of fluid milk. Dealers can temporarily shift the total produce of nonstriking farmers into fluid channels; and in some cases have been allowed to go outside the shed to purchase milk. In a pitched battle the dealer is better equipped with the financial sinews of war and, for such a household necessity as milk, can marshal public opinion in his cause. Moreover, his function as processor gives to the dealer some protection against low price. Unlike the producer, he sells a variety of products in a variety of markets; low prices for some products occasion a shift to the processing of more remunerative commodities; and since many of these products can be stored for comparatively long intervals, there is no similar compulsion upon the dealer to sell at any price.

As between producers and dealers, the need for and the difficulties of achieving collective action are in marked contrast. To producers, organization is a sheer necessity. Individual bargaining reduces the producer to impotence; his supply is too small to count in the market. Unless producers can be associated in an organization large enough to make their supply of market consequence, they are powerless in the making of price. Yet collective action is no easy task. Among farmers the barriers of distance and isolation are a hindrance to the development of a common understanding, and the activities of the farm do not contribute toward a knowledge of the ways of business. Aloof from the complex scheme of marketing arrangements and lacking full understanding of their operation, producers have been slow to arrive at a community of action. In no milkshed is the control of raw milk by the cooperative complete. A study of six eastern markets indicates wide variation in the quantity of milk controlled by the individual cooperative, and the average for the six markets was only 50 per cent of the total supply.¹ At the AAA hearings the major cooperatives for various markets presented estimates of the milk they controlled; but even these rarely exceeded 75 per cent of the total fluid supply. Because of the delay and difficulties involved, actual checkups of these claims were rarely made; it is, however, suggestive that these estimates were usually challenged by lesser groups in the shed.

The proportion of the market held by the cooperative is a partial measure of its power. An equality in bargaining power with dealers

¹ The United States Department of Agriculture publishes figures on fluid-milk receipts in large markets; for smaller cities the figures must be secured directly from the cooperatives and local health departments. The amount of milk controlled by producers' associations can be secured only from them and the local health boards. The figures given for 1931 and 1932 in *Report on the Survey of Milk Marketing in Northeastern States* published by the

MILK

presumes an effective control over supply; this is impossible when half of the fluid milk produced lies beyond the authority of the cooperative and finds its own way to market. All distributors could not secure their supply from independents; but a threat to turn to a fuller use of this available source usually brings the producers' organization to terms. Moreover, the cooperatives are, for the most part, bargaining agencies;¹ they possess no facilities for the disposal of milk. Consequently, their concern is to maintain friendly relations with the cooperating dealers. This weakness, inherent in the very position of the cooperative, reacts upon the vitality of the organization itself. Unless it can show bargaining power, producers are unwilling to join. Even the usages which make up the organization of the market carry hazards to collective action. The big dealers who enter into agreements with the cooperative often process a large part of their supply into secondary products; consequently, payments to farmers represent an averaging of prices for all the uses to which the milk of the shed is put. Independent dealers who sell a higher percentage of their purchases for fluid milk can pay higher returns to a select clientele; farmers organized in such a "company union" receive a sheltered price for larger proportions of their milk.² In some instances this situation has

Farm Credit Administration, July, 1933, indicate only minor variations for the two years. For the second year they are:

	Market gallons	Association gallons	Per cent controlled by associations
Boston (metropolitan only).....	62,943,190	32,226,913	51.2
New York.....	512,631,940	216,435,330	42.2
Philadelphia.....	94,755,617	65,488,501	69.1
Baltimore.....	28,652,500	27,666,691	96.6
Washington.....	23,626,053	22,085,374	93.5
Richmond.....	5,277,984	3,747,369	71.0
Six markets.....	727,887,284	367,651,178	50.5

¹ A few cooperatives process a part of their raw milk supply into fluid milk and other products. Of these the Dairymen's League in New York City is the best known. The costs of processing are high because of the relatively small volume, and the amount handled is inadequate for a control over price. In these marketing or operating associations, as they are called, a conflict in policy frequently arises. The producers want high prices for their raw milk; the management demands low prices to enable them to compete effectively with regular dealers.

² An example of this type of cooperative is the Sheffield group in New York organized by the Sheffield Farms Company as a source of supply. The company has made it a practice to pay its producers higher prices than those received by members of the Dairymen's League. In consequence, there is a waiting list of farmers anxious to join the Sheffield cooperative; and members of the Dairymen's League, when the opportunity has arisen, have deserted the ranks of their legitimate cooperative for higher prices in the company union.

PRICE AND PRICE POLICIES

arisen quite by chance; in others it has received purposive direction by dealers who have sought to play off organized producers against the unorganized. In either event the operation of the market permits premiums to particular individuals at the expense of the group.

Although combination is less necessary for the dealers, it is easier to achieve. Their relative fewness in number has simplified the discovery of a community of interest. A proximity to the market and an exposure to the folkways of business have offered no intellectual barriers to the acceptance of cooperative action. Yet it is incorrect to think of the distributors as forming a solid bloc in respect to industrial policy. In those cities where producer-distributors are allowed to peddle, a first break in the line is to be seen. These dealers, who are both farmers and middlemen, have formed an unassimilable element in the marketing branch of the industry. Their attitude is essentially that of the producer rather than the distributor, and many of them feel keenly the farmer's traditional bitterness against large dealers. They are fully aware that distributors have not scrupled to press for health regulations which would bar these peddlers from the market. Besides, they are too numerous and miscellaneous to be easily controlled. A second break is to be found among small dealers. These differ from the former group in that they are dealers only; yet they resemble them in their animosity to large dealers, in the miscellaneous character of their activities, and in their lack of responsiveness to group discipline. And as a third break there are in some markets large dealers who have refused to cooperate in the group venture into policy making. Through private arrangements with their own suppliers they are able to secure raw milk more cheaply than their competitors; or they effect economies through the elimination of costly marketing practices in vogue elsewhere. For example, by dispensing with a delivery organization and confining themselves to store sales, these dealers can afford to sell their milk lower than the prevailing price. Finally, in the wholesale market a united front among distributors is not to be found. Here, in most cities, the industry is extremely competitive; dealers, acting in harmonious cooperation in respect to producers' and retail prices, engage in a cut-throat struggle for the available business.

Yet, in practice, the prices agreed upon by the cooperating distributors control the raw milk and the retail markets. The cause lies in the volume of business handled by these dealers. The price arrangements between the producers' cooperative and its buyers set the standard for the lesser deals in the shed. There are variations in the result; but in all negotiations—and the buying and selling which follow in their wake—the norm persists. A number of factors make for an identical retail price. The volume of business handled by the large, cooperating dealers represents in most cities 80 or 90 per cent of the total fluid-milk sales. This milk is heavily

MILK

advertised; it is delivered to the home, sold through the chain stores, and served at large restaurants; and by dint of repetition the consumer is accustomed to think that the well-known brands constitute the only milk available. The price cutters, whose volume is small, operate in the crevices of the industry and under a singular disadvantage. In most markets their activities are largely confined to the competitive wholesale trade. Neither the size of their business nor their financial resources permit an excursion into retail delivery; and they have found store managers unwilling to stock their products. Even where they have been able to break into the retail market through price concessions, the independent dealers have been severely handicapped. By a propaganda whose effect rests rather upon inference than upon the written word, the consuming public is made to believe that the cheaper milk represents an inferior product. Since the ordinary person is persuaded that milk is a vital necessity in the diet, he tends to purchase what is believed to be a better quality—the well-known brands. The result is virtually the creation of class markets for milk. The vast bulk of buyers limit their choice to the dominant brands whose prices are identical; the obscure and price-cutting brands are confined to the low-income groups who forego home delivery for the economy of "cash and carry." Thus a control of volume and sales outlet, grounded upon an attitude on the part of consumers, gives to the cooperating dealers a powerful hold on the market.

Other Terms in the Bargain. To be effective, collective agreement should comprehend all the terms of the bargain. In milk it stops with price. Other arrangements to give effect to the price still rest upon custom and usage; they continue to lie outside the contract and remain unregulated. Such a situation has not been a matter of deliberate design. Certain practices came into being in response to immediate industrial needs; economic conditions changed, yet they lingered on as a part of the business folkways. The emergence of the cooperative to a bargaining status allowed producers a hand in the making of price; but they were not powerful enough to make over a structure of usage which had developed into an institution. The result has been to intensify a weakness on the part of the cooperative, already serious due to its limited control over the milk supply.

The crux of the difficulty is the cooperative's lack of control over the arrangements governing the physical movement of milk. The agreements on producers' prices are in general terms; they do not interfere with customs which on a number of accounts set down deductions. Thus the quoted prices are gross and not net—and in a sense are fictitious. In collective bargaining such a situation is not unusual; the trade unions long ago discovered that what might be won in wage rates could be lost in exceptions and interpretations of the agreement. Accordingly, many of

PRICE AND PRICE POLICIES

them, to preserve the fruits of their deliberation, have been forced to take account of such hazards and have made even the minutiae of the work process the subject of written understanding. The unions of milk producers have accepted agreements far less comprehensive. The rates established in writing have been broken down by customary procedures not yet brought into the formal bargain. The price base is under control; the deductions are still "at large."

The incidence has been to create an area of discretion in respect to payments by distributors to producers. The tale of "deduction" varies enormously from one milkshed to another; yet certain general practices may be outlined briefly. The hauling charge is a particular source of vexation. At one time milk was shipped into the large markets almost wholly by rail, and the charge was quite proper. However, the method of calculation aroused protest; farmers were charged less-than-carload rates for their individual small volume even though the milk was pooled by the dealer and shipped in carload lots. With the substitution of cheaper truck shipment, the rail charge itself has become fictitious; nevertheless the custom of charging producers rail and less-than-carload rates is still in use. Here in respect both to method and cost, milk transportation has been changed; yet a freight rate, once reasonable, has been translated into a vested right for the dealer. In other markets the trucking fee has superseded the rail rate; but here the amount is fixed and has no relation to actual costs that are incurred. An exception is to be noted only in those markets in which the producers' cooperative has established its own system of transport. Elsewhere a fictitious item of expense helps to pad the published price.

The expenses of the country station are ordinarily assessed against the farmer. In earlier days the country plant was simply a device for collecting the milk of distant farmers prior to shipment into the city. Gradually its functions changed; it no longer merely hastens raw milk on its way to the dealer. Instead its current task lies over the line. It receives, weighs, tests, and cools the milk, and performs other tasks which belong to the work of the distributor. In fact factories for the processing of surplus milk have been established near by and the country plant has become an indispensable adjunct to the many-sided business of the large company. If certain operations are performed here, rather than at the city plant, it is at the dealer's choice and by way of a reduction of his expenses. Yet charges have not been reorganized to meet these changed conditions. The producer is assessed a country-station charge which, like the hauling fee, is determined by the dealer, and no mechanism has been provided for checking the correctness of the items which enter into estimated costs. Farmers have protested both the legitimacy of the charge and its amount; but they have been quickly reduced to silence

MILK

by the threat of the dealer to close the country plant and thus to destroy, at least temporarily, their markets. Moreover, the country plant is not used by all dealers; where the business is small, the milk is hauled directly to the city plant and the services performed are accounted a cost of distribution. The pecuniary incidence of the charge remains—to provide a disguised rebate to particular units in the industry.

Another practice, interesting for its diverted use rather than for its pecuniary significance, is the dairy council fee. The National Dairy Council was organized in 1919 to educate the public to the food values of milk. To expedite its work twenty-five local units were established in the larger markets; for their support producers and dealers in the shed were each to contribute a fee, usually 1 or 2 cents on every 100 pounds of milk. A curious set of usages has grown up in those markets where local dairy councils have been established. Direct collection of the fee from individual producers would have been cumbersome and difficult; dealers have engaged in the practice of deducting the charge before making payments to producers for their raw milk. This has had the effect of eliminating a freedom of choice among farmers in their support of the council. A large group, members of the cooperative, are automatically committed by the vote of their delegates at the annual convention; but many nonmembers have also been enlisted as contributors. In some markets the dealer presumes a willingness to pay until the farmer formally objects in writing; in others a printed authorization is presented for his signature. Always the hazard of incurring the dealer's animosity—its incidence the possible loss of his market—is a compulsion upon producers to accede passively to such deductions. On the other hand, the freedom of the distributor has not been violated. The turning over of collections to the council is a voluntary affair; the dealer may, if he wishes, pocket all or a part of the farmers' contributions as well as neglect to pay his own assessment. The particular policy used is a matter for private determination by the collector.¹

The dealer also possesses wide discretion in the calculation of producers' payments. This situation evolved haphazardly out of the complex marketing arrangements; its incidence again has been to draw a sharp line between actual and agreed prices. The calculations must take account of the variations in volume and butterfat of each producer's supply of raw milk. In some markets a differential is paid if the farm score is ninety or above; if the milk is to be sold in raw form, usually a

¹ Almost nothing is known of the practices engaged in by dealers. In Philadelphia, according to the testimony of the secretary of the local dairy council before the Federal Trade Commission, 260 out of 4,000 dealers paid in fees to the council. The secretary was unable to state whether these 260 remitted in part or in full. See the testimony of the secretary in respect to the council's weakness in securing collections. *F.T.C. Hearings*, pp. 490-522.

PRICE AND PRICE POLICIES

differential is paid based on bacteria count. Thus a number of variables enter into the calculation of each producer's pay check. In some sheds merely the final result of the calculation is shown on milk slips; and the farmer has no opportunity to check the accuracy of the arithmetic. Where the statistical process is written in detail, it is equally impossible; the methods are so complex as to be unintelligible.¹ And the problem is more fundamental than a mere checking of the milk slips. It lies in the domain of the correctness of the tests, which cannot be checked upon by the producer. On the surface every compliance with the price agreement seems to be made; yet slight deviations in the correctness of measurements of volume, butterfat tests, and bacteria counts can be used by the dealer to make the quoted price a fiction. The extent to which this is practiced cannot be estimated; the widespread protest of producers and the unwillingness of dealers to relinquish this discretionary control suggests that this form of price manipulation is general and is of pecuniary advantage to distributors.

Calculations under the utilization plan are also used to lessen the vitality of the price agreements. Payments for raw milk on the hypothesis of finished products put a heavy reliance upon the integrity of the individual dealer. Since the milk is still unprocessed, the less meticulous can easily divert milk purchased at butter prices to fluid milk and cream. The peculiar position of cream illustrates the intricate workings of the utilization plan and its potentialities. In most markets cream sells at two distinct prices. That for fluid use must have its source inspected by local health authorities; its price is partially sheltered from the forces of the market. Cream for ice cream or other manufactured products need not be inspected; its price is lower since it is made in the open market. In appearance these units are identical. They present no obvious differences in color, taste, or quality; the fact of inspection is an administrative matter which cannot be given physical reflection in the product. In consequence, it is impossible to keep the cream for its separate uses distinct in the market place. A dealer buys both inspected and uninspected cream; it is a simple matter to divert the product purchased for manufacturing purposes to fluid channels. Some restaurants make their own ice cream; large volumes of cream purchased for this purpose make their

¹ A producer in the Connecticut shed testified before the Federal Trade Commission: "I believe quite a number of those milk slips have been introduced in evidence. When you look them over you will see they are what are sometimes called Chinese puzzles. My wife and I had gone through a university but not through an agricultural college, and we could not figure those things out. One time we had two week-end guests who spent a Saturday night with us trying to figure out that milk slip. We all gave it up and we sent it to the C.M.P.A. At the next week-end we had the answer from Mr. Hough and the same people were there, and still we could not figure it out.

"Q. It is like reading Einstein's theory of relativity and Chancellor Haldane's explanation of it? A. Or Gertrude Stein." *F.T.C. Hearings*, p. 254.

MILK

way to the table for fluid consumption. Detection of this practice among dealers requires a detailed checking of receipts of raw milk, payments to producers, and returns from sales; and since the two types cannot be distinguished, a plausible argument of the dealers, when apprehended, is that his operations cannot be completely insulated against error and mistake.¹ The result is, however, that the price agreement is broken down; producers receive competitive prices for a part of their produce sold in a protected market.

A further development has been the importation of inspected cream from outside the shed. At one time dealers in some of the large markets, particularly in the East, found it difficult to meet their fluid-cream demands during winter months, when production inside the shed was low; and they were permitted to import cream for fluid use from outside sources. This came in from the large dairy states in the Middle West, where milk production is high and costs and prices are lower than in the East. Gradually the custom became established as a regular year-round practice. To fulfill the health requirements, local inspectors are sent to pass upon sources; usually their expenses are borne by interested dealers though they are employees of the health department. Where this foreign inspection is practiced a profound influence is felt inside the shed. Distributors buy cheaply in an open market and sell dearly in a sheltered market. Since only the large companies can afford this investment in foreign inspection, it yields high profits for a privileged minority of dealers. The effect upon producers is obvious; they lose a part of their sheltered market. And it is an anomaly that these foreign producers, by grace of the legalism of inspection, become members of the local milkshed. They are not organized in the local cooperative; nor do the price agreements cover their supply. The effect is to weaken further the power of the local cooperative, since these shippers are outside their jurisdiction and could not be brought into line on a common price policy. This foreign cream can underbid local cream in price, and a larger share of the local produce is diverted to manufacturing.²

¹ For pecuniary estimates of underpayments to producers arising from this type of chiseling, see Federal Trade Commission, *Report on Connecticut and Philadelphia Milksheds*, *op. cit.*, pp. 74-75; and *Report on Boston, Baltimore, Cincinnati, St. Louis*, *op. cit.*, pp. 122-130. Local health authorities are cognizant that their regulations are being violated by this traffic in cream; a few are engaging in experiments to add a color, harmless to the product, which will clearly differentiate the inspected from the uninspected cream.

² When the consequences of their action were seen, local boards of health attempted to shut out foreign cream. Thus far their actions have not met with conspicuous success. The prohibitions have been based on grounds of health; the health authorities have argued that it is not "practicable or reasonably possible to effectively inspect" sources of cream distant from the shed. Where the courts have been invoked, they have usually regarded the refusal to inspect foreign sources as an interference with interstate commerce. But more often the cases never reach the courts. A cross-exchange of pressure by dealers upon the cooperative causes the withdrawal of the request for prohibition, and the health depart-

PRICE AND PRICE POLICIES

These price usages have behind them the force of established practice and precedent. Each in itself is not substantial; yet together they constitute a series of deductions and their reiterated impact is to make published prices a mere formality. They are so numerous and so variable in the different milksheds that an average would be meaningless. Even in a single shed, the returns of producers for their Class 1 milk are unknown. To secure the figures would require a detailed analysis of farmers' milk slips, which are rarely preserved and frequently cannot be disentangled for analysis. Attempts have been made to secure the data from the books of distributors; here the facts are obscured in the network of accounts. The producers' prices for Class 1 milk reported in the agricultural journals are taken from the periodical reports of the United States Department of Agriculture; they are voluntary and unchecked statements of quotations by the dealers in the market—sometimes few, sometimes many; to have validity, they must be interpreted against the customs of the industry in respect to deductions and the practices prevailing in the particular shed. At best the figures are hypothetical, never in practice realized. It is not surprising that producers are bewildered by the magnitude of the returns for Class 1 milk with which they are credited.

All these arrangements have reacted upon the status of producers and dealers in the market: The ordinary industry is legally open to those willing to take its chances, and the seller who meets simple statutory requirements can peddle his wares where he pleases. In milk a number of usages have grown up which seriously curtail the freedom of producers. The real cause is the weakness of the cooperative as a bargaining agency, its lack of control over important terms of the bargain, and its inability to strike at industrial customs which have been allowed to become established. Since control is the essence of its function, the cooperative requires written agreements from its members that all milk produced, except that consumed directly on the farm, will be sold through the organization. The attempt to force a similar obligation upon purchasing dealers has been less successful. In those markets where the cooperative is powerful, controlling a large part of the supply, it has been able to extract written contracts; yet without the good will of the dealers, conformance

ment desists from enforcement of its order.

One such technique is described in detail in the Federal Trade Commission hearings in the Philadelphia shed. In 1932 the chief of the Pennsylvania Division of Milk Control, who happened also to be treasurer of the local cooperative, ordered a dealer to discontinue shipments of cream from his Wisconsin plant. A usual function of the dealer is the collection of dues for the cooperative; the fee is simply deducted from the producers' pay checks. In this case the threat was made by the dealer—and actually carried out—that collections would be discontinued until the order was rescinded. In the deprivation of its financial resources, without benefit of any resort to law, the cooperative recognized that it was beaten. Within a few weeks the order was withdrawn. See *F.T.C. Hearings*, pp. 530 ff.

MILK

would be difficult to secure. In every market there is an uncontrolled supply of milk to which the dealer can turn; and this knowledge has forced upon the cooperative a more passive role than it might otherwise assume. In markets poorly organized written contracts are unknown or, if used, are by tacit consent ignored; and dealers have the privilege of buying where they please. Thus the contractual obligations of the two groups are in different stages of development.

The producer has ceased to be an independent trader and in his relations with the distributor has lost his freedom. In some sheds the allocation of sources of supply to distributors belongs to the cooperative; in others it has been quietly absorbed by the distributor. Yet the selection of the processor is of strategic importance in determining the producer's payments. Dealers vary in the amount of milk which is diverted to fluid use; those with larger volumes sold in the sheltered market can pay Class 1 prices on a greater share of the farmer's produce. Complaints are made that, where the cooperative is in control, this power has been turned into a potent weapon for the discipline of producers. Members out of favor are, on some extraneous pretext, shifted to the lower priced polls; while those with friends in high places become suppliers to the more remunerative dealers. Where the dealers possess discretion, farmers are securely bound to the purchasers of their raw material, and their position has many elements of status. A producer cannot make a change until he has first obtained a release from his former dealer; and the collective action of several dealers can prevent him from entering the market. Though inspection gives him the right to sell his raw material, its practical realization necessitates an arrangement with a dealer-purchaser for its disposal. A peremptory dismissal of a member of the cooperative provokes protest and pressure by the organization; but despite the complexity of the political machinery there is no authority within the industry and no tribunal without to which the producer can turn for a hearing of his case and for reinstatement as a shipper. Until he is restored to favor he is a producer without a market.

A collective effort by producers to participate in the making of price has not met with conspicuous success. Yet compared with individual bargaining the step—partial as it is—is significant; at any rate producers now sit at the table with distributors in the formulation of price policy. However, the focus upon the posted price, with little or no safeguard about other terms of the bargain, has left the farmer unprotected at many strategic points. Discretion in the matter of measurements, calculations under the utilization plan, and deductions for hauling and other charges give to the dealer a powerful control in the making of actual prices. In the cooperative's struggle to make the agreed

PRICE AND PRICE POLICIES

price effective, it faces a body of usages which antedate its own being and have all the force of established practice and custom. In its present development, the pricing system in milk is a distinctive institution—with collective agreement about posted price as the core and a fringe of terms of the bargain still beyond the control of a party to the industry.

The Basic Surplus Plan. Another set of usages which enter into the calculation center around the basic surplus plan. The plan was devised as an answer to the recurrent question of seasonal scarcity and overproduction. Beginning as an expediency its form was later shaped by contingencies—without benefit of conscious intent and clear-cut plan—and has emerged into a distinctive institution. Normally in the spring, when cows are freshened and sent out to pasture, a large volume of milk was produced and thrown on the market. During the fall and winter, when production dwindles, the supply was sometimes below the market requirements. Where this occurred, dealers had to be accorded the privilege of going outside the shed to supplement their supply. Their farms were inspected; and, once allowed to ship, the producers became a permanent part of the shed. A problem was solved only to create another in its stead. A scarcity of milk at one season had been avoided at the cost of producing a heavier surplus at another.

To cope with this seasonal problem, in the early twenties the basic surplus plan was inaugurated. Quotas in the fluid market were parceled out among producers. These were based upon production of farmers in months of scarcity; usually October, November, and December were termed the basic months. Milk produced during this period was allocated to fluid use; and the three months' average constituted the farmer's base—or share of the fluid business—for the remaining months of the year. As this new usage was established, it became a factor in the behavior of producers. A general scramble ensued to increase production during these months and thus raise the producer's quota. As a result the total bases of farmers came to exceed the sales of milk in the fluid class. Thus by its very nature the plan elicited a response which militated against its success. As a remedy, more safeguards had to be established and additional usages came into existence. To reduce quotas to market requirements, there now occurred an almost universal tinkering with basics throughout the milksheds. Old quotas were carried over from one year to another; new quotas were compounded out of percentages of quotas of former years; and a complex system of calculations was invoked to hold down the total basics for all shippers. Thus a plan, originally simple in its design, developed a singular complexity. Moreover, a great variation came into the practices of the different milksheds.¹

¹ The following—for the Maryland and Virginia Milk Producers Association operating in the District of Columbia market—is typical. The excerpts are taken from the *Economic*

MILK

The entrance of new producers into the market was accompanied by severe restrictions. For an introductory period no base was allotted and all the milk was sold in surplus classes. After this rite of initiation had been fulfilled, a small percentage of the produce of the novice was allowed to enter the fluid channels. In time, and on good behavior, these newcomers were promoted to the status of regular producers in the fluid market. The effect was to build up a real ritual for entrance into the industry; would-be producers were discouraged; and the losses incurred in the early stages, when all milk was diverted to surplus channels, increased the investment necessary to entrance. A waiting period, an increase in capital, and the gradual establishment of the right to a quota came to be conditions of admission to a once open industry. Moreover, there was little surety of a prolonged ownership of this privilege; a temporary loss of a market, through illness of cows or dismissal by the dealer, frequently meant the automatic disappearance of a carefully built-up base.

The economic incidence of the base surplus plan was gradually to freeze the structure of the milkshed. The farmer's privilege of a share in the fluid market became an intangible asset akin to good will in business. In some sheds the producer received the base and could carry it with him from farm to farm. Elsewhere basics came to be attached to land and in some markets gravitated to herds of cattle. Thus a curious institution of equities in the fluid-milk market was developed to which the producer had to conform rigorously in order to maintain possession of his base. Under these arrangements, political in character, only slow and irregular accommodations could be made to the economic changes

Brief with Respect to the Proposed Milk Marketing Agreement and Proposed Order for the District of Columbia Marketing Area, AAA, 1936, Paper No. 9.

"Prior to October 1, 1928, bases were set each year on the basis of 100 per cent of preceding fall months' average production. October 1, 1928, permanent basic quantities were established for all members on the basis of 90% of their average monthly production of the fall periods of 1925, 1926, and 1927. . . . May 1, 1933 basic amounts were reduced 10 per cent if the percentage of surplus shipped during 1929, 1930 and 1931 was less than 85 per cent and between 85 per cent and 40 per cent, a reduction of 8 per cent. If the percentage of surplus was 40 per cent or over, no cut was made. . . .

"January 1, 1934, if the established basic quantity was less than 72 per cent of the average monthly fall shipments of 1930 and 1931, the basic quantity was increased up to 72 per cent of these two falls' average monthly production. At this same time the new shippers of 1931 were increased from 50 per cent to 60 per cent of their fall production of 1931, and the new shippers of 1932, were increased from 40 per cent to 50 per cent of their fall production of 1932. . . .

"January 1, 1935, producers were increased to 72 per cent of their 1933 fall shipments with a 20 per cent limitation on fall months' production from 1930-1931 to 1933. New producers of 1931 were raised from 60 per cent to 68 per cent of their 1933 fall shipments with a 20 per cent limitation on fall months' production from 1931 to 1933. New producers of 1932 were raised from 50 per cent to 64 per cent of their 1933 fall shipments with a 10 per cent limitation on fall months' production from 1932 to 1933."

PRICE AND PRICE POLICIES

occurring in the shed. As farms shifted in ownership, herds varied in size, and a miscellany of producers made their entrances and their exits, the structures became more and more divorced from reality. The speed of accommodation was further hindered by the pressure of privileged producers, who had come to think of the scheme as an instrument of pecuniary advantage. Current necessity had to win its way in protracted struggle at the expense of vested interests.

The character of the arrangements enabled distributors to share in the control of basics. Theoretically, producers are paid fluid prices for basics allotted them, on the assumption that total basics of the dealer's shippers coincide with his total fluid sales. Actually this does not happen; the dealer sells more or less than the sum of his suppliers' basics in the fluid class. To remedy this, payments to producers for fluid milk are conditioned upon their basics plus the percentage of the total basics to total fluid-milk sales. For some dealers, who sell a small quantity of milk in the highest class, checks to producers are customarily 70 or 80 per cent of their basics; for those who do a large volume of fluid-milk business, they regularly run from 110 to 120 per cent. Only in the markets where the equalization plan is in effect do all producers receive, within the bounds of individual basics, an equal share of fluid sales through the pooling of the business of all distributors. In the majority of markets dealers' proceeds are not pooled; and the producer's basic itself represents a fictitious control of a share in the fluid market arising out of the variations in the individual dealer's business. And in some sheds, dealers have even participated directly in the allocation of basics to producers. This has occurred where the cooperative is comparatively powerless and must confine itself to recommendations to dealers of the basics it desires for its members.¹

The basic surplus plan, like the other controls in the shed, has been fitted to and made a part of the current institutional arrangements. And like them, the plan has not been confined to its original purpose; though it has mitigated, but not solved, the seasonal variations in production, it has also become an instrument of politics. This development was not foreseen; it came about gradually through the piling up of one petty decision upon another, each insignificant in itself. In time a distinctive institution was created in which the ironing out of seasonal changes in production was blended with its use as a weapon of discipline. In the atmosphere in which the scheme had to operate, such a combination of

¹ At the time of the Federal Trade Commission's investigation, the Philadelphia cooperative did not know the current basics of its members. When new allocations were to be made, the cooperative sent to the dealer a list of his shippers and the dealer filled in the basics himself. In reality, power lay with the party who had control of the drawing of producers' pay checks.

MILK

functions was virtually inevitable. As with the other controls in the shed—the inspection system, the utilization plan, the customary deductions—the base surplus plan became a part of the political machinery which was manipulated constantly by the groups holding power.

The making of price in all its manifestations is the product of political action. It is to be found in its simplest and most elementary form in the conferences of organized producers and dealers. Yet this simply sets the stage for later decisions upon particular terms; here the result depends upon the pressures which the groups in the industry can exert. Since the cooperative has been able to obtain bargaining status but not bargaining equality, the balance of discretion over price still lies with the dealers. At every point in the process of deliberation, the distributor has, through the maintenance of customary practices or the gradual accretion of power over new instrumentalities, a dominant control over the actual prices that are paid. The incidence of group pressure and counterpressure leaves little place for the individual action of members in the industry. The small dealer, who refuses to enter this realm of organized activity, has a modicum of freedom in buying and selling; yet the prices he quotes depend upon the group arrangements over the bulk of the milk supply. The individual producer is enmeshed in a tangle of institutional controls. Initially, the state steps in to tell him whether he is a shipper; the dealer allocates his produce to sheltered and competitive markets; and the cooperative—or the cooperative in conjunction with the dealer—parcels out his share in the fluid-milk business. Amid this interplay of political activity, the position of the small producer is one of sheer impotence. It is an impotence enhanced by a vague understanding of the complex arrangements which determine the performance of his economic function. Many farmers have come to accord this private regulation a passive tolerance and acceptance; for the less resigned, there has been—and will be—bitter opposition.

The Impact of the Open Market. Under the utilization plan, prices paid producers are broken sharply according to the uses to which the milk is put. Owing to its insulation from market fluctuations in price, the payments for Class 1 milk are higher than for other classes. The degree of difference varies markedly from one milkshed to another—depending upon the type of inspection, the strictness of regulations, the excess of inspected milk over market requirements, the power exercised by the cooperative in collective bargaining. In some sheds, where the market is unorganized and inspection is not used to curtail the supply, large volumes enter; there prices are only slightly above those for milk used in manufacturing and may even vary with current butter quotations. In consequence, an averaging of prices in several sheds tends to blur the price lines and to confuse the individual practices in vogue.

PRICE AND PRICE POLICIES

Producers enjoy a favored price for only a portion of their raw material. In the months of low production, the ratio is high—perhaps 70 or 80 or even 90 per cent enters fluid channels; in the spring and summer the volume is frequently 50 per cent or less. Next to fluid milk, high returns are paid on cream for fluid use. The prices for Class 2 milk are very heterogeneous, varying with the amount of shelter afforded. In Baltimore, for example, fluid cream has been almost as well barricaded as fluid milk; and a flat price only a little below fluid milk is paid. In Boston, on the other hand, there are no restrictions upon the importation of cream for fluid purposes; and the slight margin paid for cream over butter reflects a higher cost of transportation. In the markets where fluid cream is but meagerly protected, its price is fixed by an elastic formula. It is pegged to the wholesale butter price in a large near-by market; and a statistical ritual is provided to keep it a certain distance above.¹ The prices of milk for manufacturing uses fluctuate with butter prices. Since the butter market is national and open, public quotations reflect current economic conditions; changes occur in fractions of a cent and reverberate quickly through the price structure. Buyers of milk for cheese, ice-cream mix, and other products vary their payments with the movements in the butter market. In each shed a distinctive formula is employed; like unsheltered cream, the market price is simply the base for calculation.²

The maintenance of a sheltered market for fluid milk enables producers and distributors alike to profit from high prices. But the sales are inadequate to take care of the available supply, and large surpluses must be transferred to other products. Through the pegging of prices

¹ Los Angeles: Class 2 price is "the average price per pound of 92 score butter at wholesale in the Los Angeles Market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 40% of such amount, plus 12 cents, but in no event shall the price for Class 2 milk exceed the price for Class 1 milk." Amended License, February 27, 1935.

Detroit: Class 2 price is "for each hundred pounds of milk 3.5 times the average price per pound of 92 score butter at wholesale in the Chicago Market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 33 $\frac{1}{8}$ % thereof, plus 20 cents." Amended License, May 4, 1935.

² Los Angeles: Class 3 milk (manufactures except cheese and butter) is "the average price per pound of 92 score butter at wholesale in the Los Angeles Market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased, plus 40 per cent of such amount, plus 6 cents, but in no event shall the price for Class 3 milk exceed the price for Class 1 milk."

Class 4 is "the average price per pound of 92 score butter at wholesale in the Los Angeles Market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased plus or minus, as the case may be, $\frac{1}{4}$ cent for each 1 cent that such price is above or below 25 cents, plus 4 cents." Amended License, February 27, 1935.

Richmond, Va.: Class 3 milk is "the average price per pound of 92 score butter at wholesale in the New York Market as reported by the United States Department of Agriculture for the delivery period during which such milk is purchased." Amended License, April 9, 1935.

MILK

to the butter quotations, dealers' raw-material costs for manufactured products vary with the prices they receive; and the impact of change is thrust upon producers. For their milk diverted to manufacturing uses, fluid-milk producers must compete directly with commercial butter producers. Yet the positions of the two are very different. The farmer inside the milkshed is subject to the high costs of fluid-milk production. Located close to the market, land values are high; and the soil and climatic conditions are sometimes unsuited to the economical production of milk. A competition with the city makes labor costs high. A complex and costly system of inspection must be met. The incidence of the basic surplus plan is to force him to maintain production in winter months in order to preserve his share of the fluid-milk market. In contrast, the overt butter producer is attuned to the maximum of production at low cost. Located far from the metropolis, his lands are cheaper; feed costs can be reduced through a larger use of pasture. He has no inspection requirements to meet and his production can fluctuate naturally with the seasons. The producers outside of milksheds furnish the bulk of the raw-milk supply for manufacturing uses; and it is their volume which determines the prices in the open market. Though fluid-milk producers are functioning primarily as suppliers of another market, a portion of their milk falls into manufacturing, for which they receive the same low price.

And, as we have seen, the fluid-milk producer has no control over the allocation of his milk to these products. Under the utilization plan, discretion lies with the dealer. The price determined upon in private conference elicits a certain demand for fluid milk; what is left over enters the manufacturing channels. But the producer is interested not so much in particular prices as in the total returns for his milk. Out of this has emerged a curious sequence of events. As large amounts of fluid milk have been diverted to secondary products, producers have been forced to concern themselves with higher prices for fluid milk—a market more susceptible to control. In effect they have sought to subsidize their entrance into these free and open markets by charging higher prices in the sheltered markets. Yet this has been only partially successful; the power of the cooperative is inadequate to make its control wholly effective; and there is a limit to the price consumers are able or willing to pay.

The immunity of the fluid-milk price to shock from the adjacent markets is relative. The length of time a high price for Class 1 milk can be maintained in the face of excessive stocks and low prices for manufactures depends upon the vitality of the system of controls. Where the market is well organized and producers and dealers can maintain a rigid discipline over their members, it may last indefinitely. Its resist-

PRICE AND PRICE POLICIES

ance is all the more enduring if the sanctions of the state, in the adequacy and detail of public-health regulations, have provided it with buttress and buffer. Yet a prolonged pressure is hard to withstand. If the prices of processed products fall very low, producers outside the shed beat against the tariff wall; and a reluctant inspection service is forced to widen its activities. Uninspected milk for fluid use moves into the edge of the city limits; and a sub-industry, established just beyond the domain of municipal control, caters to consumers who cannot pay the market price. Inside the market forces are at work to upset the established rules and break down the customary disciplines. Farmers become so discontented with their prices for surplus milk that they quit the cooperative, turn producer-distributors, and peddle their own product. Price cutting, surreptitious or direct, occurs all along the line from the producer to the consumer. Producers' returns are reduced by the diversion of larger amounts of milk, designated for manufacturing, into fluid channels; and price competition in the wholesale markets is redoubled in intensity. In the retail markets new capital is attracted by the wide margins for dealers. Milk is not immune to new forms of marketing in vogue elsewhere; and some middlemen are now entering the industry, who dispense with delivery and charge accounts, and attempt to entice trade by passing the economies to the consumer in lower prices. As a countermove to hold their trade, established dealers refrain from rebuking their subdealers or delivery drivers for price cutting; and may themselves indulge in the practice. In a variety of ways the price structure is subjected to attack until open demoralization takes place.

Thus the milk markets are distinct yet interrelated. Fluid milk is encased in a variety of institutional arrangements which give it a partial insulation from the forces converging upon the market. While customary margins in price prevail between fluid milk and manufactured products, the sheltered and exposed markets remain separate. In some sheds wide variations in price exist without upsetting the delicate balance between the two types of markets. The problems faced by a particular milkshed are indigenous to its habitat. In Philadelphia an ineffectual cooperative has been powerless to exercise an insistent control over prices by distributors. In Boston a recalcitrant minority of producers, organized outside the cooperative, have been used by dealers to their own pecuniary advantage. The fluid-milk price in Chicago is subjected to particular hazards arising out of its proximity to large volumes of surplus milk. In ordinary times the scheme of private regulation makes for a continuity in milk prices, with slight shifts up and down; but if, for some reason, prices fall far out of their customary alignment, the relations among milk products become significant and compelling. The protection of the fluid-milk market demands as its cost a national dumping ground

MILK

for manufactures. Yet the supply of milk for secondary products sets limits to the price which can be charged in the sheltered market; and its pressure can be so great as to threaten—and sometimes override—the wall of usages around fluid milk.

REENTER THE STATE

The conventional notion that the public has no equities in what is accepted as private property has never been applicable to the fluid-milk industry. Even at the turn of the century, when the sanctions of due process and of states' rights were being converted by the courts into a policy of *laissez faire*, fluid milk was subject to government control. In a laborious piling up of decisions the courts have recognized this supervision to be a valid exercise of the police power. The professed object of such regulation has been the protection of the public health; its economic consequences to the industry, enormous as they proved to be, have been looked upon as a mere incidence.

Today, in the language of Mr. Justice Roberts,¹ there is no business, save the railroad, which has been "so thoroughly regimented and regulated" as the milk industry. "The producer or dairy farmer is in certain circumstances liable to have his herd quarantined against bovine tuberculosis; is limited in the importation of dairy cattle to those free from Bang's disease; is subject to rules governing the care and feeding of his cows and the care of the milk produced, the condition and surroundings of his barns and buildings used for production of milk, the utensils used, and the persons employed in milking." Furthermore, "proprietors of milk-gathering stations or processing plants are subject to regulation, and persons in charge must operate under license and give bond to comply with the law and regulations; must keep records, pay promptly for milk purchased, abstain from false and misleading statements and from combinations to fix prices." And "in addition there is a large volume of legislation intended to promote cleanliness and fair trade practices affecting all who are engaged in the industry."

Within recent years intent and incidence in the regulation have been reversed. Its dominant object has now become the economic consequence to the industry; the protection of public health, now firmly established, has been relegated to a secondary position. With this change has come a shift in the agency of regulation. The interests to be served were beyond the power of the city and required resources which the municipality did not possess. The kind of remedies which seemed necessary gave evidence that in certain quarters the industry had outgrown purely local control. If a political unit could have been found conterminous

¹ *Nebbia v. New York*, 291 U. S. 502 (1934).

PRICE AND PRICE POLICIES

with the milkshed, and if milksheds did not overlap, the agency of regulation would have been clear. But such simplicity did not exist, and the industry had to make use of government units established for quite other purposes. To remedy the industrial demoralization arising out of the depression, about twenty-five states engaged in experiments with milk control boards. The rationale of these statutes was not new. They did not depart far from the city ordinances which in the past had cloaked economic regulation in the verbalism of public health. The New York law,¹ upon which many others were modeled, was enacted in the "exercise of the police power" whose purposes are "to protect the public health and public welfare." The "unhealthful, unfair, unjust, destructive, demoralizing and uneconomic trade practices" were imperiling the "dairy industry in the state and the constant supply of pure milk to its inhabitants." Milk was a business "affecting the public interest"; it was a "paramount industry"; an "acute emergency" required drastic action.

The state boards were given broad powers. They were "to supervise and regulate" the entire industry "including the production, transportation, manufacture, storage, distribution, delivery and sale of milk and milk products." Power to subpoena records, to give and take away licenses, and to punish infractions of rules was regarded as essential to the fulfillment of their task. Some of the statutes provided the boards with power to fix prices and listed a number of conflicting objectives which were to serve as guideposts in such regulation. The prices fixed were to "best protect the milk industry in the state"; they were to "insure a sufficient quantity of pure and wholesome milk to adults and minors"; they were to have "special regard to the health and welfare of children." Above all, everything was to be done in the "public interest."

It took no prophet to foresee that the milk boards could never effect a satisfactory balance among these different values. Their funds were limited, their personnel untrained; and there was no body of tradition to point the way. The interested groups in the industry clamored for their particular causes, and the problems were too complex for the immediate settlements which were demanded. In the necessity for speed the boards wisely sought to make use wherever possible of the established structure of the shed; the utilization and base surplus plans, where already in existence, were only slightly modified to ensure a more equitable operation. But the weakness and misuse of the methods of calculation which such schemes employ are hidden in the Gargantuan system of accounts; for a real solution, a clear-cut intellectual approach to the whole problem of accounts would have had to be devised. Dealer's records were in such a chaotic state that the procedure of checking accounts

¹ N. Y. Laws, 1933, Chap. 158.

MILK

required weeks and months of patient work. In the meantime the industry was insistently demanding relief.¹

The boards in some states attempted to strike at the discretion exercised by dealers over minute terms of price bargaining. Such remedial measures as lightening the heavy haulage charges imposed upon producers ran counter to deeply embedded custom and for enforcement required a policing service which the boards did not possess. A serious question was whether the measures needed to restore order in the industry could be accommodated to the decorous ways of public regulation. Prices could be fixed only after public hearings; at these the dealers held an advantage over producers since they could deluge the boards with statistics on costs. In the anxiety to give immediate relief to farmers, dealers' costs had to be accepted on their uncritical face; and the result of the incorporation of such costs into price was to stamp with governmental approval items none too exactly calculated.² The boards attempted to remedy errors with the issuance of new orders; these were bewildering in their multiplicity and were subjected to a variety of interpretation—not always deliberate—by dealers. The staffs were too small for a speedy apprehension of violators of rules, and proof of evasion was difficult. In some states the only recourse the control board had against a dealer who did not comply with the price schedules was revocation of his license; the penalty of forcing a man out of business was too stringent to be frequently used.

It is not possible here to evaluate the work of the milk control boards. Their personnel and policies were changed frequently in the various

¹ The first chairman of the Pennsylvania State Milk Control Board stated at a hearing of the Federal Trade Commission: "They were cited in as fast as we could—as a matter of fact, Judge, let us look at the problem. We have around 5,500 milk dealers in this State. We had approximately twelve investigators capable of going into the field and auditing accounts and their ability or capability was of varying degrees, of course, and auditing—we will take some of the accounts referred to here that we have tried—as I recall one concern, it took six weeks for two men to audit two months of their performance. Now, that was one of the very largest concerns. In some instances one man could go out and audit an account for a period of two or three or four months in two or three or four days. Now, those audits—the audit was made, the work sheets came back to our office with the auditor and he in turn went over those, made his calculations, summations, and so on, and presented to our board similar reports as were presented here yesterday, together with the findings or recommendations of the chief of the department as to what action should be taken, or a request for it." *F.T.C. Hearings*, p. 580.

² When asked whether the dealers furnished the Pennsylvania State Milk Control Board with exact figures as to their milk costs, Dr. Howard C. Reynolds, former member of the board, stated: "Well, some of the dealers furnished us with what they called exact figures and the opportunity that I had to check some of them down, I found that there was pretty nearly everything charged to B milk, consequently I was not satisfied to accept the dealers' figures until our auditors had gone over the whole situation. We were slow in getting organized and in getting real capable men, and as far as I personally was concerned, I did not get to the point where we could lay the proofs down as to just what it did cost." *F.T.C. Hearings*, p. 774.

PRICE AND PRICE POLICIES

states; and the interpretation, enforcement, and effectiveness of identical provisions in the statutes varied from one state to another. A number of factors contributed to the curtailment of the boards' powers or the failure to reenact new legislation as their limited terms on the statute books expired. A major difficulty was the inability of the boards, in the short space of time allotted to them for results, to analyze and alter constructively the institutional structure of the shed. Where the boards essayed to do so, they antagonized dealers; and where their efforts failed to yield dividends to producers, they evoked skepticism among members of the group whom they were intended to benefit. The return of prosperity mitigated the severity of the economic stress among producers, and turned them, with the dealers readily complying, back to the security of the private arrangements in the shed. Another hindrance was the attitude of the courts. Whatever potentialities lay in the state milk control board as an instrumentality for regulating the milk industry were frustrated by a series of judicial decisions which crippled, almost at its inception, this experiment in control.

An Assortment of Cases. The judicial atmosphere in which the milk cases were to be tried was distinctive. The free and open market has long been regarded as the norm for industrial behavior. Throughout the nineteenth century it was the popular belief that the public interest could best be furthered by free competition; the antitrust laws represented the attempt to force such a way of life upon erring industries. This economic doctrine, embodied in the common law and elevated into public policy by legislation, was taken over by the courts. At the hands of the judiciary it became a measure by which the actions of business and legislatures could be judged. General rules were formulated, of varying accord with the facts, which translated into legal standards the marks by which the competitive norm could be recognized; and cases were won or lost on whether actions facilitated or obstructed the hypothetical freedom of the market found in the lawbooks.

The issue as thus posed by the courts was utterly irrelevant to the milk industry. The free and open market had long since given way to a scheme of private regulation by the industry itself. The process of price making was by the organized groups in the industry; the public was represented, if at all, only in its "ever-present omniscience." State regulation meant the right, for the first time, to review this private control of the market and correct it in the public interest. The real question was not whether the state might interfere with the natural operation of the competitive system; it was whether it might regulate and amend the arrangements which were the product of industrial agreement. Moreover, there was evidence that private control had failed to maintain a nice

MILK

balance between the conflicting interests of producers and dealers. It was hoped that the government could effect a more equitable adjustment than the industry had been able or willing to do.

This judicial concept of industry is starkly revealed in the Supreme Court dissent in the *Nebbia* case which, with a single additional vote, might have commanded a majority. Leo Nebbia, a small grocer in Rochester, had quite properly sold 2 quarts of milk for 18 cents—the New York State Milk Control Board had set the minimum price at 9 cents a quart—but had inadvertently or contumaciously thrown in a 5-cent loaf of Italian bread. It was this simple act which was the instrument for first bringing price fixing by the state into the purview of the courts. Mr. Justice McReynolds spoke for the minority; in no place in his argument is there any recognition that a rigid private organization of the industry already exists. The milk business is “essentially private in its nature”; regulation to prevent “recognized evils” is permissible legislative action, but the fixing of prices in an “ordinary business” is clearly outside legislative power. The predicament of the farmer is due to his own “ill-advised but voluntary efforts”; similar situations occur in “almost every business.”

The notion that members of the milk industry engage in free and unhampered action has its complement in the assumption that prices are made by free and open competition. The justice, without referring to the private regulations already in vogue, finds price fixing by the state to be “management, control, dictation.” It is the deprivation of the fundamental right which one has to conduct his own affairs honestly and along customary lines. Not only does the statute “interfere arbitrarily” with the rights of the little grocer to conduct his business “according to standards long accepted”; it takes away the “liberty” of consumers “to buy a necessity of life in an open market.” Even an emergency is an inadequate justification for the fixing of prices by the state. A government may not by “legislative fiat” convert a “private business into a public utility.” If “liberty or property” may be struck down simply because of “difficult circumstances,” there is no end to the mischief. On such a basis every right must yield to the voice of an “impatient majority when stirred by distressful exigency.” Quite justly grave concern may be felt for farmers, but this must not “obscure the rights of others nor obstruct the judicial appraisalment” of measures proposed for relief. The “ultimate welfare” of the producer, “like that of every other class,” requires “dominance of the Constitution.”

The majority of the Court reached an opposite conclusion, though they likewise were unconcerned with the actual conditions in the milk industry. The simpler legal justification, used widely in the past, was

PRICE AND PRICE POLICIES

the power of the state to protect the public health; but Mr. Justice Roberts boldly confronted the economic implications of price regulation. A crisis of grave magnitude faced the milk industry in New York State. A state is "free to adopt whatever economic policy may reasonably be deemed to promote public welfare"; and it is empowered to "enforce that policy by legislation adapted to the purpose." The judiciary may find such legislation out of harmony with its own economic predilections; that is irrelevant. Its sole function is to ascertain whether the statute is "arbitrary, discriminatory, or demonstrably irrelevant to the policy of the legislature" and hence an "unnecessary and unwarranted interference with individual liberty." The decision had behind it in tradition and precedent the liberal opinion of the Court; the judicial function is limited to the manner and not the wisdom of legislation.

There was implicit in the majority opinion a recognition of very wide power which the state could exercise in the public interest. Whatever the character of the business, the rights of property are not "absolute"; "private need must yield to public need." The Constitution does not guarantee to anyone the "liberty to conduct his business in such fashion as to inflict injury upon the public at large, or upon any substantial group of the people." The regulation of manufacture or trade, with incidental effects upon price, has long been accepted; there is nothing "peculiarly sacrosanct" about price which removes it from legislative control. Though the milk industry is not in the "accepted sense" a public utility, there is no "closed class or category" of businesses affected with a public interest. In the long run any business which "public interest demands shall be regulated" is within the constitutional formula habitually employed.

Thus by different processes the same premises evoked very different results. In both opinions the presumption was that milk is a competitive industry operating in a free and open market. To the dissenting minority any price regulation by the state was in violation of the competitive norm. Moreover, they were deeply concerned with the invasion of private rights which, to the judicial mind, had grown up around the concepts of liberty and property and were now virtually inviolate. So extreme was this view that it was believed that even in times of emergency, a part of the industry, seriously injured in its operation, could be pitied but not aided under the Constitution. To the dominant majority the state might interfere if free competition failed to protect the industrial interests entrusted to it. Then private right had to give way to public necessity. Even if the Court wished, it could not intercede; its function had been performed when it had sat in judgment upon the reasonableness or the arbitrary character of the legislation. To give strength to the argument of the majority, there was drawn in the

MILK

concept of "affectation with a public interest" which had been brought into the law to broaden,¹ then was used to limit,² and now again was employed to widen the category of industries over which the state could exercise control. In a sudden reversal of its former position the Court in substance declared that any business which the legislature found to be affected with a public interest was *ipso facto* in that category.³ At the time the decision was handed down, it seemed to promise a great expansion of control by the state over private industry.

The judgment upon a matter by the court of last resort is often merely the first word. By the end of 1934 the Hegeman Farms case⁴ reached the Supreme Court with the issue of price fixing within the state presented in a slightly different form. In the *Nebbia* case prices related to store sales to consumers; here it was concerned with the maintenance of producers' prices set by the board. The dealer had appealed a revocation of his license for failure to restore \$23,000 in underpayments to some 400 farmers. The earlier plea of the industry that its business was "essentially private in nature" was now scrapped. It was easy for the milk companies to effect a change in argumentative base and, in the cause of litigation, convert a private business into a public utility. Now the plea was made that the rates did not yield a fair return.

In a unanimous decision the Supreme Court again upheld price fixing. Mr. Justice Cardozo, speaking for the Court, found the bill of complaint "uncertain in aim" and "meager in particulars." There was no evidence that the loss incurred was not due to an inefficient operation of the business. Other dealers must have made a profit else they would be "led by self-interest to raise the present level." The analogy between a milk company and a public utility was unreal; in one case the state prescribed a minimum price, in the other a maximum. It was admitted, however, that competition was so keen that in practice the "legal minimum" was the "maximum." A milk company which maintained itself in business by paying lower prices for its raw materials might be eliminated if this advantage were withdrawn; yet such a matter was one of "legislative policy with which the courts were not concerned." Unless the orders are "arbitrary fiats," the judiciary must hold itself aloof.⁵

¹ *Munn v. Illinois*, 94 U. S. 113 (1877); *German Alliance Ins. Co. v. Lewis*, 233 U. S. 389 (1914).

² *Tyson & Bros. v. Banton*, 273 U. S. 418 (1927); *Ridnik v. McBride*, 277 U. S. 350 (1928); *Williams v. Standard Oil Co.*, 278 U. S. 235 (1929).

³ It is of note that only the cases in which "public interest" is a bolster to legislation are cited in the majority opinion. The minority relies upon the cases in which the doctrine of public interest is narrowed in concept.

⁴ *Hegeman Farms v. Baldwin*, 293 U. S. 163 (1934).

⁵ "Whether a wise statecraft will favor or condemn this exaltation of the strong is a matter of legislative policy with which courts are not concerned. To pass judgment on it, there is need that the field of vision be expanded to take in all the contestants in the race

PRICE AND PRICE POLICIES

Somewhat later the Borden company appealed a section of the New York act providing a 1-cent differential between advertised and unadvertised milk of B grade.¹ It was recognized that the milk itself was virtually identical; it had to "conform to standards of quality, purity and cleanliness prescribed by law" whether marketed by Borden's or by an independent. To the minority on the Court this differential destroyed "equality of opportunity"; a dealer who "through merit" had acquired a "good reputation" was deprived of the "consequent benefit" in order that others might "trade successfully." The mere existence of price differences under "open competition" was no "rational reason" for "abolishing competition" by legislation; the Borden company might "suffer utter ruin solely because of a good reputation honestly acquired."

In once more sustaining the act, the majority of the Court were in the peculiar position of defending an anomaly in classical economics in the name of classical competition. Their decision stamped with legal approval a dual price for identical units of a commodity sold for the same use in a single market. The differential was justified as preserving the competitive relation between large and small dealers; it established a balance between the two groups which, prior to the act, had already existed in current trade practice. Since no evidence was presented to show that the law produced such "gross inequality" and damaged the large dealers so "unnecessarily" as "to shock the conscience," there could be no basis for the Court to declare it unreasonable or arbitrary.²

On the same day the Supreme Court handed down a decision in the *Mayflower* case,³ also concerned with the 1-cent differential. In the reenactment of the New York law in 1934, a clause was added making the differential applicable only to dealers who had been in business prior to April 10, 1933. The minority in the previous Borden case⁴ now joined with Chief Justice Hughes and Mr. Justice Roberts to form a majority

for economic welfare, and not some of them only. The smaller dealer may suffer, but the smaller producer may be helped and an industry vital to the state thus rescued from extinction. . . . The question is not for us whether the workings of the law have verified the theory or disproved it. At least a law so animated is rescued from the reproach of favoritism for the powerful to the prejudice of the lowly. If the orders made thereunder are not arbitrary fiats, the courts will stand aloof." *Ibid.*, p. 171.

¹ *Borden's Farm Products Co. v. Ten Eyck*, 297 U. S. 251 (1936). The case had reached the Supreme Court in 1934 (*Borden v. Baldwin*, 293 U. S. 194) but had been remanded due to flaws in procedure.

² In reading the majority decision Mr. Justice Roberts revealed that the legislation did not conform wholly with his own economic doctrines. "The present case affords an excellent example of the difficulties and complexities which confront the legislator who essays to interfere in sweeping terms with the natural laws of trade or industry. The danger in such efforts always is that unintended dislocations will bring hardships to groups whose situation the broad rules fail to fit." *Ibid.*, p. 262.

³ *Mayflower Farms v. Ten Eyck*, 297 U. S. 266 (1936).

⁴ Mr. Justices McReynolds, Van Devanter, Sutherland, and Butler.

MILK

in declaring this section of the law unconstitutional; by a corresponding reversal of position Mr. Justices Brandeis, Stone, and Cardozo—deserted by their colleagues in the former case—were now placed in the role of dissent. The reasons for finding the law valid in the Borden case were now made over to support a declaration of unconstitutionality. The differential was instituted to “preserve competitive conditions”; yet the effect of the new classification was to “give an economic advantage to those who enter the industry after that date.” The Court had “no right to conjure up” a possible situation which might justify the discrimination; it was “arbitrary and unreasonable” and denied the “equal protection of the law.”

Mr. Justice Cardozo expressed a very vigorous and pointed dissent to the opinion of the majority. The judgment was “irreconcilable in principle” with the earlier decision. The legislature in setting the differential wished to maintain a protection accorded to small dealers by “unrestricted competition”; the position of veterans was quite different from that of men just entering the business since they would “lose something more than an opportunity for a choice between one business and another.¹ A judgment demanded a nice selection among conflicting values; this was the function of the legislature, not the judiciary. The duty of the Court was discharged when it appeared that the “lawmakers did not play the part of arbitrary despots in choosing as they did.” There was no evidence convincing to the dissenting justices that the “judicial scales are so delicately poised and so accurately graduated as to balance and record the subtleties of all these rival equities, and make them ponderable and legible beyond a reasonable doubt.” The inability to declare a statute void is to declare it valid.

Then once again the powers of the milk boards were assailed in a suit against the Virginia Milk Commission.² The circumstances were somewhat different from those of the Nebbia case. The Highland Farms Dairy, a processing company located in the District of Columbia, sold the whole of its fluid-milk supply to Luther High, who operated retail stores in Virginia and elsewhere. The Virginia Milk Commission set minimum retail prices in a market within its borders in which High operated; these were disregarded by the dealer, who continued to sell at his lower prices. The commission served notice that it would seek an injunction if High refused compliance with its regulations; and in retaliation High, together with Highland Farms Dairy, sued to enjoin enforcement of the act. The plaintiffs argued that, since prices were not

¹ “They would lose capital already ventured; they would lose experience already bought; they would suffer the pains incidental to the sudden and enforced abandonment of an accustomed way of life. A newcomer could not pretend that he was exposed to those afflictions.” *Ibid.*, p. 276.

² *Highland Farms Dairy v. Agnew*, 300 U. S. 608 (1937).

PRICE AND PRICE POLICIES

to be fixed in all markets, there was an unlawful grant of discretionary powers to the commission. They essayed an attack at several points in the scheme of regulation. It was claimed that the authority to revise and set aside prices gave to the commission arbitrary power; that the failure to prescribe standards to be applied in the regulation of licenses made the statute unconstitutional. Mr. Justice Cardozo, speaking for the Court, reaffirmed the right of a state to fix minimum prices for milk as outlined in the *Nebbia* decision.¹ The distribution of powers among the agencies of government within a state lay beyond its jurisdiction. Even if the statute were a "denial of a republican form of government," the remedy, "according to the settled doctrine, is for Congress, not the courts." So far as the objection to delegation was founded on the Constitution of the state of Virginia, this was answered by a decision from its highest court.² Since only sales within the state were affected, the regulation did not lay a burden upon interstate commerce; the controversy over the cancellation of prices was viewed as "abstract and conjectural"; and with respect to the licensing provisions "no inference is permissible that anyone was intended to be excluded because of favor or caprice."

In this series of decisions the right of the state to engage in price regulation of the milk industry received the explicit sanction of the Supreme Court. The issue in the *Hegeman* case closely resembled that in *Nebbia*; in the one instance price fixing was upheld in the name of open and free competition and in the other as a business affected with a public interest. With the appearance of cases relating to the 1-cent differential, the judicial concept of the open market was retained though modified materially. The customary price difference between milk of the same quality, at odds with conventional price theory, was approved by the Court in the name of competition. It was in fact a tacit admission that private usage was more effective than judicial norm in the ends which were sought. The distinction which was accepted by the Court between advertised and unadvertised brands was rejected when it was to be applied to dealers entering the market at different times. The net

¹ A note was appended to the decision that Justices Van Devanter, McReynolds, Sutherland, and Butler "do not assent to so much of the opinion as attributes to the State a power to fix minimum and maximum prices to be charged in the sale of milk, their views on this question being reflected by what was said on their behalf by Mr. Justice McReynolds in *Nebbia v. New York*, 291 U. S. 502, 539-559. In other respects they concur in the opinion."

² The case referred to, *Reynolds v. Milk Commission*, 163 Va. 957, had a checkered career. It first came up in 1934, when the state court, by a vote of four to two, decided against the Milk Commission (177 S. E. 44). The filling of a vacancy and the replacement of a justice who resigned resulted in another appeal in 1935. This time the decision was in favor of the commission by a vote of four to three. The opinions were touched up, and now the minority opinion was handed down as an opinion of the majority, while the former opinion of the court was converted into a dissent.

MILK

effect of those last two decisions was to make the statute different from that passed by the legislature; in fact, as the minority claimed in the *Mayflower* case, the Court was legislating. Yet the distinctions were such that only two of its nine members could follow them; and by a constant shift of votes, the voice of the Court embodied a wisdom different from that of the majority of its members. Yet both decisions were in conformance with their competitive ideal.

All these decisions were concerned with the fixing of prices within the state. But the milkshed has scant regard for state lines; and an adequate control would have to extend beyond the state. It was inevitable that the Supreme Court should be invited to rule upon the right of the state to regulate the conditions under which foreign milk was marketed and subsequently shipped into the state. The particular issue again related to price fixing; the state board attempted to fix producers' prices for all members of the shed.¹ A precedent for such regulation lay in the health activities of the municipalities. They can send inspectors into foreign territories, set up standards governing the production of milk by farmers outside the state, and reject such milk as seems unsatisfactory. The question was whether the state, in the interest of a secure industrial life, could regulate in a similar manner. The economic issue was perfectly clear. The statute provided that the "benefits of any increase in prices" should be passed on to producers; the state had to fix prices for the whole shed or give up the matter altogether. If the higher prices were limited to producers within the state, the market would go to outsiders. Thus the statute would have exactly the opposite effect upon the groups whom the law was intended to benefit. It would in reality guarantee to its own farmers the loss of their markets.

In a decision read by Mr. Justice Cardozo the Court was unanimous in its disapproval of such price regulation. The relation which the state sought to establish between the economic well-being of the producer and a sanitary milk supply was rejected. It plead that price fixing was simply a "special form of sanitary security"; the economic motive was secondary and subordinate; the state intervened "to make its inhabitants healthy and not to make them rich." The Court replied that economic welfare was always related to health, "for there can be no health if men are starving." Nevertheless sanitary standards were one thing and an indirect remedy such as the "creation of a parity of prices" between states was quite another. Whatever relation existed between "earnings and sanitation" was "too remote and indirect to justify obstructions to the normal flow of commerce" among the several states. In previous cases it had been held that the state had authority over goods which had come

¹ *Baldwin v. Seelig*, 294 U. S. 511 (1935). This case followed *Hegeman v. Baldwin* and preceded the two cases involving the 1-cent differential.

PRICE AND PRICE POLICIES

from another state if the original package had been broken. Here the state argued that milk had "come to rest" when it reached the city in cans; its subsequent pasteurization and bottling brought it within the area of intrastate commerce, and therefore subject to state control. The Court answered that the theory of the original package was not an "ultimate principle"; more ultimate was the principle that a state in its dealings with others "may not place itself in a position of economic isolation." Price regulation of milk entering its domain was an "economic barrier against competition" from outside products; it was "equivalent to a rampart of customs duties" and an "unreasonable clog upon the mobility of commerce."

The consequence of this decision was seriously to curtail the regulatory powers of the state. The right to fix prices is permissive only within its own boundaries. Where the milkshed extends into other states, the right is meaningless; for, to be effective, regulation must apply to the whole shed. Here the antithesis between municipal and state control is striking. The city may, for health reasons, go outside the state; there is no "unreasonable interference" with commerce if goods are inspected and then excluded. But if the state, for industrial reasons, attempts price regulation, it is a "direct restraint" upon the mobility of commerce and unconstitutional. The result is that in the large markets which are most demanding of attention, the state is powerless to intercede. The New York, Boston, Philadelphia, and Chicago sheds extend far beyond any single state. Yet with all their warring factions each is an integral unit and inseparable for purposes of control. The milk industry has grown beyond the city; the decision by the Supreme Court has put an effective milk control beyond the competence of the several states.

The Agricultural Adjustment Administration. A beginning in national regulation of the milk industry was made by the AAA early in 1933. It was a part of the united drive by industry and agriculture to beat, with the aid of the federal government, a national depression and restore prosperity. A movement so evangelistic in character had to go forward in a whirlwind campaign; the milk agreements bore the marks of an attack upon a problem of reconstruction in the tempo of recovery, a compromise of considered means with emergency ends, and the expectation of the millenium. Within the AAA a sharp clash over policy developed among officials. To one group federal regulation was an opportunity for a constructive attack upon the fundamental problems in the milkshed; to another the milk agreements were simply a part of a vast agricultural program to attain a "parity of prices" between industry and agriculture.

The earliest arrangements, representing the period of greatest expectations and industrial cooperation, tended to cover the entire structure of the shed. The organized producers and dealers joined with the national

MILK

government in the formulation of a body of fair trade practices. In some contracts the area of supply, already virtually closed by inspection and custom, was given careful definition; new producers were to be granted entrance by "certificates of convenience and necessity" only upon a showing that market conditions justified additional supplies. Rules for the clarification of basics and their transfer were established. In a variety of ways attempts were made to remedy the inequality in producers' payments. Classes of milk were minutely described; prices to producers for their milk sold in sheltered markets were stated in the contracts; and the methods of calculation of payments for surplus milk were clearly set out. Records of the contracting producers and dealers were to "accurately reflect the true account and conditions of their respective businesses" and were to be subject to the examination of the government. The function of the equalization fund was to substitute a single pool of payments for many, and thus socialize returns on the different classes of milk among all producers in the shed. In some markets a schedule of prices for wholesale, store, and retail sales of milk was fixed for the industry. To give effectiveness to the contracts, market administrators, appointed by the government but acceptable to the parties concerned, were sent out to supervise the arrangements and to arbitrate differences.¹

Altogether about fifty markets were subject to regulation under the AAA. The administrative problems faced under state control were met again in the experiment by the federal government. The pressures of divergent interests, normally converging upon each other under the scheme of private regulation, was shifted to the AAA; in general the defeat of the depression meant to the industrial parties the enlargement and legal recognition of local practices which operated in their own interest. In the hurried attempt to codify, a careful check upon the justice of complaints and the exactitude of testimony was impossible; some compromise had to be struck, more or less acceptable to the parties concerned. So diverse were the different markets and so various were their stages of development that it was difficult to arrive at a generalized statement of policy. Each shed constituted a unique problem. Though the AAA, like the state milk control boards, attempted to construct a control upon the established institution of the shed, this was in itself a hindrance to action; it might have been easier to start fresh than to attempt an accommodation of the network of custom and established practice to the end of a more equitable industrial order.

¹ See the AAA hearings in the milksheds; the marketing agreements, licenses, and orders; and in some markets the rehearings on the workings of the contracts and the complaints of the members of the industry. The releases of the AAA since 1933 give their side of the case; as a counterirritant see John D. Black, *The Dairy Industry and the AAA*, Brookings Institution, 1935.

PRICE AND PRICE POLICIES

A number of factors contributed to a gradual change in policy in respect to milk regulation. The struggle within the AAA culminated in the famous "AAA purge" of the militant reformers, and efforts became confined more and more to the narrower aim of raising prices for producers. So impossible was it to enforce the price schedules that eventually all price fixing, save that for producers, was abandoned. As markets became stabilized with the upswing in business, the zeal for federal aid languished; and over half of the contracts were withdrawn by request of the industry or allowed to lapse into disuse. And, as in the case of the milk control boards, the regulation was adversely struck by decisions of the judiciary. A number of cases were taken to the courts and the regulation was declared inapplicable to an intrastate shed or unconstitutional. Where there was no actual interstate shipment of fluid milk, the government sought to justify federal regulation on the ground that prices for intrastate milk products were so interrelated with prices of products which moved in interstate commerce that any clear distinction was impossible. However, the lower courts, with but few exceptions, followed the United States Supreme Court in striking down New Deal legislation.¹ None of these decisions was pushed to the highest court. The judgment in the AAA case did not affect the milk contracts;² yet in view of this and earlier decisions there was considerable doubt of their constitutionality. The zest of earlier days waned, and the machinery settled down into a routinized operation of control in the few sheds that had not abandoned federal regulation.

In an industry whose affairs are as complex and entangled as those of fluid milk, an experiment in control must begin with its tentative hypotheses. It is only through trial and error that these can be hammered into realistic presumptions adequate to an attack upon the problem of industrial order. The short period of regulation did not allow the general terms of the statute to be crystallized into the concretions of living usages. It did not permit the most promising lines of regulation to be discovered and followed; it did not even allow the problems to be fully stated and analyzed. The venture was cut athwart, almost at its inception, by the intrusion of the judiciary; and at the touch of prosperity the way was open for members of the industry to return to their former scheme of private arrangements.

¹ *Edgewater Dairy Co. v. Wallace*, 7 F. Supp. 121 (1934); *Columbus Milk Producers Association v. Wallace*, 8 F. Supp. 1014 (1934); *United States v. Seven Oaks Dairy Co.* 10 F. Supp. 995 (1935); *Royal Farms Inc. v. Wallace*, 8 F. Supp. 975 (1934); *United States v. Greenwood Dairy Farms, Inc.*, 8 F. Supp. 398 (1934); *Douglas v. Wallace*, 8 F. Supp. 379 (1934); *United States v. Buttrick*, 15 F. Supp. 655 (1936); *Ganley v. Wallace and Leigh v. Wallace*, 17 F. Supp. 115 (1936) are typical examples.

² *United States v. Butler*, 297 U. S. 1 (1936).

MILK

THE CONSUMER'S INTEREST

The current organization of the milk industry is an unplanned and adventitious product. Its arrangements represent opportunistic answers to insistent problems; in their inception they gave no hint of the industrial consequences which were to ensue. Their conversion into instrumentalities of political pressure, to be exercised by groups within the industry, has resulted in a distinctive organization of the market. All the practices, in conditioning the commodity he buys, are affected with an interest to the consumer. The buyer is as much a party to the industry as the producer and distributor; his necessity is the ultimate objective of the milk stream. Amid the commonality of problems which beset the industry there are some of particular interest to the consumer, that affect him directly and emerge out of his own relation to its arrangements.

The most striking is his absence in the scheme of industrial control. A collective organization of the market controls the making of price for fluid milk, but there is no machinery provided for the articulation of the consumer's interest. He is a silent partner to price arrangements in which he has not participated and over which he has no control. In effect he is bound by an industrial agreement to which he is not a high contracting party. Under the system of private negotiation, the consumer has lost even the protections afforded by the open market. Under competition sellers vie with each other for business by minute reductions in price, and the buyer is the recipient of these benefits. In fluid milk prices are uniform for long periods and are changed only by agreement within the industry. In some markets differentials between store sales and wagon delivery, and between advertised and unadvertised brands, have fought their way slowly and stubbornly into the price structure; these too have become customary and are subject to modification only by industrial understandings. The open market affords a latent protection to consumers even in times of high prices. Stocks accumulate and prices are eventually forced down to dispose of these excess supplies. But under the controlled milk market, this adjustment does not take place. The unique relation of supply and demand, accorded by the use plan of payment, makes both an aspect of price. The industry sets a price; it evokes a certain demand; and the supply is measured off to fit the demand. Since, under the scheme, surplus can be shifted to alternative markets, the supply of fluid milk is made to synchronize almost perfectly with demand, whatever the variation.

A single safeguard, if it can be called such, still remains—the consumer can refuse to buy. He can, if he wishes, transfer his consumption of foods to the competitive milk products or to other commodities.

PRICE AND PRICE POLICIES

Yet this freedom is subject to distinct limitations. Milk has won a strategic place in the American dietary; it is only with the utmost unwillingness that a family, accustomed to its use, will cut itself off from a food which is accorded the position of a necessity. The result is that, for this group of consumers, purchases are maintained with little regard to the price that is charged. But an average consumption of a pint a day or less indicates that large segments of the population fail to use milk. Here the barriers of price and custom are interactive; a price beyond a family's means makes consumption prohibitive, and milk fails to get established in the diet. In every market there are large sources of potential consumption which have remained untapped. This situation is in sharp contrast to the heavy overproduction of milk for fluid use which, because of the size of current demand, is diverted to manufacturing channels. The function of price is to bring the two together. But under the present marketing arrangements, the controlled price has not been given an opportunity to perform its task; nor has the industry shown any inclination to experiment with price and its evocation of demand. The current paradox is striking. On the one hand, surveys of milk consumption indicate that families, relatively well off, use larger quantities of fresh milk than families in the lower income brackets; and on the other, that the practice, once established, tends to continue irrespective of changes in price.¹ It suggests that there is a great latent demand for milk waiting to be quickened into action through low price. Yet the industry has clung stubbornly to a scarcity theory and to the belief that high prices mean high profits.

Grades and the Consumer. The adjustment of market demand to the supply is effected by a large assortment of grades. These vary from the simple letters of the alphabet—B and A—to an array of alluring names such as Golden Guernsey, Vitamin D, and Meadowbrook Special. The things that lie behind a grade symbol differ from market to market. Grades are named and defined by city ordinance; the health regulations, butterfat content, and bacteria count for a Grade B in one market do not resemble those in another. The system is also complicated by the fact that different grades in the same market may be virtually identical. It is becoming customary for dealers to market some of their milk under

¹ Consumers Counsel Division, AAA, *A Survey of Milk Consumption in 59 Cities in the United States*, 1936; Minimum Wage Office, State of New Hampshire, *Report of Study of Consumer Attitude as a Factor in Milk Consumption in New Hampshire*, 1934; Bureau of Business Research, University of Texas, *Consumption of Milk and Milk Products in the City of Austin and Travis County, Texas*, 1934; AAA, *A Survey of Milk Marketing in Milwaukee*, *op. cit.*, pp. 81 ff.; Waite, W. C. and R. W. Cox, *A Study of Consumption of Dairy Products in Minneapolis*, Univ. of Minn., 1934; Cowden, T. K. and A. Sturges, *Preliminary Report on the Consumption of Fluid Milk and Other Dairy Products in Philadelphia*, Pennsylvania Agricultural Experiment Station, 1934.

MILK

fancy brand names and thus in effect to establish private grades. This milk is produced in accordance with the city regulations for pasteurized milk; it may have or give the appearance of a lower cream line, and is packaged in an attractive bottle. A differential in the neighborhood of 2 cents is established between it and ordinary pasteurized milk. Its presence is a tribute to the ingenuity of the distributor in the campaign for higher prices.

Where there are two standard pasteurized grades, usually B and A, the difference is one of bacteria count. In some instances the city fixes a maximum count which must be met prior to pasteurization.¹ Though there may be a single set of regulations governing the production of all milk to be pasteurized, this requirement makes for somewhat greater care in the production of milk of the higher grade. More often the city simply sets separate maximum counts for the milk following pasteurization.² This sanitary difference, however, is insignificant. The incidence of pasteurization is to destroy all pathogenic bacteria, whatever the grade of milk. Where this form of processing is capably performed, the bacteria which are subsequently counted are harmless or even beneficial. The survival of the distinction on the basis of bacteria count goes back to the days before pasteurization when all microbic organisms were regarded as potentially harmful. Since the milk was sold in raw form, a lower number of bacteria did indicate a safer milk. The practice has lingered despite the device of pasteurization which kills the bacteria causing disease. However, in many cities the maintenance of two grades of pasteurized milk is now coming to be regarded as unnecessary; and there is some tendency toward the establishment of a single A grade. This seems all the more desirable since there are no observable nutritive differences between A and B milk; the city usually sets minimum standards for solids and fat content which both must meet. The consumer's selection of the more costly Grade A is then an expression of an aesthetic preference. He has the pleasure of knowing that his milk has the lowest bacteria count, even though the modicum of safety thus attained is less real than apparent. Where two grades of pasteurized milk are sold in the same market, the purchaser of the higher grade is selecting a luxury product.

Other kinds which may also be termed luxuries are raw milk and the fancy brands. The former is usually marketed as "Grade A Raw" or as "certified" milk. Here pasteurization, the most efficient device for sterilizing milk, is dispensed with; consequently, the production and

¹ In the standard ordinance of the United States Public Health Service, for example, raw milk later to be pasteurized into Grade A cannot exceed 200,000 bacteria per cubic centimeter and raw milk for Grade B purposes cannot exceed 1,000,000.

² The standard milk ordinance of the Health Service provides a maximum of 30,000 bacteria per cubic centimeter for Grade A and 50,000 for B milk.

PRICE AND PRICE POLICIES

handling of the commodity must be carefully safeguarded. Certified milk is subjected to even more severe regulation; it must conform to the current requirements of the American Association of Medical Milk Commissions. The purchasers of raw or certified milk prefer its taste; they object to the loss of some of its vitamins through pasteurization; and some believe that certain intangible nutritive values exist in milk in its raw form. For the extra care which is required a differential of 2 cents is usually established between pasteurized and raw milk. Despite its high price, raw milk, unless consumed on or adjacent to the farm where it is produced, is generally regarded as less safe than the cheaper pasteurized milk; the more protracted the process of marketing, the greater the risks; the hazards of contamination in production and handling can be reduced but not eliminated.

The fancy pasteurized grades are essentially a distributive phenomenon. Without succeeding in injecting style and fashion in milk, dealers have been able to drive a part of their product into luxury classes. The popularity of the vitamins has been capitalized in vitamin D milk; in this the distributors have preceded the medical profession, who are not fully persuaded of the efficacy or desirability of an artificial infusion of this vitamin in milk. A heavy cream line characterizes many of the fancy brands; the higher nutritive values ascribed to the milk lie in their added butterfat. But this is not of great importance since the same values can be secured as easily and more cheaply in butter; and there is no evidence of any superiority in the solids and mineral content. Nevertheless the richness afforded by the cream makes for an attractive appearance and taste, and some consumers are able and willing to pay the added differential for this product.

A Lower Level of Prices. It is not with these luxury grades that the ordinary consumer is chiefly concerned. His pressing need from the milk industry is a standard commodity which possesses the maximum of nutritive qualities and safety and is at the same time low in price. Luxury brands should be available to those who desire them but they should not obscure the more fundamental need for milk which can be available to the masses of the population. In terms of potential business a much larger field lies in the exploitation of latent demand through low price than in the limited consumption of luxury goods. Such a procedure could be profitable to both producers and dealers. The most remunerative market for farmers is Class 1 milk; if all or much of their milk were used for fluid purposes, it is probable that total returns would increase even if a slightly lower rate were paid for their produce. As for dealers the bulk of the overhead costs—plant and equipment labor charges, selling and delivery expense—are fixed and vary only slightly with volume of sales. A doubling of volume would be reflected in something less than a

MILK

doubling of costs; and the burden carried by the individual bottle would consequently be lessened.

A cautious but determined experiment in price reduction still waits to be tried. The changes made by the industry represent variations of a cent or two, and are not important enough to tap the potential demand. In each instance, when the question is raised, the industry points to its costs as an unalterable barrier in the way of lower price. Yet the calculations which are offered are for publicity purposes only; it is not to the interest of the distributing branch of the industry to present to the public a clearly articulated and unbiased picture of its pecuniary affairs. In this respect milk resembles a public utility; under a controlled price—whether by private or public authority—the incentive is to make the items which enter into the rate base as high as possible. In consequence, a number of costs have been shifted to fluid milk where the traffic could be made to carry the added burden. A wide promotional campaign has engaged the attention of many distributors to stimulate the use of their higher priced milk; the Federal Trade Commission in its report suggests that these efforts are out of all proportion to the available business. The extent to which they are unable to pay their way is reflected in the added cost to the standard grade. The wholesale market in some cities is fiercely competitive; and sales to intermediary consumers, such as the hotels and restaurants, are, according to some members of the trade, carried at the expense of the domestic consumer. The division of items of expense among the several products of the distributor is a complex tangle; in this, as in other industries, cost accounting is made to serve as an instrument of business. The allocation of costs in an industry is a matter of policy which has often developed through sheer accident and expediency; in milk its revision is essential to the realization of lower prices and wider consumption.

An analysis of profits should aid in evaluating the propriety of the price charged. Here too an interpretation must come from the data on the distributor's books; there are a variety of ways for a company to cloak excessive returns in items which in themselves appear reasonable. The acquisition of small milk companies through the issuance of stock certificates has resulted in a complicated scheme of ownership and an intricate corporate structure for the dominant marketers in the large cities. This has made possible the accommodation of the capital investment to the going rate of return. Thus profits beget a capitalization which in turn gives to dividends a pecuniary correctness in accordance with the customs of the business community. Salaries to management are payments for services rendered; they are also a means of diverting profits to a select group who are in control of the making of policy. These forms of hiding profits are all the more uncontrollable since standards

PRICE AND PRICE POLICIES

of industrial behavior cannot be easily shaped to all the exigencies of a setup for a complex economic system.

Even an inquiry into items generally recognized as justifiable raises questions of their size and necessity. The greatest single expense for the distributor is the cost for delivery. If the public were to be educated to the fact that for all practical purposes milk of the same grade is identical, despite different brand labels, the demand for a particular trade name might be reduced or eliminated entirely. In this event the enormous expense which attaches to a multiplication of routes could be materially reduced and the whole marketing structure and organization of the industry would be radically altered. But even if the consumer insists upon the right of a nominal choice where actually he has none, the different brands might be retained; but the cost of delivery could be reduced somewhat by the elimination of duplicate routes of competing companies. The city might be parceled out in sections and served by wagons carrying a miscellany of private wares. But until the retail buyer is willing to forego the illusion of preference, a heavy cost must be borne for transportation. More significant in terms of the economies to be effected would be a frank recognition of the increased efficiencies in store marketing. By agreement within the industry the store price is pegged to the retail delivery charge; and a high price is maintained because of the fear that the store will divert too great a volume of business from the wagon with a further consequent increase in costs on the lesser volume. This shift to bulk delivery with short handling by consumers from stores to their homes would also threaten the power of the teamsters' union, which in some cities is thoroughly organized. In Chicago and elsewhere a vested interest has been built up around the multiplication of wagon routes—an instance where the immediate interests of a group of laborers are opposed to the interests of all consumers, including the great mass of workers.

The early morning delivery of milk is a survival of the days before pasteurization. A highly perishable product had to be hurried from the farm to the doorstep for quick consumption. The initiation of pasteurization and the development of refrigerated devices for stores has made home delivery something less than a necessity; but it has lingered as an industrial practice and has become firmly embedded in the cost structure. In this day of widespread domestic refrigeration the customary argument that an early morning delivery of milk is essential for the family breakfast lacks vitality; and it is not paradoxical that in those homes where refrigerators are forbidden luxuries, milk is purchased at the store to secure the minute differential. A popular idea has survived as a rationalization for the practices of an industry though technology has made it irrelevant. Another ghost of earlier days is the

MILK

glass bottle. An expansion in store marketing would inevitably create a change in the kind of container used. The cost of lost bottles might be eliminated by the scrapping of this costly container for the paper carton; this would render unnecessary the clumsy collection of empty bottles and the machines for their cleaning and sterilization. There is no sanitary difference between the two types of container; and the fiction that the public has an unreasoned dislike for paper is dissipated by its experimental use in some markets and in its all but universal use in the packaging of other food products. The control of patents on paper bottles has hindered their widespread use; and the industry has also been unwilling to sacrifice an investment in bottle machinery which glass has necessitated.

Such economies would improve the efficiency of the industry; but they would not strike at the root of the problem faced by the consumer. The exclusion of the retail purchaser from the bargaining process has occasioned a number of suggestions for securing consumer representation in the making of price policy. Perhaps the most obvious is the conversion of the milk industry into a public utility. The loss of the competitive market, it is argued, is final; a public service commission should safeguard the interests of the unorganized consumers in the fixing of milk rates. But milk is not like gas or electricity a "natural monopoly" closed and complete. On the fringe and in the crevices of the industry is a thriving host of independents who slip in and out of the structure. Milk is handled by a number of competing dealers and is marketed through a miscellany of channels; the enforcement of prices, as the state milk boards and the AAA learned, would require a minute and costly system of police. The technology of the industry—although arrested by current arrangements—has not yet come to rest; a wider consumption might revolutionize its practices and its methods of cost calculations. Regulation by a public commission has meant in the past the recognition of vested interests and the preservation of industrial practices. In gas and electricity the rate base has been systematically enlarged by obsolete machinery, excessive charges for equipment purchased from subsidiaries, stock manipulations, and an artful use of depreciation. Under the operation of a commission the state has been impelled to give governmental sanctions to an industrial way of life which conceives of profits in terms of high rates.

In a sense the state milk control boards were public commissions. Quite aside from the problems incidental to that experiment, the evidence is conclusive that a similar freezing was taking place. Costs were too inextricably lost in industrial process ever to be clear-cut; they were made to serve administrative purposes. The pressure of time forced the boards to accept the estimates submitted by dealers. But a more delib-

PRICE AND PRICE POLICIES

erate search for costs has its own hazards; it would give the industry time for a legal and administrative substantiation of a padded rate base. Fluid milk would easily lend itself to a high piling up of costs by including in the calculations a part of the burden for competitive products. The effect of declaring milk a public utility might be to give governmental approval to existing wasteful practices; it might mean a guaranty of a recovery of costs for unregulated manufactures selling in the open market—through the simple expedient of shifting some items of expense to the fluid milk account. And in an industry where there are “big dealers and little ones, newcomers in the trade and veterans,” the pressures upon the commission would be clamorous and insistent. If the *status quo* cannot justify its maintenance, a modification in policy would have to steer its way carefully to escape the dominance of powerful interests. If the public-utility regulation we now have may be regarded as typical, a lower price and a secure place for milk in the standard of living do not seem to lie that way.

Another suggestion which has won popular support is that municipal plants be established to provide “yardsticks” for measuring the correctness of private charges. Such an experiment might do much to encourage potential economies in marketing which thus far have gone untouched; and the wide sale of a standardized commodity at low prices could be justified as a public-health measure as well as a spur to business. Yet the length to which a municipal plant might go in actually determining the cost of a quart of milk is beset with difficulties. A subsidization of its costs through free plant facilities or exemptions from taxes would have to be prohibited. A small plant with a meager volume would incur high unit costs; the operations of a large plant would be typical only for others of its size. A determination of the normal or average plant would be difficult at any time in the milk industry; yet such a concept would be essential to the usefulness of the experiment. If some milk had to be marketed as surplus in the form of butter and cheese, costs of fluid milk would also depend upon the allocations made to this and other joint products. And, after all, the question is not whether the return is fair to the distributor, but whether the pecuniary facts represent the most efficient arrangements which could be developed within the industry.

The consumer cooperative has not gone neglected in the industry. A variety of types has come into being. Some have purchased directly from producers, organized their own pasteurization plants, and distributed milk among their members. Others, less ambitious, have been—like the producers’ cooperative—simply bargaining agencies on price. Their members live in the same neighborhood and purchase through a single distributor, thus securing a deduction of a cent or two from the regular retail price. Here again the price paid is pegged to prevailing

MILK

arrangements; and the bargaining centers around the size of the differential below the posted price in the market. Thus far the movement has had little effect upon the affairs of the milk industry. The cooperative which directly enters the domain of distribution and owns its pasteurization plant and distribution facilities has been too small to secure any marked savings. Nor has it been able to command adequate business talent. The contrast between the crusader who organizes a cooperative to make over the economic system and the business executive who is later employed to keep the unit a going concern is one of temperament and belief; it has been difficult to harmonize a skill in the acquisitive arts and an acceptance of its mores with the social ends of the cooperative. The sole concern of the bargaining cooperative has been for price concessions which have little effect upon the nature of the distributor's business. Nevertheless both forms of consumer participation have awakened a lively interest in the complexities of the milk problem and have made the industry more conscious of the consumer.

An Evaluation of Inspection. In the enjoyment of the solicitude of the government, milk stands quite alone. The control exercised extends from the farm where the raw material is produced to the finished grades which the consumer buys. This regulation contrasts sharply with that for other milk products. The farms producing solely for manufacturing uses are not inspected; the processes used are regarded as of private concern; grades, where they exist, are established by the industry. The lack of regulation does not mark a difference in health hazards. The absence of bacteria in any milk product is a matter of pasteurization and care in handling. In canned milk and ice cream, sterilization is an incident of the heat applied in its processing. For the making of butter and cheese, high temperatures are not required. Nevertheless pasteurization or its equivalent is common in the manufacture of these products; but it is by no means universal nor is it required by law. And a minute control of the handling of these commodities, such as exists for fluid milk, is conspicuously absent. Attempts have been made by the states and the national government to get up standards in the public interest; in general, these branches of the industry have persistently displayed an indifference, if not a hostility, to such legislation.

It is quite otherwise with fluid milk. The industry cannot speak often or fervently enough upon the necessity of protecting the public health. This divergence in views derives not wholly from a difference in concern for the public welfare; it is to some extent a reflection of the importance of regulation as a counter in an economic struggle. In respect to fluid milk, the intrusion of the state in its affairs antedated the organization of the modern industry. The arrangements of the market developed and took form under the aegis of local control; an attitude

PRICE AND PRICE POLICIES

of mind grew up in harmony with the practices of the industry which had been built around a governmental concern for the public health. The industry came to rely upon this regulation as an instrument in sheltering its market. In respect to other milk products the hazards to health seemed less serious; and the customs of the industry grew up apart from public control. So a belated attempt at legislation appeared to be an invasion of private business. In the one case government regulation lies within, in the other well without, the established pattern of industrial behavior.

At its coming pasteurization converted fluid milk into a manufactured product not unlike butter and cheese and ice cream. Yet the old machinery of farm inspection has been retained. Actually the two devices represent distinct attacks upon the problem and belong to different stages of technological development. When farm inspection was started, little was known about the microbic organisms causing disease and less about their elimination. The device was a crude but relatively effective way of securing a supply of clean milk. The production of a milk free from bacteria was more difficult. Inspection could not be relied upon; even the most extreme care is not a complete insulation against the insidious microbe. With the retreat of farms from the market, the hazards were increased. It was in response to the requirement for safety that pasteurization came into use. Now the two devices serve, so far as their distinct technologies will allow, identical purposes. Farm inspection limits the number of bacteria through a ritual of painstaking care in production; pasteurization destroys those which have slipped in despite elaborate precautions. One is cumbersome, costly, and only approximately efficient; the other is simple, inexpensive, and almost completely effective.

In the light of all this, why is not farm inspection discontinued? The reply given by the champions of inspection is that no device is perfect. A remote possibility always exists that milk only partially pasteurized and dangerous to health may slip through the plant. If this is true, it indicates rather the necessity of a more thorough control at the pasteurization plant; a double or even a triple check here would be easier, less costly, and more effective than an examination of all the farms in the shed. A nutritive difference between raw milk of few and of many bacteria would justify farm inspection. But researches into the relative food values of a clean milk and its less sanitary equivalent reveal no perceptible differences; and the removal of dangerous bacteria through pasteurization eliminates the distinction between them in their raw state. More valid are the aesthetic arguments. It is claimed by supporters of inspection that the prestige of milk would suffer if the produce came from farms disreputable in appearance. An accumulation of odds and ends falling into the milk pail would, it is argued, inevitably

MILK

add an unwanted garnish to the taste of milk; a residue of sediment in the bottom of the milk bottle, though powerless to affect health, would awaken distrust and distaste of its contents. In consequence, the consumption of milk would decline to the loss of both consumers and the industry.

This transfers the problem from the domain of health to that of clean milk. If a sanitary and safe milk is assured by pasteurization, the only function remaining for farm inspection is to make certain its cleanliness. The limited nature of this task raises seriously the question of whether an efficient substitute can be found for the costly system of policing now in vogue. It might be possible to set a maximum bacteria count for milk to be used for fluid purposes; or a scheme of payments might be devised which allowed higher premiums for clean milk. Tests could be centralized at points where the milk is poured into the common stream; and farm inspection could be limited to those units where the bacteria count exceeded the maximum allowed.

But if the abolition of farm inspection would be too abrupt a change, due to an actual or felt need for its benefits, many of its present evils might be eliminated by simplifying and standardizing its procedures and by removing its local character. If city regulation creates a market narrow and provincial, state inspection would, through covering wider areas, tend to confine sources of supply to farms within or adjacent to its jurisdiction. A system of national inspection would permit the development of milk markets untrammelled by artificial boundaries. All fluid milk would be forced to meet the same health regulations; these would be uniform throughout the country. The flow of milk from one section of the country to another would occur where the foreign supplies could effectively compete in price with local milk. An area of low production costs, such as exists in the Middle West, might well be able, despite shipping charges, to underbid high-cost milk in the East. It is doubtful if these markets could be strictly national; the perishability of the commodity and the cost of refrigerated transportation would prevent the unrestricted movement from coast to coast. But the artificial local markets which represent a petrification of a departed petty economy would be gone. In their place would stand large sectional markets, in no wise constrained by state boundaries and pent in only by the natural barriers which operate today. Milk produced close to the fringe would easily pass over their frontiers; the resulting interlocking of operations would create something very like a national market. All milk would not go everywhere, but the conditions of marketing would tend to be universal.

The greatest argument against national inspection is the threat to local self-government. The complaint of federal bureaucracy has so

PRICE AND PRICE POLICIES

often been revealed as the cry of vested interests endangered by regulation that it has fallen into some disrepute. Nevertheless local self-government is a vital part of our political life and might seem to be peculiarly appropriate for a matter such as public health. But the thing needed in farm inspection is fixed standards and uniform procedures; many of the current difficulties have arisen from conflicting rules of several political authorities. A matter like inspection is one with which the national government is best fitted to deal; the very uniformity which is required lends itself neatly to the oversight of a federal bureau.

The proponents of local inspection cite the intimacy of relationship in the small community as an incentive to better milk sanitation. But in the large city even the myth of intimacy has long faded and only the disadvantages of local control remain. It has been virtually impossible for the local health department to hold aloof from the intramural battles of the shed. Every new regulation is scrutinized carefully by all the divergent interests; and pressure is brought to turn the incidence of the rules to private account. Here the advantage of federal control is obvious. If the scene of battle should merely be transferred to the new agency, a national system would at least be farther removed from the impact of pressures. Privilege would have to fight its way against the structure of a national control. A system of federal inspection might likewise offer distinctive advantages in its administration. Pasteurized milk is a product of modern technology; control by the municipality has meant, in many instances, the maintenance of outmoded practices. A national system could encourage the work of the laboratory and bring its benefits to the smallest hamlet. The confusion of multiple agency and duplicate function could give way to a single control governing shipments to all markets; uniformity could replace the present chaos in milk inspection.

A national market would also bring the economic organization of the milk industry into closer harmony with its corporate structure. In many cities the fluid milk business is dominated by subsidiaries of the Borden Company or the National Dairy Products Corporation. In appearance these units are small in size; they operate under their individual names; and their fluid business is regulated by and confined to the rigidly protected domain of the municipality. Yet actually they are parts of a single corporate structure with control in larger matters of policy lying far beyond their discretion. In the processing and marketing of surplus milk products, in the distribution of profits, and in the protection of industrial interests against the intrusion of the government, they are facets of a larger aggregate so integrated as to make their separate existences only nominal. If as corporate entities they were blotted out and became mere branches of the larger company, their situation would not be materially

MILK

changed. Even though the municipality, in its inspection regulations, has broken the market into a multiplicity of segments shaped to its own size, in their corporate structure the industrial units have jumped the barriers and united the parts to form a national industry. In the size and comprehensiveness of their activities these companies are outside and beyond the regulatory powers of the city. An effective control would have to be conterminous with the object of regulation. It would need to extend beyond city and state boundaries, across a continent; the magnitude of the industrial interest demands the power of the federal government as the agency of control.

The change from local to national inspection would have a profound influence upon the economics of milk. It would revolutionize the arrangements which attend its production, its distribution, and its price. With the disappearance of the local sheltered market, the geographical locale of production might center in those areas especially suited to dairying; and the task of providing milk for fluid use, now one of a miscellany of activities which keeps the small farm going, might develop into a strictly commercial business. Such a change would require a drastic reorientation in function on the part of high-cost fluid-milk producers who now supply metropolitan markets. The individual price making of each local market would disappear along with its suggestion of monopoly; any producer or dealer who met the national requirements could ship in interstate commerce. The arrangements would also alter the status of the dealer. Under the system of local control, subsidiaries of the parent company are in a curious state of independence and vassalage. In respect to their physical operations, they must now adapt themselves to the distinctive regulations of the municipality in which they do business; and the wide variety in equipment and practice attests the independence which had to be accorded each. In respect to their financial operations, they are unified into a single system with control lying outside of themselves. A national system of inspection would upset this dual structure; it is probable that, in the interests of economy, the operating units would be stripped of their petty autonomy; and an industrial structure more in keeping with the realities of the financial organization would come into being. It is not unlikely that—as in the large cities now—a few companies would control the bulk of the business. Whether these companies would turn from a policy of mutual understanding and agreement to one of extreme competition, as has happened in the oil industry, is a matter of conjecture. If the current traditions of cooperation in respect to price making were effectively carried over, they would inevitably invite the intervention of the federal government.

It is, however, impossible to predict—or even to guess at—all that would come to pass in the wake of national inspection. Yet whatever

PRICE AND PRICE POLICIES

the changes, the new system would be at odds with all the accumulated usage and custom which now govern the milk industry. It would disturb vested ideas, encroach upon vested habits, and threaten vested interests. In the demand for recasting the established molds of behavior, it would evoke the bitter resentment and antagonism of the organized groups in the industry and perhaps in the health departments. Yet this, the most radical suggestion of all, is also the most conservative. Its end would be the re-creation of a free and open market for milk—the norm presumed alike by the courts, the government, and the industrial parties. It is a paradox that the restoration of conditions making for competition, sanctioned by public policy, judicial preference, and industrial rationalization, would in the case of the milk industry amount to a revolution.

The service to be performed by the milk industry is fundamental to the public welfare. But no commodity, necessary as it may seem, has a permanent and unalterable niche in the standard of living. A shift in the diet—and milk might become an added gratuity to health or unnecessary. Human ingenuity may, at some time in the future, create a synthetic milk superior in taste and nutrition to the natural product; and a commodity, now regarded as a necessity, might by virtue of technology be rendered obsolete. But until that millennium occurs, the public will be deeply concerned with the problem of fluid milk. The significant need now is for a milk efficiently produced, processed, and marketed and available at a low cost. An industrial norm of scarcity and high price should give way to one of widespread consumption and low price. How far the industry can and will go in this direction cannot be guessed; it is safe to predict that government intervention in the milk industry will not stop either with the state milk control boards or the AAA agreements. In the end a commodity held to be essential to the health and welfare of the population must be put within its means. The need is for the reshaping of arrangements which have grown up within the industry to serve the public interest. The problem of milk belongs to the politics of industry.

SECTION IX
THE POLITICS OF INDUSTRY

BY WALTON HAMILTON

QUESTIONS BEFORE ANSWERS

A MATTER of some seven reports can do scant duty as an account of industry. Although the cases of automobiles, tires, and gasoline; of cottonseed and whiskey; of women's dresses and milk are distinct and significant, they cover but a fragment of the activities which keep this a workaday world. Among them there is little in common; they differ widely in their places in the national economy, in their forms of organization, in the everyday usages through which they keep going. For all their wide range and engaging variety they recite only a prologue to industry. Even with the help of sallies beyond their confines into alien domains, they fall short of a picture of the industrial system at work.

Here is nothing of the household economy, of the practices encased in tradition under which the professions are carried on, of the manifold modes by which industries operate under the auspices of the state. The railroads and the services which have come to be called public utilities have been left to one side; and even of the industries which business has been called upon to guide, the few have been chosen and the many left. It would have been alluring, if the confines of a large volume could have been pushed so far, to have entered the realms of cotton, of steel and cement, of bread and shoes and coal, of medicines, paintings, and merchant ships. The marketing domains of books, moving pictures, and radio broadcasting have unique features with which to invite the explorer. And it would have added colorful detail to venture into the byways of industry and observe practices in respect to razor blades, mayonnaise dressing, funeral supplies, tea and coffee, pencils, and wastepaper. But concreteness has its claims, and there is a limit to the number of clinical reports which conciseness can crowd into even a substantial volume.

As in range so in time the finite sits upon these pages. At the turn of the century the automobile was not yet a plaything; and today an accumulation of stresses and strains seems to threaten the revision of an organization contrived in the early period of expansion. The making of dresses has moved from home to shop within the lifetime of women who are still in middle age; an intense rivalry, with a vent in immediate

PRICE AND PRICE POLICIES

sales and a focus on style, has not yet been disciplined to the larger interests of the industry. As kerosene has given way to gasoline, a new industry has been established upon a common raw material. Unlike the old, the new organization is highly competitive. The order is flexible, always alert to the unexpected, and able to take the course of events in its stride. Even where the commodity is familiar, the ways of the industry have undergone change. Whiskey, in name and technology, harks back to the ancient past; but prohibition brought a period to its lawful sale; and, after a break, a time-honored trade is off to a new start and a new set of arrangements. Our grandfathers knew raw milk but not the composite product which today goes to market; and of the current ways of urban milk supply their minds had not so much as a glimmer. A little while ago cottonseed was a nuisance which made a staple crop hard to harvest; the techniques of the chemist have shunted its multiple products into a thousand useful commodities. So recent has been the change that in the mind of the farmer it is still cotton which he cultivates, cotton which guides his calculations, and cotton which must be turned to account. In structure, in performance, in trade practice these industries are all undergoing change—but at different rates. None stops in its progress to submit to observation. Some are more considerate of those who would understand them than are others; but before analysis is complete, the subject of study may begin to put on a strange appearance. It is for this reason that a number of the reports above have had to be revised to take account of tendencies nowhere in evidence when they were begun.

Thus range and time impose their limits. Here can be presented no panorama of the affairs called industry, no complete explanation of the system at work, no abstraction from all there is of fact. Concretion moves by way of sample and type, of incident and detail. In an inquiry which is human and useful, general statement cannot be rigidly held to the particulars which underlie it. These reports have much of meaning for industries with which they are not directly concerned; yet the larger significance which can be set down here is partial and tentative. It falls far short of all that is needed to understand—or to attempt to guide—the tangle of industrial arrangements under which we are severally members one of another. That larger knowledge awaits an exploration of more industries, a piling up of more instances, a longer sweep in time, an inference of greater meaning. But even if we demand intellectual riches, we must not spurn modest possessions. If here there is no verity that is universal, there is for all the tang of peradventure somewhat of truth. The materials may fail to present a norm for all industry and yet tell something of the manner of thing an industry is; they may fall short of complete explanation and yet serve as an introduction to the industrial system at work.

INDUSTRIAL GOVERNMENT

The way here is that of every day, of experience, of finding out—of art. A novelist acquaints you with his characters incident by incident; they become familiar to you, yet there continues to be novelty in their actions. Only little by little does one discover the personality of a friend, the significance of a custom, the measure of an event. Industry is as personal, as living, as inexhaustible in meaning as any of them; for they, multiplied many times over, are the materials from which it is forever being fashioned. We come to know it as we know them, by instance, in the concrete, gradually. What has been found out assumes a shape and takes on detail; the form, never abandoned for a completely fresh picture, is constantly revised as knowledge increases and understanding grows. But intimate as the picture comes to be, it has its surprise in the offing, and its actuality can never be exhausted. In these pages there is much to prompt initial statement and quite enough to raise a host of questions. And if there is far less than all there is to know, there are leads that may be followed and conclusions that may be enlarged and refined as acquaintance grows. Here is a beginning, not an end, of a definition of industry.

In all finding out the what must wait upon the why. An analysis has its roots in the purpose of the search, in the use to which the information is to be put. The urge of exploration is here, for as a temptation to human curiosity industry can have few rivals; but such an appeal prompts the journey rather than marks out the path of inquiry. Nor will it do to say that one inquires in order that one may understand exactly and completely how the industrial system works. Such a task could never be done; the volume and complexity of the material would put analysis and understanding out of reach. It is instead the hope that understanding can be put to some human use which gives zest and purpose to the undertaking. It is not the fashion to proclaim a desire "to do something about it" as a justification of intellectual adventure; and words like "objective" and "scientific" have come to serve as masks with which to affect a lack of personal concern. But the impulse to better the industrial conditions under which men earn their livelihoods, and to make the most of opportunity and resource, is universal. Such a prompting has no quarrel with the most honest and thorough pursuit of knowledge. One can respect his facts, garner them with care, extract their meaning with sincere caution—and still grind out a grist that can be turned to practical account. Questions must be the initial points for attacks upon the great unknown, for otherwise heroic work is likely to run off into catalogue, mere description and the abstruse. Accept as we must the necessity for utmost integrity, yet the venture should yield results useful to the making of policy.

Policy is the sum of controls which play upon industry. It is a concern of no single agency, a matter of no single series of measures. In

PRICE AND PRICE POLICIES

society the fact of multiple allegiance is universal; a person must forever obey many masters. Each of us must accommodate his everyday behavior to the laws of the land, the tyranny of the market over income and prices, the exactions of a conventional morality, the amenities of polite intercourse, the obligations that hover about the family. A state, for all its profession of sovereignty, must exercise its authority within the accepted folkways, respect taboos thrown about race and religion, and maintain a discreet truce with the established industrial order. Upon even the most elementary of things—the baking of bread, the borrowing of money, the formation of a corporation, the making of a living—a medley of discretions, controls, and powers converge. In matter of obedience we cannot, even if we would, have simplicity. We might find it a little easier to recognize the voice of a single master if we were willing to set up a great Economic Potentate or Council of Wise Men. But industry is pent in by no natural barriers and can never be barricaded against contagion from the culture without. Nor would such a singleness of authority, however efficient and benevolent, be tolerated among men who cherish as a natural right the privilege of taking the primrose path to the everlasting bonfire. In all our doings and leavings undone, in industry and outside, there is a constant response to the varied insistence of diverse controls.

Thus many authorities lord it over industry, and industrial policy is an aggregate of many elements. As guidance is no exclusive affair of the state, so public policy is only one aspect of industrial policy. A public policy—as standard, expectation, or pious hope—may be written into the statute books and may be revised by lack of enforcement, judicial decision, or accommodation to the particular. An industrial policy is an aggregate of the measures contrived for the guidance of industry by all the agencies which operate upon it. In each scheme of scattered control, discretion lies here and there. At various points the market, the investment banker, the trade association, the labor union, the legislature, and the judiciary obtrude to express their will, to set limits of tolerance, and to point a direction to development. In a continuous stream these multiple judgments diverge, converge, and take parallel courses; support each other and cancel out; and impress all they touch with a divided will.

The task of policy is to make industry a more useful instrument to the community. To this end there is need of more facts, of better analysis, of a broader grounding in reality. All along the line—in separate enterprises, in the inchoate organizations of industries, in the agencies of public control—a host of questions are demanding more careful statement and much fuller answers. Can acquisitive activities be more deeply grooved into channels that lead to the general good? Can a bit more of

INDUSTRIAL GOVERNMENT

purpose and the articulate be brought to the aggregation of its parts into the industrial system? How can business units reduce inefficiency and outlaw wasteful practices? How is the march of technology to be quickened without throwing the mechanism out of gear and adding to the army of the unemployed? Is competition—and the antitrust acts—the response of a bygone age or a permanent answer to the problem of industrial order? What merit has self-government in industry? Can it be converted into an effective agency of economic regulation? Can it be made to take account of the interests of producers, of laborers, and of consumers? Can it be entrusted with provision for the future? Can an organization be contrived which will bring law and order into the affairs of industry, allow questions of concern to the whole community to be raised as they become insistent, permit answers to emerge from a certain course of industrial procedure? Can tasks be neatly divided between a better organized industry and a more fully informed state? Must the state have a larger place in the running and coordination of industry? How can attitudes steeped in the symbols of the past and the make-believes of economic order be brought to an awareness of industrial actualities?

Here is a random exhibit of question marks—and the catalogue can take on length and detail to the heart's content. But they all merge into two simple inquiries: How can the quality of judgment in the agencies which now direct enterprise be improved? What changes in the pattern of control would encourage industry, enhance its performance, and enlarge its service?

WARES AND THEIR PRICES

Price has long been the focal point of policy. Among the oldest of conveniences of business is the simple device of tagging a good with a price. A system of pecuniary notation makes values commensurable, facilitates the process of exchange, sets men and materials to specialized tasks, and helps civilization along its irregular course. As age succeeds age, the priced has come to be priceless and the priceless to have its price. A system of fines graduated to the ranks of men in society is today an almost forgotten anomaly. A commutation of penances for divers sorts of sin into sums of money seems a strange mark of the practice of religion in the Middle Ages. Among the most modern of institutions is a reduction of a great mass of industrial activity to the calculus of precision. As business has enlarged its domain, as its pressures have become more compelling, and as its usages have come to be employed by the family, the professions, and the state, the device of price has found larger use. The prevailing culture is so much a creation of the pecuniary calculus as to be unthinkable apart from it.

PRICE AND PRICE POLICIES

So omnipresent is its influence that in economic inquiry price usually usurps attention and dominates analysis. Students of industry have regarded prices as the pivots upon which the whole business system moves; governments have manipulated currencies to raise levels of prices and thus recover prosperity. In this country public policy has presumed that if price making was left to the free play of competition in the open market, industry would be kept in order. Only the voice of the heretic—or of the orthodox in unguarded moments—has been heard to wonder if, as a regulatory device, price has—or can be—perfected, if it is a simple and automatic mechanism of adjustment, if industrial activity is generally and sensitively responsive to its ups and downs, and if its claim to primacy among agencies of control is not a little too exclusive.

It does seem certain that a touch of the motley rests upon the ways of price making. The price of wheat is made momentarily in sensitive markets linked together by telegraph and cable; the price of fertilizer, for which there is no open market, has the support of a system of open price filing. The grower of peaches, under a commission system, has to dispose of a highly perishable commodity in an auction market; the bituminous-coal operator peddles mine capacity to prospective customers and produces only on contract. The price of electricity is set by a regulatory commission through a protracted process of deliberation and is subject to review in the courts; the price of calculating machines is fixed at the will of the manufacturer by virtue of rights in patents; the prices of aluminum wares derive from a single control of the virgin product; the price of copper rests upon a strategic factor variously set down as a "gentlemen's agreement," "follow the leader," or mutual forbearance among brethren of a trade. In many fields a powerful commercial consumer can dictate to the manufacturer the prices he will pay; the producer of a trade-marked article—*aspirin*, soap, a popular novel, chinaware—may fix prices all along the line from factory to retail outlet. In long-term contracts for newsprint, prices are revised annually; in the sale of paper to the government, the price of a multiple joint product is identically quoted, by all bidders, to the minute fraction of a cent.

Price bears the marks of the process from which it emerges. Into the terms which make up its magnitude are gathered all that gives market importance to the good. A price may be fixed and final, as with a cake of soap; or it may be lost in an intricate network of charges, calculations, and rates of payment, as with a house bought on the installment plan. It may represent a simple charge or an aggregate of items. A broker's loan can with some accuracy be set down as an interest rate; in the loan to the small debtor the charge for the use of money is smothered beneath a multitude of payments for personal service. It may make its response to market and time. The prices of a number of proprietary

INDUSTRIAL GOVERNMENT

remedies vary widely among urban drugstores. The price curves of zinc and copper are a series of fitful darts, while that of aluminum is a straight line. A good may have a single price, as for identical copies of the latest best seller; or there may be a number of price lines, as with anthracite coal, cotton fabrics, and shoes. The quality which defines the article priced may be a matter of the buyer's eye, as with peaches in the open market; of an established standard, as with cotton upon the exchange; or of an identity built into units of the commodity, as with packages of breakfast food.

The quoted price wears the air of pecuniary exactitude; it is the sum paid for a pencil, a dress, a radio, a telephone call. Yet there are enough terms exposed to the play of forces in the market to make the quoted price a base, an approximation, an hypothesis, or an unreality. Arrangements within the industry, the incidence of an impetuous competition, the sporadic progress in technology may cause the sums which the buyer lays down to depart from the figures at which the commodity is presumed to change hands. The devices by which fictions attend the quoted price are numerous; they vary from industry to industry and change their character with the passing occasion.

A common cause of departure lies in the good itself. Often what we want and what we must accept are not identical; many goods are still imperfectly suited to human consumption and a hiatus yawns between use and ware. A dress is at best an inchoate thing; a deal of time and of skill, which is given no pecuniary symbol, is needed to make of it an object of wearing apparel. The sum spent for a durable good may be a very poor index of its true cost. A harvesting machine, an automobile tire, a typewriter is good for an indefinitely long service. A unit of use would serve for a measurement of real price; but, in its absence, real price cannot be discovered until the good is gone and the initial outlay becomes a historical event. The irrelevance increases when a stream of expense attends the employment of the instrument. To the calculating individual the outgo for oil burner or electric refrigerator is only one element in price; another and even more significant one is the recurring expense for crude oil or electrical energy; here the only significant price is that of the machine in operation.

Price is sometimes confused by the play of the market. The integrity of wares is not proof against the ways by which they are brought to sale, and the buyer may have to take more or less of a thing than he wants. It is impossible to buy a trade-marked cigarette, tooth paste, or can of tomatoes without contributing to an advertising fund which sustains good will. The purchase of any well-known vacuum cleaner entails a conscripted payment for an inordinate amount of sales talk. The undertakers are far too numerous for their own good; yet a spirit of

PRICE AND PRICE POLICIES

brotherhood prevails among them, and their enforced leisure has been endowed through a policy of "upward merchandizing." But the hands on a cotton plantation are paid only for the days they actually toil; their winters of idleness receive no such generous subsidy. A railroad freight charge has to cover investment in track and roadbed as expense of carriage; the charge for haulage by truck includes in the tax on gasoline only a partial return upon the capital invested in the highway. A newspaper sells at a customary figure of 2 or 3 cents irrespective of the fluctuations in newsprint prices; the larger part of the expenses are assessed against advertisers. In the movies the price of a ticket represents an assortment of spectacle, entertainment, escape, and torture; yet the charge of admission is a lump sum very insensitively adjusted to these expectations and hazards. In England radio broadcasting is supported by a direct impost upon receiving sets; in America an evening's amusement is nominally free and the listener pays only as he is induced to purchase commodities whose virtues are extolled over the air. In all these cases price does crude duty for the values that change hands.

A unit of measurement is among the simplest of pricing conveniences. Yet even so elementary a device has not been adequately adapted to the requirements of merchandising. It took some centuries for the weight of ounce and pound and the length of foot and yard to be fixed. Even where today standards are in vogue, strict accuracy in the gross may be attended by great variation in the net—and a resulting uncertainty as to real price. Custom may permit the inclusion of certain elements which give to weight a fictitious character; meats are ordinarily weighed before the bone is removed and lima beans sold in the hull may yield a generous or niggardly supply. The miscellany of sizes also adds confusion. Ordinarily the larger the volume in the package the lower the unit expense; yet there are instances when the opposite is true—and price is very irregularly adapted to volume. Many goods are sold in "natural units"; though oranges and eggs are roughly sorted according to size, the grading is only approximate, and differences in thickness of skin and weight of shell make comparison difficult. For many commodities a conventional unit measurement has been established in the likeness of a convenient coin. A bar of chocolate has through prosperity, depression, and a business upturn remained true to its nickel; the accommodation of the commodity to changing costs has been made in thickness—its least visible dimension. A loaf of bread, so far as the eye can detect, may retain its identity for months; yet slight additions or decrements of weight make its fixed price a variable. The world of wares is full of such conventions; they give a touch of the unique to every commodity and frequently to every transaction.

Nor is the quality of the ware—or even its identity—proof against change of which price displays no record. One copy of *Tom Jones* or

INDUSTRIAL GOVERNMENT

the *Wealth of Nations* in the Modern Library is substantially like another; a half dozen packages of Camel cigarettes invite no consumer's choice. Such a ware is easy to identify and price comparisons are significant; yet they represent the unusual. In many cases a price may persist while change after change brings an ever-new identity to the thing that is priced. A Gillette razor blade has for thirty years, except for an occasional lapse or a bargain offer, sold at 5 cents; but in that period the blade has undergone constant modification. The price of a well-known shoe has until recently stood foursquare against all the winds of economic fortune, though the pairs that have carried name and price tag present a slowly changing parade. Women's dresses have for years been grooved into the same price lines. Yet at any moment the articles priced at an identical figure may not have even a silhouette in common, and between the garment of 1920 and that of current vintage lies a revolution in design and taste. The automobile of today belongs to a different genus from the horseless carriage of the early century, and between the two there lies a succession of intermediate forms. So swift has been the course of difference that there is no norm of a motorcar to serve as a foundation for price comparisons. In fact, a long catalogue of wares is beat upon too insistently by taste and technology to yield the materials upon which statistics of price may be firmly grounded.

A quoted price presumes a distinct quality. Yet amid the rich offerings of the market standards for judgment remain evasive. A good shoe, it is said, is one of high-grade leather and careful workmanship; but a style shoe, even of paper construction, may prove adequate to all the demands of the short life which fashion decrees. A number of grades of canned peaches sell at different prices, yet the raw material has been subjected to the same inspection by identical standards. Customary preferences for a particular flavor, the cut of the peach, and the brand name permit price differentials. In respect to many commodities—beer, washing machines, face lotions—the buyer has an option between an advertised and unadvertised good. The higher price for the better known product rests rather upon a parade in public print of adjective and superlative than upon an objective demonstration of its merits. If the real proof of quality is the product in use, physical tests, as an instrument of discovery, often fall short of revealing all the factors which shape a good to its office. The quality of a gasoline is as much a function of the engine it fuels as of petroleum and refining process. A couple of dresses may alike meet the most exacting laboratory standards; yet one is at the height of its popularity and the other reflects last season's style. Before the critical gaze of vanity fair the excellencies which an industrial engineer may demonstrate with test tube and blueprint are as nothing. Thus popular prejudice and the market set standards in disre-

PRICE AND PRICE POLICIES

gard of inherent characteristics. Where a good is used with another, its quality lies as much in adaptation as in physical properties. Where, as in all arts touched by taste, the ultimate reference lies without the good, standards are out of the question. Moreover, the use of fixed norms has its hazards. The materials from which goods are fashioned, the processes of production, the services they yield in use, the aesthetic values which play about them are all in flux—yet these are the very life of quality. A prescription of rigid requirements in respect to material, process, or form may arrest the development of a commodity. At present quality sits so uncertainly upon the serried ranks of merchandise as to make of quoted price an unreality.

Moreover, price, for all its importance, is only one of the terms of the bargain. Any other term may add to or take away from its pecuniary magnitude. A quotation, for example, may be for cash or upon credit. A charge at a cash-and-carry shop and one at a store around the corner which indulges in credit and delivery are compounded of different items. A visit to dentist, physician, or lawyer can be squared for the same fee at the end of the day, the month, or the half year; the acquisition of a bit of jewelry, a suite of furniture, or a house on time brings into price many an invisible import. The discount for volume is a common feature of sales; where competition is keen, it may turn into an instrument for lowering the quoted price. Gasoline retailers have granted courtesy cards to the few, increased the number of favored customers, and eventually invited the motoring public into the privileged group. In automobile tires the competition for sales has plastered a net billing list with a maze of concessions to meet competition. The consumer cooperative maintains market prices and returns patronage dividends at the end of the fiscal period. This type of discounting is spreading to private enterprise; a Depositor's Account at Macy's returns to the habitual shopper a percentage on total purchases for the year.

Through the whole maze of mercantile practice an array of customs hammers at quoted price. A premium or gratuity may go along with the good. A year's subscription to a certain Washington newspaper carries with it the gift of a set of the complete works of Dickens. An army of certificates dispensed with the purchase of cigars and cigarettes entitles one eventually to a cowboy suit, a brooch, or a set of dishes. Razor blades are frequently offered in conjunction with a holder; the presumption—sound enough until competitors copy—is that the reiterated sale of blades will overcome the loss on the durable good. A guaranty is an indirect way of varying the price of an article. A Packard automobile in the upper-class grade provides an arrangement for free service not available in the purchase of an ordinary car. Another important item in price is the privilege of returning unsuited wares. The woman shopper,

INDUSTRIAL GOVERNMENT

who finds an article of apparel acquired in an unguarded moment a threat to her wardrobe, may incur a total loss if she cannot return it. Practices in this regard are quite unstandardized; one concern will allow returns within a given number of days and proffer cash, another will tender only a refund slip, and still another will limit the privilege to customers who carry accounts. The volume of such returns is appallingly large, and the custom presents a concealed cost in the price of many an item of merchandise.

In the purchase of a mechanism—the automobile is the classic example—the trade-in allowance frequently conceals a discount. Prospective customers have even been advised by dealers to possess themselves of pieces of automotive junk as a ritual for concealing price concessions. Radios are repeatedly advertised in a formula of list price minus fixed trade-in—whatever the condition or vintage—equals the total cash outlay. Attempts to give precision to trade-in practices have fallen short of success; year and model are no criteria of the current worthiness of secondhand car, refrigerator, or vacuum cleaner, and personal judgment easily becomes an instrument of undercover tactics. A common device for suiting the price to the sale is changing the classification of goods or of customers. A commodity such as fertilizer or paper runs into an infinitude of grades; it is easy to shift an article from class to class to serve a privileged customer or a passing occasion. Or a difference in grade may be affected and a special price made. Again, a quoted price may or may not include transportation. Until 1928 newsprint prices were f.o.b. mill; the subsequent decline was greater than that indicated in the price lists since quotations came to be for delivery. And at the periphery, where realities must be recognized yet appearances must be preserved, a poker game in the evening may reflect the happy social relation between buyer and seller; or it may be a felicity, unexpressed but understood, for making the price less than that denominated in the bargain. Among electrical appliances the formal changes in price are few; but changes in rate of discount, classification of items, and conditions of credit are many. The distinction between flexible and inflexible prices must be accepted with critical scrutiny; the stability of a price that seems to stand against the buffets of a disorganized market may conceal breakdowns in other terms of the bargain.

The list runs on with all the conditions which impinge upon a sale. A roll call of commodities and an exhibition of the practices which play about their prices would be an exciting and endless undertaking. An infinite variety in practice defies the competence of the ordinary buyer and makes fiction an enduring element in the quoted price. For all its pecuniary exactitude a price can be understood only within its habitat.

PRICE AND PRICE POLICIES

THE RELATION OF PRICE AND COST

It is usual in industrial analysis to set down price as an aggregate of the costs which make it up. The principle is engagingly fitted out with qualification and exception. An individual price may persist in its erring departure from costs; a price curve may be indulged in its fitful ups and downs; a scattered sample of prices cannot be explained in terms of the costs that go into them. But in each instance a disturbing factor can be singled out as the cause, and the realism of the departure proves the rule. And at least an over-all sanction lies in a rough correspondence of costs and prices enforced by free enterprise. The objective of business is profits; a concern ignores the necessities of money-making at its peril; unless total receipts measure up to total expenses, a venture can no longer keep going. But a rule of solvency for an individual enterprise is not a cost formula for the price of a particular ware. How far the prices of commodities carry their own costs, how far kindred articles draw their expenses from a common pool is a significant question. Its answer lies within the stream of managerial judgments which are grounded upon records intended to point the road to profits. Accordingly, the inquiry turns to accountancy, its character and use, and the knowledge of the affairs of a concern as set down in its terms.

As a guide to its policy an enterprise must have a pecuniary record. Accounting as an empirical device emerged long ago out of the necessities of business; and without the perspective which it yields no corporation can know its own affairs. The calculus, in whose terms every transaction is set down, is an instrument of business, a scheme of notation, a language of numbers. Its meaning and importance reside, not in its own methods and procedures, but in the actualities of the series of transactions which are imprisoned within its colorless entries. The purpose of a set of costs is to guide production into lucrative channels; it takes account of factors—market demand, technology, labor relations, public tolerance—only in their pecuniary significance; its record is a means of accommodating a going venture to the events which pass. As these factors change in relationship or magnitude, costs fluctuate; the expenses incurred in fashioning a ware are a current reflection of ever-changing conditions of production. As a result a scheme of costs is abstract; it takes a selective account of the events it records; it has little place for long-time consideration and social implication. Its function is the pecuniary business of the moment and it shapes the course of multiple incident to its rigid grooves.

Into recorded costs the full expenses of production cannot be accurately crowded. Some services, matured within an older culture, have made only a halting accommodation to the modern world. The tobacco

INDUSTRIAL GOVERNMENT

farmer is in bondage to his crop; he plants regardless of market and price. The round of customary activities into which he was born has no true expression in pecuniary terms; a bit more or less for his harvest merely mitigates or increases the discomforts which spell subsistence. The ways of the small agricultural producer are far removed from the marts of trade; he cannot reduce his varied activities to a systematic scheme of expenses; if his milk has a precise cost it is by the borrowed grace of a ritual alien to his employment. The planter's conscious concern is with cotton; a separate cost for his cottonseed represents an exercise in imputation that leaves the realities of the plantation far behind. Along with share croppers and mules he is committed to his venture, his calculations are directed to operations shaped by culture, and for his money crop he can set down specific costs only as the price of cotton allows. In respect to sugar cane, citrus fruits, and almost all agricultural products, total costs are only another name for market receipts and their disbursement among separate crops a sheer pecuniary tour de force.

So too with other occupations and industries. Their activities lend themselves graciously or stubbornly to such an intellectual creation as accounting. The wage earner does his best to maintain a favorable balance between earnings and expenditures. But he scribbles down no capital sum to represent the cost of his upbringing and training; he writes off no depreciation against the wear and tear which attends employment; he collects no profits upon the sale of his own labor. The salaried man usually records his financial way of life, in no more intricate calculation than a series of checkbook stubs and a bank statement. Even the physician, lawyer, or consulting engineer, who must be his own executive, usually does not take the bother—or cannot rise to the task—of separating occupational from personal activity and reducing it to the prosaic lines of pecuniary expression. The doctor, for example, uses the same automobile—quite undistributed in his accounts—to call upon his patients and to take his family out riding; and the professor never sets down his unusual opportunity to use the university library as an item of individual income. In the whole domain of personal life and professional calling, the discipline of accountancy still sits lightly.

Even in the realm of business the dominion of pecuniary calculation is partial and its rule insecure. In an enterprise in lusty competition with others of its kind, survival is the thing and the system of accounts has its focus in solvency. Each successive balance sheet presents the crisis, and the exigencies of the moment are of far greater importance than the prospects and perils of the less immediate future. Accordingly, depreciation, obsolescence, and the capital account are likely to be regarded as secondary phenomena. Necessities crowd into the pecuniary foreground the assets and liabilities which bear upon immediate solvency.

PRICE AND PRICE POLICIES

But in an enterprise, such as a public utility, where continued survival seems assured, solvency is likely to be taken for granted. Economic security makes possible a long-time policy, and the conservation of the investment and the enlargement of dividends become desiderata of importance. So here the recitation of pecuniary incident is addressed consciously and minutely to the facts of depreciation and obsolescence. A persistent and ingenious attention is likely to be directed not so much to securing the upkeep of the physical property as to making it certain that capitalization fails in not one whit to give full recognition to every item that should go into the account.

And where the usages of business prevail, there is often no cost foundation for price. The charges for a theater ticket, a tube of tooth paste, or a checking account at the bank do not accord with the necessary expenses which attend them. The factory cost of a package of cigarettes is only a fraction of the price the buyer pays; and if the 6 cents in taxes is subtracted, the larger part of the residue still remains unexplained. A number of items can be made to account for the difference; but such expenses as high salaries, bonuses to management, and advertising are made possible by the spread. Their source lies in the ability of the concern to pay. Eventually they become established in the industry and in the plausible rhetoric of business enterprise they are set down as costs. As a concern goes its way a continuing deficit forces reorganization or bankruptcy or somehow or other gets written off; and an assured surplus is appropriated and rationalized as an ordinary expense. Costs which can only affect the role of cause are an expression of the accommodation.

A large number of wares are products of the same manufacturing process. Cottonseed is a typical—and the classic—example. Into a mill, a productive entity which will brook no resolution into parts, is fed cottonseed and from it emerge oil, meal, hulls, and linters. The proportions cannot be changed; they are inherent in product and process. The expenses cannot be disbursed in terms of the equipment and labor which each demands; the very nature of the process is to break the raw material down into its distinctive products. Nor can they be divided in terms of the number of pounds of each which a hundredweight will yield; for such a procedure would assess against hulls and linters costs in excess of the sums they will fetch. The only recourse is to disburse costs among the joint products in accordance with the respective abilities to assume them, which price itself bestows. A smaller amount of heat is required for the vaporization of gasoline; and it seems reasonable that the heavier oils should carry the greater proportion of the costs. Yet gasoline bears the brunt of expense, and products extracted from the same substance reach their markets more lightly burdened because of its economic charity. A mill receives a crude raw material, wood pulp, and, by making slight and inexpensive adaptations in the machine, turns out a variety of

INDUSTRIAL GOVERNMENT

papers. The major cost is the investment in equipment and machines; the expenses incidental to variation in the product are of little consequence. Yet market and policy have called for grades and types and have decreed for them prices which have little support in underlying costs. The only recourse, in good scriptural terms, is to apportion expenses as the several products are able to bear them. Here then are costs in the image of prices and an intellectual performance which a pedant might describe as an argument in a circle. But cost finding, which serves business judgment, is the most pragmatic of performances; it is far more at home with expediency than with severe rules of logic.

Far from being the exception the vast majority of processed goods are now joint products. Milk, butter, and cheese—soaps, tooth pastes, and shaving creams—chairs, tables, and dressers—electrical appliances in a hundred forms—item after item in an interminable catalogue. Even a single commodity—coffee, shoes, automobiles, men's suits—is produced in a number of price lines spaced far enough apart to appeal to different income groups. Here many expenses are common to all lines; costs are assessed as sales permit; and an attempt to make each product pay its own way is at variance with market strategy. A commodity often has no clear-cut definition; variants upon the same good—glass, paper, lumber, steel—run off into kindred products. But nomenclature does not matter; a single good in a number of grades and a number of goods from a single technical operation present an identical problem. In either case the business unit in ascertaining the costs of its numerous wares is faced with the impossibility of separating inseparable expenses.

It is easy enough for one proficient in the accountant's art to devise a set of formulas which will distribute costs and yield results which are precise to the *n*th decimal point. But the way of calculation, however much sweat and acumen go into it, cannot escape hypotheses grounded in purpose or tainted with unreality. If sales receipts serve to distribute expenses, the costs of separate products are what they are by virtue of their prices. Yet if the accountant in breaking down expenses keeps an eye upon the market, his procedure is realistic. The decisions which make up policy must be grounded in events as they come; the current situation is the base for departures; and it is quite sensible—whatever reason says to the contrary—for the pecuniary picture to reflect the current reality. It is acceptable practice, even in the most reputable industries, to distribute overhead in terms of the receipts from kindred products; and, however question begging such a procedure might be in a static universe, in a process in which the usages of a concern must move toward accord, it is an industrial necessity.

As a result the old individualistic notion that a good should make its own way in the world cannot be strictly applied in business. The creatures of a process of accommodation cannot be independent; and the

PRICE AND PRICE POLICIES

subsidy of one product by another has become firmly established in industrial practice. Often, as in meat packing, there are joint products and by-products of a single process; the production of the lesser commodities cannot be discontinued, and receipts, however small, are a welcome contribution to the expenses of keeping an enterprise going. Sometimes, as with petroleum, the same material and process will, in response to minute technical changes, impose such variation in form as to create distinct goods selling in different markets; and the allocation of costs is determined by the conventions of the industry. Sometimes, as with the department store, the venture is an organic whole; the markup varies greatly from shop to shop; and some departments are carried in the red as a bid for general custom or in the interests of a full line of merchandise. Often, as with the railroad, a simple service has to be suited to the multiple necessities of those who use it. Goods must be kept moving, merchandise of value must help along its way that of lesser account, and rates—and their reflections in costs—must keep the industry an effective instrument within the national economy. And more than occasionally, as with automobile tires, the expenses of marketing are partially absorbed by other wares which move along the same channels of distribution. But, whatever the compulsion and the detail of form, the subsidy of good by good is written large in the organic structure of industry.

All this serves to reveal the nature of price and of costs. Even where such matters as brands and grades, markets and joint products are left out of account, the expenses which enter into the cost of a commodity present the distinctive ways of the industry. The price of gasoline reflects an overcompetitive market; yet its elements respond quite differently to the pressures which converge upon them. As rivalry for gallonage drives retail prices down, the loss is not evenly distributed along the line from service station to oil well. Contract may preserve intact the margin of the protected dealer, and the royalty to the landed proprietor is so buttressed in custom as to be proof against shock. The items which merge into the price of whiskey lie in different realms and are played upon by distinct sets of forces. The price of grain is made in a wide, sensitive, and competitive market; a brand name sustained by national advertising may give to the distiller, marketer, or impresario of the label an increment of value; the tolls collected by wholesaler and retailer are markups sanctioned by the customs of the trade; the tax, fixed by the government, reflects the degree of tolerance with which the body politic views the consumption of the commodity. As the price of anthracite is broken down, its constituents of cost reflect another group of practices. The capital charge, including a substantial item for lands held in reserve, represents the conventions of corporate finance. The wages of labor, the

INDUSTRIAL GOVERNMENT

largest element in pit-mouth price, are fixed by a collective agreement between the operators and the United Mine Workers of America. The transportation charges belong to a structure of freight rates made with all the disregard of logic and symmetry of the historical process. The markup of the distributor comes by way of a recognized percentage. The total charge reflects alike a lack of response to the competition of other fuels and the heavy cake of custom in which the ways of the industry are embedded.

If the process of production were an aggregate of materials into a ware of trade, it would be possible to think of the price of a good as the sum of the petty prices of its elements. But usages which are the life of the industrial process have no such material being, and where competition intrudes with its pressures the whole can never be the sum of its parts. In the sale of women's garments, the return of unwanted goods necessitates an appreciable addition to price. The cost can be reduced to a calculated sum; but the instances which underlie the computation are acts of personal behavior and the aggregate of expenses represents an indulgence to second thought grown up into a mercantile practice. In milk the fiction of a consumer's choice, which has little support in actuality, rests heavily upon the whole scheme of marketing; it refers quality to the irrelevant standard of butterfat, creates brands where there are no differences, and piles up needless waste in duplicate routes. In bread such usages as the state of the art of baking, the wrapping of loaves, and the technique for imparting moisture and delaying staleness are customs out of which costs spring. In automobiles every expense of production is an expression of an industrial practice which stems from the invention of the assembly line. An innovation may have its origin in the competitive strategy of a single concern; but, as it is taken over by others, it becomes firmly fixed in the cost structure of the commodity. Heavy expenditures for advertising are regarded as necessary in the marketing of popular brands of cigarettes; such devices as free advisory services in shopping, gift packaging, and free delivery are in general vogue in department stores; the large oil companies have come to regard expensive sites and costly investment in service station and equipment as an inevitable adjunct of the struggle for business.

Price and cost, as creatures of trade usage, are caught up in an endless process. In an inexact equation the prices set by an enterprise upon its wares must yield income to cover total expenses. If they do not, the result may be the demise of the company or a new adjustment between the terms of equation. Prices may be raised if custom can be held, or lowered to lure a larger volume of trade; a new line of goods may be pushed to the market; the customs surrounding the productive process, the corporate organization, and the methods of marketing may be re-

PRICE AND PRICE POLICIES

vised; the rates of return embedded in financial system, wage structure, and payments to sources of supply may be lowered—and costs will be remade to meet these modifications. It is often assumed that the venture proved inefficient by the rules of the business game goes to the wall. But the precarious enterprise, shorn of heavy costs and renovated by reorganization, may be able to put a more efficient establishment at a disadvantage.

And truth-in-the-rough for a venture may be not even an approximation to truth for its parts. If it is the market which decrees the law of solvency for a going concern, it is the enterprise itself which determines whether each product must be made to pay its own way. In such matters of domestic policy the corporation in interest is not a sovereign. Competition takes a variety of forms and hardly a ware that goes to market is completely immune to its influence. The battle goes on between identical wares, between quality and standard grades of the commodity, between a good and its host of available substitutes, and among all goods in their struggle for a share of the limited income of the buying public. Price is a powerful focus of attraction for particular wares; but if price is too dangerous a mechanism to be employed, and the industry can reach a formal or even an informal understanding, the scene shifts to a competition in special services, in artistic appeal, in guaranties and premiums, into the multiplicity of terms which lie to one side of the pecuniary bargain. The market lords it over the course of industrial events and imposes upon every enterprise the necessity of continuous accommodation. As it creates for favored concern or commodity a sheltered market, high prices and profits can be had while the going is good. As it opens wide the market and imposes crushing pressures, the venture that would keep going must respond. The adjustments easiest to effect are within the establishment; and against the reiterated impact of competition, a retreat may have to be sounded for a price that is exposed. It may chance that other products in the Samaritan brotherhood of mercantilism may be called upon to help with its costs; and price and expenditures come to record the never-ending accommodation by which the affairs of a concern are shaped.

Thus price—and the costs which attend it—are a pecuniary reflection of the usages which impinge upon the making and marketing of a good. These usages run through the whole industrial process—the command of supplies, the technical operations, the pattern of control, the manner of doing business, the system of marketing, the patronage of the public. They are embedded in the ways of an industry just as the folkways are embedded in the culture of a primitive or a civilized people. Each of these customs has a specific origin, is a human invention, holds a sway certain or shaken, and has its degree of accord with others which

INDUSTRIAL GOVERNMENT

make up the order of the industry. Each has capacity for development or regression, is modified by the endless series of transactions which it helps to envelop, and may be called upon to give way to an alternative. Some of these conventions are formal; others are tacit understandings, yet compelling enough for all their inarticulate statement. In their making and maintenance, agencies as distinct as the legislature, the courts, the trade association, the labor union, the business community, the consuming public have a place; and the pattern of authority which together they create is an intricate affair. The customs—never quite in accord—move on different levels, are beaten upon by different conditions, change at different rates, and in their growth bring stress and strain into the fabric of industry. To follow price through the stream of cost to its manifold source is to explore a culture.

FLEXIBLE PRICE AS A CONTROL

The market device upon which public policy leans most heavily is the flexible price. In its ups and downs price is presumed to retard and quicken demand, to accelerate and arrest supply, and to maintain harmony between the flow of wares and the effective needs of the people. By repute it is able to meet the bumps of time and circumstance, to reshape industry to the changing requirements upon it, and to extract from the human and material resources it employs what they have to give. These expectations are written large in statutes for the control of "competitive" industry and in the decisions of the courts which have turned abstract statement into rules of industrial government. As a result, a reliance upon the ups and downs of price as an industrial governor has become a matter almost of common sense.

Yet an attempt to capture a complex process of price making within a single proposition would hardly appear a promising venture. It derives from the desire to set down the universal—always an alluring temptation—and from the necessity that the public policy which finds expression in legislation must proceed from simple premises. A vogue among persons who will neither get down to the concrete nor probe beneath the surface is to say that price is made by supply and demand, to dub a truism as a natural law, and to let it go at that. Among economists, who cannot tolerate so bald a statement, it is more usual to make supply and demand, in their relation to price, symbols for all the influences upon industrial phenomena. As counters in explanation such words are abstract categories into whose inviting terms go all of incident, decision, situation, arrangement, and pressure that make a price what it is. The trio of words—supply, demand, price—present an account of the making of no particular price; they do not probe beneath its specific magnitude to the factors upon which it is grounded. Instead they offer a general formula

PRICE AND PRICE POLICIES

into which a particular explanation can be cast; and the master of exposition is unskilled in the tricks of his trade or poor in resource who, whatever the ramifications of the process, cannot drive all that converges upon price into its flexible terms. The realities lie beyond the terms of the formula. In every instance the significant question is the performance of the determining factors, whether they are highly sensitive to the mechanics of price making or stubbornly indifferent to its pressures.

Supply is a term descriptive of the quantity of a ware. At times it almost stands for the visible and the tangible—as with a rare meteoric stone, the autographs of John Milton, the bottles of bourbon from the distilling of 1912, or the cantaloupes in the public market on Saturday evening. But even here a touch of vagueness attends the ponderable. Another meteoric shower may at any moment ensue; the autographs are not all on the market; the bourbon of a quarter century ago shades off into an ever-later product; there will be more and fresher cantaloupes Monday morning. In respect to a good in production the term becomes indefinite; for market supply runs off into stocks and inventories and the capacity to produce and on into all the arrangements in the industry which are geared to production. The effective control of supply, the dominant check on output, differs from commodity to commodity. It may be, as with raw rubber, a concord among growers sanctioned by their governments; as with the old whiskey trust, an agreement among gentlemen of the trade; as with the electric razor, a patent monopoly; as with aluminum, a single control of a limited resource; as with housing, a backwardness in the arts of building; or, as with milk, a failure to shape an effective scheme of marketing to urban conditions.

In spite of its abstraction the word supply seems a bit strange when applied to many commodities. The elements from which automobiles are made stand ever ready for conscription; they are mustered into service only as a popular demand which follows national income allows. The tangible supply of bituminous coal is negligible; it is capacity to produce which is peddled on the market and quickened into product as orders are secured. As technology is sped forward, the gulf between the quantity of crude oil and its realization in gallonage of gasoline has widened; and the potentialities of the raw material are seemingly inexhaustible. Out of an abundance in the orange groves, enough of the fruit is marketed to meet a demand at an appointed price and the remainder is allowed to rot on the ground. The supply of a particular grade of paper derives from the reiterated movement of a mechanism; yet the instruments of production are so flexible that a mill can, with slight adjustments, shift from one type of paper to another. An easier access to the investment market, an increase in working hours or a doubling of shifts, a neater layout for the plant, an invention of a new process, a discovery of new

INDUSTRIAL GOVERNMENT

properties in a raw material, an alteration of marketing arrangements—and supply makes its response. In respect to each ware of trade the word stands for a unique permutation of particular factors which impose a control upon output; yet it is only in the rarest of cases that such a limitation has quantitative certainty.

Demand is a verbal necessity of like kind; but it comes from the culture without to meet industry in the market. Man has had to effect an imperfect adaptation to his environment and the goods he has made are only approximations to his needs. A diet must be made up from foods of vegetable and animal origin; it serves the organism only with a vast amount of overlapping, irrelevance, and waste. What is once done, tends to be repeated; and crude answers to necessities—ingeniously fashioned or awkwardly stumbled upon—easily fall under the sway of the usual ways of doing things. Thus organic wants and the goods that satisfy them are alike compromised. On the table there appear—not calories, fats-starches-proteins, vitamins—but oysters-on-the-half-shell, chicken à la Maryland, Neapolitan ice cream, and coffee in the demi-tasse. As separate items and in the ensemble of the menu, all are products of a developing art. Clothes ceased to be a simple answer to the bodily demand for protection so long ago that their pristine function is all but forgotten. The urge of human nature toward display is no less elementary, yet the means to its satisfaction vary with the cultures. An Oriental society—at least until it is beaten upon by impulses from without—may be content little by little to refine the lines of an established silhouette; but the Western world demands an eternal conformity to the ever-changing decrees of fashion. The demand for shelter is conditioned by the values of a people, the taste of the times, and the uses which the way of life makes of a house. As modern industry has disturbed an ancient order, the spacious and rambling home of one's ancestors has given way to the wasteless arrangement of the compact apartment. Always, everywhere the satisfaction of needs is set within the matrix of social custom and is conditioned by the ways of community living.

This mark of a society is upon every demand which comes to market. Upon each commodity the crust of custom may rest lightly or heavily. A good such as an automobile is held in such popular esteem that, as lower price or easy terms of payment bring it within their means, lower- and lower-income groups hasten to possess themselves of it. Paintings by living artists may be just as worthy a good; but against the indifference of the people a low price could not make a way for the article into the standard of living. Even if the price of a commodity goes up or annual incomes recede with a depression, demand does not of necessity fall. The intrusion upon income may be taken up somewhere else; the specific adjustment depends upon the priorities of goods in budgets forever being

PRICE AND PRICE POLICIES

revised. A drop in price does not of itself increase demand; during the depression the prices of original paintings toppled but there was no widespread interest in the bargains available. A lower price merely removes a pecuniary obstacle to the purchase of an article that is wanted and makes it a candidate for wider consumption. But the demand itself must wait upon a wider appreciation of the good and is a social phenomenon.

Thus flexible price as a regulator of demand has a very imperfect medium in which to work. In all its operation it is subject to the check of custom. Where a commodity, such as milk or shoes or refrigerators, enjoys an established place in the standard of living, changes in price are attended by immediate impacts upon demand. But with many goods demand and price know no such direct relationship. The demand for automobile tires changes from month to month and from year to year, but the variations follow automobile mileage and the round of the seasons. The bondage here is not pecuniary but to a complementary good; demand has wide flexibility but price has no causal role. Bituminous coal is a source of light, heat, and power to industry at work; its curve of demand attends the swing of prosperity and depression. But since its price runs the same course, sales tend to increase as price rises and to fall as price declines. The use of electricity depends upon ownership of washing machine, radio, refrigerator, and electric iron; once the investment has been made, domestic consumption of electrical energy proceeds almost irrespective of price. It was the radio, not high price, which gave the signal "this way out" to the old-fashioned phonograph; and it is an escape from the radio which within a limited circle is leading to a renaissance of classical music on records. Price has had little to do with the matter; and yet a price that does not make of manufacturing costs a sheer irrelevance might open the way for the gradual intrusion of good music into everyday living.

The function of price has less to do with the creation of demand than with the disbursal of custom among competitors. The selection of a carton of cigarettes, a new automobile, or a pair of shoes is determined by social arrangements within the community; and price is an arbiter of patronage among the various sellers. Whether the ultimate purchase depends upon slight differences in price, artistic satisfaction in the ware, or the pride of ownership in a widely advertised brand, the essential impetus to buy is not price but a need arising out of and determined by social conventions. Where the sales of a commodity are dependent upon the use of another good, this function of price is revealed more starkly. In gasoline a lack of response to the ups and downs of market price is accompanied by an extreme sensitiveness to prices as between filling stations. Here price has completely departed from its task of controlling

INDUSTRIAL GOVERNMENT

demand and has assumed the role—so far as the industry will permit it to be played—of distributing business among the various sellers.

The same touch of crudeness, of lack of performance, of things left half done attends price in its control of industrial activity. It does not—often it cannot—measure off the supply of goods to the effective wants of a people. An increase or decrease in the price of cotton spends a great part of its force against the body of tradition which envelops the plantation system. Where reason guides decision, a farmer may conclude that a low price will lead others to restrict output, and in the face of a general shortage the wise thing is to increase his crop. The very shrewd grower may assume that the mass of his collaborating competitors will rise to this second guess and in anticipation of another abundant harvest decide to restrict. It may take many years for supply to be brought under control—or a babble of anticipations may forever confuse production. Or price may even become a sheer irrelevance. In oil a price as low as 10 cents a barrel will not arrest the flow of crude; since costs are largely fixed, it is necessary to recover more oil in order to recoup total expenses, and the threat of a loss to other drillers near by forbids restriction. Dollar oil comes from a deliberate program of production control and proration.

In many instances the dominion of price over production has been broken or compromised. In gasoline a flexible price is too dangerous an instrument to be employed in the competition of big business. In fluid milk a free price in an open market has ceased to exist; and an intricate set of industrial practices has served to keep intact the price agreed upon by producers and distributors. In automobiles price is an expression of a deliberate marketing policy; the usages and judgments underlying it represent guesses grounded in experience and refined by deliberation. Its intent is to attract custom; supply has little to do with the matter; enough cars—and far more than enough—can be produced to meet the volume of sales however large and at a diminishing cost. The larger problem of agricultural adjustment has received no such neat handling. A foreign market was built up for farm products only to be wiped out by events following the World War. Price could not effect the necessary contraction, and the production of crops for which there was no market persisted. As a guide to production, price has brought a huge surplus of capacity over market demand to bituminous coal, textiles, the building trades, steel, and cement. A flexible price has been unable to turn an advancing technology to effective use, has aggravated the host of the unemployed, and in its failures has created sources of further demoralization.

A striking lack of similarity in price policies seems everywhere evident. In dresses price lines are grooved by custom, and members of the

PRICE AND PRICE POLICIES

industry seek desperately an advantage in style. A common complaint is that the house-dress trade, instead of "taking their differential in profit like gentlemen," are so oblivious to industrial morality as to "put better materials and workmanship" into their garments and thus encroach upon the street-dress branch of the industry. The manufacturers of automobile tires, through the constraints of circumstance, have proffered the public an improving product at a decreasing price. For decades, until the Tennessee Valley Authority came along to quicken sluggish currents of thought, the whole effort of the public utilities was directed toward increasing valuation, enlarging the rate base, and collecting more revenue from its customers. It required the action of the Interstate Commerce Commission to impose a rate of 2 cents the passenger mile upon the railroads, to stir a potential demand into being, and to compel the common carriers to make money. At the coming of the National Recovery Administration many industrialists marched upon Washington, concentrated their efforts upon governmental policy, and sought through the cost formula for price the way of business salvation. As the episode ended, their efforts were returned to exploring and controlling the factors upon which their own costs and prices depend. It may not accord with reason; but the ordinary executive is prone to look upon a high unit price as the key to profits and is little disposed to experiment with lower prices as a device for securing larger sales. A great number of industries are today marked by large investment, excess capacity, fixed overhead, and a unit cost which declines with an increase in volume. But a price policy lingers on from the days of petty trade, when expenses varied directly with output and the economy of production gave no such call for new markets.

As the policies of industry differ, so do the planes upon which the prices of their products are found. To operators the high price of anthracite is a matter almost of religious conviction. One decade gives way to another, substitute fuels invade its market, the world of circumstance goes its way—and its price persists. The high price of building has been maintained despite new inventions in materials and design. Nor will it stand the manufacturer of shingles, or hardwood doors, or plate glass in stead to get his price down. In construction many goods must be used together, and backwardness in the art of building can give way only before a concerted attack. Although the items are too different for measurement, the contrast between all that \$1,000 will purchase in the equipment of a bathroom and in an automobile is striking. The price policy of the milk industry has been deliberately attuned to limited sales and high unit returns. In an effort to make its product popular, the industry has proclaimed widely how essential milk is to the health of a people. Yet it has staged no campaign to bring its price low enough to tap a

INDUSTRIAL GOVERNMENT

demand which waits upon lower charges. If the automobile industry had borrowed its price policy from milk, its product would still be a horseless carriage and a rarity and there would be no network of concrete highways. If the milk industry had assimilated to its urban task the pricing technique used to convert the automobile from luxury to necessity, it might have effected a less wasteful system of distribution and achieved a substantially lower price.

The market is not the creator, but the mediator, of values. All that comes there—goods, services, wants fortified by ability to pay—is given worth by habit and usage, procedure and technique, in the industrial community. All that is a culture—the industrial arts, the organization of industries, the processes of marketing, the ways of life—converge there with their host of conflicting claims. If an analogy must be used, the market is umpire rather than governor. It appraises, compares, resolves conflicts, and imposes upon the whole motley train of wants and wares magnitudes touched by its own conventions. Prices accord roughly with expenses which reflect the procedures through which products come into being. But amid the welter of human behavior the instruments of precision have intractable material upon which to work; the values which come from without are clumsily resolved into pecuniary terms; and the market imposes only the appearance of exactitude upon the items it prices. The evidence does not point to an orderly structure whose prices have an underlying logic in permutations of primary elements each with its precise unit cost. In industry the prices of things have the rationale of an affair of man, of growth, and of process.

TOWARD INDUSTRIAL GOVERNMENT

The mechanisms of the market are not the sum of industrial government. A profession of faith in price as an instrument of adjustment is forever upon the lips of businessmen. But its shortcomings are matters of too intimate a concern for executives to allow them to go unheeded; and they have provoked the state to efforts to make the mechanism work, to remove significant matters from its operation, and to maintain other agencies of regulation. A movement to which there have been many parties is calling into being within industry itself the elements of another control. It is empirical rather than planned, vaguely inherent in practice and regulation, and groping uncertainly toward social ends. The significant task is to give to an array of unordered efforts and trends a form, an authority, and a direction.

Industry can profess no creed of economic pacifism. The business unit is not content to leave its affairs, its balance sheet, and its survival to the arbitration of an impersonal market. It must bestir itself to hold its own; and in order to expand, earn profits, and lay up a surplus it must

PRICE AND PRICE POLICIES

meet events with energy and resource. In a game against others a business cannot operate by referring conduct to established norms for judgment. It is the competitive advantage which is sought, and such a counter is to be had by doing a thing first or differently. As the innovation is copied and becomes general practice its strategic value is lost. In a universe in which nothing is perfect and all things are in the making, there is an abundance of material upon which the imagination can operate. The executive may raise the price of the product in the expectation of a larger margin of profit or lower it as a lure to larger sales. He may attempt to decrease expense by impairing quality; or he may improve the product or play up its properties as an incentive to custom. He may adopt a new process, offer an extra service, make over the corporate organization, better the ways of marketing, or create verbal allurements to play upon the minds of customers. Price, quality, service, blarney, guile, and the creative touch are alike weapons of promotion and devices of accommodation. The enduring success of a venture depends upon the skill with which they are compounded to meet conditions as they come. A series of judgments are no continuing mechanistic response to the movements of price in a market; the factors which it must fuse into decisions are too many and intricate to be beaten into a pecuniary question. The aggregate of these judgments—always in answer to the pressures of the market—constitute the primary control of industry.

Such a control in isolation is inadequate. To keep industry a properly going affair, the judgments of executives need to be grounded in knowledge, to be endowed with authority, and to be grooved to the general good. But business policy is indulged no such opportunities. The ordinary executive must take events as they come head on, meet the stream of compulsions with improvised answers, and conduct his concern within an industry which lacks formal organization. In a competitive situation his decisions cannot be made to reflect his own best judgment. He must maintain his position and if possible advance it. The market may yield to an attack upon waste and an advance in methods of production and marketing; but it may also respond to a disregard of labor standards and to dishonest practice. A universal outcry at the inception of the NRA was that the "great majority" in an industry were impotent against the Ten Per Cent who could by "anti-social" tactics hold the market. A chiseler has always been unpopular among his fellows; and savages, schoolboys, ecclesiastics, and industrialists have managed to make it disagreeable for the member who is a peril to the brotherhood. But industry is none too personal; there is, through the market and under the law, a limit to coercive tactics; and a minority—if only it can contrive to hold custom—is a constant check upon the decisions which executives might otherwise make. The general run of executive judgments, freighted with such

INDUSTRIAL GOVERNMENT

burdens, can hardly take the straight and narrow course to the industrial and common good.

As situations are recognized with which individual concerns are unable to cope, a measure of collective action becomes imperative. Fixed overhead and joint product have come to be characteristic of industry; and a decrease in unit cost with increase in volume has been lifted from exception to rule. The resulting beat upon decision of an excess capacity which seems to promise solvency, security, profits—if only it can be touched off by actual demand or rendered industrially impotent—becomes a hazard too insistent to be ignored. A number of schemes have been called into being to mitigate, or remove, the threat of price demoralization arising out of overproduction. Citrus growers have turned the deliberate rotting of fruit into an established institution. The distributors of fluid milk have seized upon health regulations and industrial organization to throw a tariff wall about a sheltered market. Steel and cement have fortified themselves behind a system in which a quotation to a customer runs in terms of price at a basing point, irrespective of the origin of the shipment, plus freight thence to destination; and competition is powerless against the rigidities of price. Oil has laid down a barrage of schemes of proration by voluntary agreement, state regulation, interstate compacts, and federal control. In paper the concern of the trade association is with standardizing methods in the calculation of costs; in fertilizer an open system of price filing has been used to attain uniformity and to prevent “destructive price cutting.” Even the dress industry, where competition is insistent and turbulent, has attempted to subdue acquisitive zest by instigating a control over design and preventing premature copying in cheaper dresses. In general such schemes represent informal understandings which have gradually come into being, or they are the ingenious indirection of executives compelled to act without overt violence to the antitrust laws. Where there has been a conscious getting together, it savors, at common law, of conspiracy; and if rather severe limits of restraint are overstepped, there is always a threat of prosecution. The devices have been provoked by the heat of the struggle for survival; they are expressions of an acquisitive interest designed rather to curtail output than to promote the use of the commodity. Their intent is to keep open the channels of money-making. If such remedies are crude, it is to some extent because the matrix of custom, idea, statute, and policy does not permit better ones.

There is, apart from custom, no recognized organization for an industry. No established authority can amend usages, set up standards of conduct, discipline erring members, entertain questions of common concern, and formulate a forward-looking policy. The trade association, the institute, and the chamber of commerce thrive; but their control is

PRICE AND PRICE POLICIES

partial within their domains, and, where lines between industries are blurred, through the possibility of substituting one commodity for another, controls break down or must depend upon the fallible bonds of mutual good will. Even where the industry is clear-cut, the membership compact, and the common objective clearly defined, activities are likely to be pent in by the legal requirement to compete. In their attacks upon disorder industrial bodies are driven to cover, where, free from public scrutiny, there lurks the temptation to become predatory. When association or institute has stumbled upon a fruitful domain, its power has been spoiled in its exercise. The conduct of an enterprise is one thing, and the direction of an industry to its own and the public good quite another. An executive may be sophisticated in the ways of money-making and yet quite untutored in the larger concerns of industrial policy. The abler men of business are able to carry on, take the novelties of the market and the productive process in their stride, and steer their enterprises through prosperity and depression. Yet, when called upon to direct an industry, or to suggest a treatment for an ailing economic order, the mass of them will prescribe measures in the likeness of the pursuit of gain by the individual concern. When, under the NRA, they had opportunity to command an agency and to formulate a program, their approach was one of self-interest, sincerity, detailed knowledge, and lack of perspective. Several hundred codes testify to their faith in a cost floor for price as the way to industrial salvation. Yet the terms of the bargain are so many and the affairs of a concern so inseparable that such a device leaves many ways around and invites evasion. A procedure that promises success to a single competitor may through its repercussions work havoc within an industry. The course of events—trivial and grand—is to be met by no such technique. An industry, like the individual ventures within it, demands an approach, an authority, and a policy shaped to its own requirements.

To this necessity the oft-suggested answer is self-government in industry. Between the business unit and the sovereign state there is no agency of control, and an industry has problems which invite an intermediate authority. The promotion of efficiency by its individual units should not be wrecked by disorder within the industry. A plane of fair competition should be suited to its distinctive products, processes, and methods of marketing. A common understanding should make all firms equal before the market in respect to wage rates and the conditions of labor. The larger exactions by the nation upon all industry need to be broken down into the requirements upon particular trades. Such tasks present a domain of activity beyond the capacity of the business unit and too detailed for the procedure of legislation. But self-government

INDUSTRIAL GOVERNMENT

for industry, to escape serious hazards, must operate within severe limits. In politics the rule of the majority works with some success; in industry freedom for a minority—whose efforts are spent in the conquest of markets—is essential for the creation of new wares, improvement in quality, and the keeping of the productive process on the make. The few invent—and the many must copy or go down. An authority, representative of the majority in an industry, would hold the radical minority at its mercy. As profits began to dwindle, the strategy directed at sales would be converted into political pressures; the current ways would be frozen into legalisms and innovation would be frowned upon. In such an authority management would be well represented; but other parties with interests at stake—the investors, the suppliers of materials, the laborers—would have to fight for entrance into the directing body. The consumer, one of the parties to the bargain of sale and the objective of the industrial process, would probably be accorded little place in the organization. It may be well enough to leave to those who must produce the goods general discretion in the instrumental domain of ways and means. But matters of output and price, of labor relations and an advancing technology, are a proper concern of public policy, and require an authority more generally representative of the many interests at stake than an organization drawn from the firms within an industry can offer.

As yet the state as agency of control has neither defined its process nor perfected its procedures. In its concern with industry it appears in many roles. It keeps the domestic peace, prevents force and fraud, and maintains the framework of institutions under which industry operates. It has partially usurped the office of the market to maintain, regulate, and direct competition; and where, as in railroads and public utilities, activities have been too stubborn to be impressed with its pattern, it has gone in for direct supervision and price fixing. It has attempted to separate fair from unfair trade practices. It has, when the pressure has been put on, lent the sanctions of legislation to special interests; in the Robinson-Patman Act it has outlawed, as between competitive firms, price differences which cannot be justified by a resort to the costs of production; in the Miller-Tydings bill, which had to be slipped through an adjourning Congress as a rider to an appropriation bill, it has endowed the manufacturer of branded goods with the right to freeze markups at fixed percentages all along the distributive route from factory to retail outlet. It has, in the administration of public policy, treated flagrant violations of statutes with a studied neglect. It has been alike master and servant to industry; an overlord inclined to become punitive, invoke the law, and hail offenders into court; an agent to take the pressures and to do the will of economic groups. Its controls fall into no orderly

PRICE AND PRICE POLICIES

pattern; the line between things it should do and those it had best leave undone has not yet been marked out; its instruments have not yet been fashioned to effective and purposive use.

Thus the direction of industry is a multiple affair. It represents in graphic detail a process of adjustment between human actors and their economic stage, and out of the drama many controls emerge. Men come into industries, act within their industrial habitats, and shape their judgments within the tolerance of accepted ways. Reason has its orbit within prevailing arrangements. A business unit has its own customs; the flow of judgments which keeps its activities alive bears the impress of its technical processes, its corporate structure, and its personnel. The industry has its place in the national economy; it has its own trade practices; it is blessed or cursed with domestic worries over relations with other industries. The state—as overlord, policeman, henchman, and custodian of the common interest—weaves in and out among aggregates of kindred establishments in multiple wise. The public encourages lines of activity with its generous, tolerant, or fickle favor. A way of order for an industry is the course determined by a multitude of petty judgments made by many authorities operating in many domains. The controls which shape its emerging destiny fall into a loose, intricate, and variegated design. If market factors through their impact upon price help to control industry, so do the pressures and policies of which they are made.

Here are the very procedures, formal and informal, which are the subject matter of politics. Their character has been obscured and their importance overlooked by the unobtrusive way in which they have come into being. They are too much the creation of the occasion, of expediency, of special interest, to be neatly suited to their tasks in the national economy. Here and there an arrangement is to be found that smacks of collusion, restraint of trade, or mutual forbearance among gentlemen; but in general such controls are policed by no recognized authority. The usages which direct everyday activity in respect to automobiles, dresses, gasoline, and whiskey are no less compelling because they are unwritten. They set the stage for an industry, fix limits of tolerance to its conduct, and serve as folkways to its enterprise. They are in want of revision to the larger good of industry and in the public interest. As matters now go, many questions of industrial consequence cannot be easily raised and must accept trumped-up answers. The business unit is compelled to promote the common interest within the terms of money making; a trade association representative of an industry cannot escape the acquisitive pressures of the concerns which make it up. The state remains the policeman on the industrial beat, who knows that at times he must give reality another appearance and that at others

INDUSTRIAL GOVERNMENT

he must not look. The federal and the state governments, because of the current confusion over the Constitution, enjoy domains which are distinct, overlap, and leave a no man's land between. An antithesis between an acquisitive system of business and a state charged with public policy remains a barrier to an effective control. Aside from the brief truce of the NRA, the aloofness has endured to prevent cooperation in a task which must be constructive and unhurried.

If a new agency is to be invoked against disorder it must be fitted to its office. It is not a final answer to the enigma of industrial order that is sought; that riddle belongs to the abstract—and to the gods. It is rather ways of procedure and devices of accommodation for meeting situations as they arise. A current source of confusion is the static terms in which the problem is posed. A judgment is not the reference of a passing incident to an established norm; it is a response of policy to a changing situation. The mechanistic measurement of a proposed decision against a verified principle is a luxury which the hurry of transactions does not allow. A series of grooves cannot be cut to guide acquisitive endeavor to the general good. A stereotyped plan, in which every activity has its appointed place, cannot circumscribe industry against its unpredictable future. The state, with the club of the criminal law, can never beat the behavior that attends the pursuit of gain into accord with rigid norms. The quick staccato of industry cannot be timed to the decorous processes of a legal procedure developed in the days of petty trade. The solemn reproof administered by a Chief Justice to public officials intent upon stopping the flow of hot oil before it had done its devastating work, because of their lack of trust in the deliberate processes of justice, is irony with an archaic flavor.

The road toward industrial government runs by way of authority and the particular. A proper freedom of collective action, within the strict limits of public interest, must be accorded agencies of business. The state, in formulating public policy, must have a wide discretion, and statutes should be written in the broadest of terms. But a way of order and a program of control can be crowded into no set formula. The general standards of industrial code and legislative statute must be adapted to the shifting circumstances of particular industries. Since usage is forever on the make the exercise of authority must be grounded in a continuing exploration of industrial arrangements. In this quest it is necessary to go beyond the industry to discover the impact of foreign influences upon its affairs. An approach to the problem of the price and output of bituminous coal is impossible without adequate knowledge respecting competing fuels. Policy, too must take into account relevant values without the industry; it is against the interest of the national economy to protect anthracite by measures which impose strictures upon

PRICE AND PRICE POLICIES

the development of oil and gas. Authority means power; and its exercise must be based upon adequate knowledge, a suiting of policy to the industry, and the contrivance of measures to meet the occasion.

But from authority it is too late now to effect an escape. The sovereignty of the market is past; the political controls are here and we must subdue them to the public interest as best we can. The urge toward acquisition cannot be eradicated; it appears in every society—feudal, ecclesiastic, capitalistic, communistic—but bounds may be set to its practice. The arts of money-making may be better subdued to the necessities of the people. If a good is not produced in a quantity large enough and sold at a price low enough to have a secure place within the standard of living, the reasons are specific. It is a matter of public concern to hunt them out, and surely such controls as may come to inhere in industry or the state should be geared to their reduction or eradication. In knowledge, technique, and resource, human and material, the stuff of a greater abundance is at hand. It is only the art of control which we employ to turn it to account that lags. The activities by which men promote their own ends are those by which a people gains its wealth. The dualism must persist—a harmony that is all accord is an undertaking for a celestial society. Human affairs move with only their degree of perfection; and to make the materials of living serve their two masters is the abiding task of the politics of industry.

INDEX

A

Accountancy, 44, 140-145, 197-198, 251-256, 446-449, 458-461, 536-543
 Affiliated Dress Manufacturers Assoc., 334, 349
 Agricultural adjustment, 547
 Agricultural Adjustment Administration, 250, 252, 279, 282, 448, 458, 459, 472, 475, 477, 480, 508-510, 512, 524, 577
 Agricultural Economics, Bureau of, 208, 210, 214, 215, 222, 225, 226, 240, 285, 286, 448, 462
 Agricultural Year Book, 293, 294
 Agriculture, Dept. of, 228, 259, 293, 453, 457, 480, 488
 Akron, University of, 102
 All-State tires, 95
 Alsberg, C. L., 278
 Aluminum, 530, 544
 American Automobile Assoc., 39
 American Cotton Oil Co., 205, 278
 American Oil Co., 135
 American Petroleum Institute, 121-123, 163, 165, 190
 American Services Exchange, 398, 399
 American Society of Mechanical Engineers, 359
 American standard of living, 32, 447, 556
 Amos Parish Co., 310
 Anthracite, 540, 541, 548, 555
 Armour and Co., 276, 277
 Assembly line, 56-57
 Associated Merchandising Corp., 384
 Atlantic Oil Co., 135
 Atlas tire, 105, 106
 Automobile, 27-82
 assembly line to market, 66-74
 borrowed usages, 74-82
 competition, 28-74
 costs, 44-50
 cultural effects, 33-41
 dealer, 28, 69-73
 design, 43-52
 empire, 28, 53-56, 59-61, 68-74

Automobile, exploring a potential market, 28-43
 pattern of industry, 52-56
 sales, 31
 in theory of prices, 8, 525, 533-535, 541, 545-549
 Automobile Manufacturers Assoc., 31, 68
 Ayres, Edith, 371
 Ayres, Leonard P., 33

B

Babcock test, 453
Baldwin v. Seelig, 507
 Bargaining power, 69-73, 99-100, 206-207, 230-237, 260, 367-368, 471-497
Barnard v. Monongahela Gas Co., 160
 Barnum, P. T., 27
 Basic surplus plan, 490-493
 Beacon Oil Co., 135
 Beckman, Theodore N., 366
 Bellers, John, 391
Billings v. City of Hutchinson, 468
 Bituminous coal, 8, 530, 546, 547
 Black, John D., 509
 Bonus to management, 538
Borden v. Baldwin, 504
Borden's Farm Products Co. v. Ten Eyck, 504
 Brands, 102, 124-126, 396, 397, 413-416, 433, 540
 Bread, 532, 541
 Briscoe, Norris A., 369
 Brokers' loans, 530
 Brookings Institution, 509
 Buckeye Cotton Oil Co., 236, 264, 272, 273
 Budgets, household, 357-358
 Building costs, 545, 548
 Building trades, 547
 Butler, Mr. Justice, 178, 504, 506
 Butter, 461-462, 473, 475, 493-497
 Butterfat, 441-442
 Buyers' choice, fiction of, 397-400, 413-416, 457-458
 Buyers' strike, 375

PRICE AND PRICE POLICIES

- Byles, Axtell J., 190
By-products, 140-143, 201-214, 266
- C
- Calculating machines, 530
Camel cigarettes, 533
Capper-Volstead Act, 477
Cardozo, Mr. Justice, 184, 186, 503-507
Cartel, 92-98
Carter v. Carter Coal Co., 187-188
Cash and carry, 517, 534
Cement, 551
Census, Bureau of, 208, 210, 214, 216
Census of Manufactures, 266
Chain store, 108-116, 372, 451-452
Champlin Refining Co. v. Corporation Commission of Oklahoma, 177, 187
Chase, Stuart, 359
Cherington, Paul T., 306
Chocolate, 532
Cigarettes, 533, 534, 538, 541, 546
Cities, growth of, 36-37
Cities Service Oil Co., 135
Citrus fruits, 537, 544, 551
Clayton Act, 18, 110, 111, 116
Classification of customers, 535
Clement, Clarence E., 448, 459
Collective action, 475-497, 541, 556
Columbus Milk Producers Assoc. v. Wallace, 510
Commerce, Dept. of, 375
Commercial consumers, 99-100
Commission contract, 231
Commissioner of Internal Revenue, U. S., 409
Committee on Recent Economic Trends, 46
Competition, 13, 16-20, 543-549
 automobiles, 28-74
 cottonseed, 215-233, 251-266
 dresses, 324-336
 gasoline, 117-119, 131, 136-140, 194-199
 milk, 460-461, 482
 tires, 28-74
 whiskey, 413-416
Consolidated Milk Exchange, 476
Consumer acceptance, 99-100, 103-104, 124-126, 368, 396, 397, 413-416, 435, 440
Consumer cooperative, 518, 534
Consumers Counsel, AAA, 512
Consumers' interest, 23-45, 74, 84, 199, 219, 335, 384-389, 431-433, 439-440, 511-524, 534, 553
Continental Distillers, 410
Continental Oil Co., 135
Cooperative Milk Producers Assoc., 486
Copper, 530, 531
Copyright, 339-342
Copyright Bureau, 339, 340
Cost-into-price, 246-266, 446-449, 536-543, 552
Costs, 536-543
 automobiles, 44-50
 cottonseed, 251-269
 dresses, 324-336
 gasoline, 130, 138, 141-143, 145
 milk, 446-449, 458-461
 tires, 94
 per unit, 44, 46, 47
 whiskey, 420-423
Cotton, 206, 208, 210, 224-229, 269, 531, 547
Cotton garment code, 301, 362
Cotton gins, 230-237
Cottonseed, 201-297
 costs, 251-266
 crushing mill, 234-237
 function of price, 215-223
 hulls, meal, linters, 206-214, 217, 253, 291-295
 industrial pattern, 223-237
 labor, 266-269
 oil, 206-214, 217, 253, 275-291
 price movements, 206-215
 price structure, 269-275
 pricing problem, 295-297
 significance of, 201-206
 in theory of price, 526, 538
Couper, W. J., 321, 322
Courtesy cards, 118, 534
Cowden, T. K., 512
Cox, R. W., 512
Cream, 474-475, 487, 493-497
Cudahy Packing Co., 276, 277
- D
- Dairy Industry Committee, 458
Dairymen's League, 481
Dallas Cotton Exchange, 264
Danciger Oil & Refining Co. v. R. R. Commission of Texas, 179
Delegation of powers, 183-187

INDEX

- Demand, 543-549**
 automobiles, 28-43
 cottonseed, 203-206
 dresses, 310-320
 gasoline, 121-124
 milk, 433-440
 tires, 85-89
 whiskey, 396-408
 Department store, 375-384, 541
 Depreciation, 91, 258, 330, 421, 446, 496, 537
 Dickson, A. M., 232
 Diet, 433, 440, 545
 Discounts, 91-101, 107-108, 117-118, 369-373, 534
 Distilled Spirits Institute, 402-407
 Distribution, automobiles, 66-74
 cottonseed, 275-295
 dresses, 264-284
 gasoline, 124-140
 milk, 449-461
 tires, 98-116
 whiskey, 416-420
Dodge v. Ford Motor Co., 41
 Dodge Bros., 48, 50, 59
 Dodge motor car, 48, 55, 56
 Dollar oil, 153, 547
 Domestic economy, 6, 8, 14, 25, 35, 431
Douglas v. Wallace, 510
 Dress and Waistmakers' Union, 318, 343, 355, 360, 364
 Dress Code Authority, NRA, 320
 Dresses, 299-393
 group buying, 360-369
 hazards of purchase, 384-389
 jobber-contractor, 323, 341-351
 model, 367-368
 personnel, 320-324
 reform, 389-393
 retail market, 374-384
 risks of enterprise, 324-336, 353-364
 sizes, 387-388
 technology, 299-303
 in theory of price, 8, 525, 531, 533, 545, 551
 wholesale market, 364-374
 worth, 299-303
 Due process of law, 15, 175, 180, 467-469, 500-507
 Dun, R. G., and Co., 328
 Dun and Bradstreet, 331
 Dupont de Nemours Corp., 129
- E**
- Edgewater Dairy Co. v. Wallace*, 510
 Electrical appliances, 535
 Electrical refrigerators, 531, 546
 Electricity, 530, 546
 Espionage, industrial, 63
 Ethyl Gasoline Corp., 125, 127-129
 Excess capacity, 90-91, 129, 136-139, 161-162, 259-260, 547, 548, 551
- F**
- Fair value, 299
 Fairchild Publishing Co., 324
 Farish, W. S., 162
 Farm Credit Administration, 471, 481
 Farm economy, 8, 35, 37-38, 266-269, 431, 440-449, 462-474, 536-537, 547
 Fashion, 303-310, 320, 325, 336-341, 366-367, 376, 379, 385, 388-389
 Fashion Originators Guild, 340
 Federal Alcohol Administration, 339, 397, 403, 409, 412, 418
 Federal Alcohol Administration Act, 406
 Federal Alcohol Control Administration, 389, 420
 Federal Oil Conservation Board, 163
 Federal regulation, 14-22, 108-116, 164-175, 189-193, 395-396, 406, 420-424, 508-510
 Federal Tender Board for East Texas, 167, 168
 Federal Trade Commission, 18, 84, 103-105, 108-116, 131, 201, 235, 238, 243, 248, 250, 251, 278, 281, 340, 341, 448, 450, 459, 464, 465, 470, 472, 477, 485, 487, 488, 492, 499, 515
 Federated American Engineering Society, 359
Feras naturae, 176
 Fertilizer, 530, 535
 Fiction, of consumers' choice, 541
 of quoted price, 529-536
 Filene, E. A., 381
 Firestone tire, 96, 100, 104
 Fisk tire, 91
 Flexible price, 543-549
 Fluid milk, 431-524
 F.o.b. Detroit, 64
 Follow the leader, 530
 Food Research Institute, 278

PRICE AND PRICE POLICIES

- Ford, Henry, 29, 30, 51
Ford, Model A, 41, 56
 Model T, 31, 32
Ford Motor Co., 30, 33, 43, 50, 51, 56-58,
 100
Foreign and Domestic Commerce, Bureau
 of, 86, 87, 95, 332
Freight rates, 536
Free enterprise, 10, 461-462, 501-503, 536
Freedley, E. T., 321
- G
- Gabler, Werner Karl, 332
Ganley v. Wallace, 510
Gasoline, 117-199
 agency of control, 189-194
 costs, 130, 138, 141-143, 145
 definition, 120-124
 grades, 117, 120-124
 litigation, 175-189
 octane rating, 123-127
 oil well, 152-162
 pipe line, 146-152
 price war, 117-120
 public policy, 194-199
 public regulation, 162-175
 retail outlet, 124-140
 in theory of price, 526, 533, 538, 540, 544,
 546, 547
General Motors Corp., 129
Gentleman's agreement, 530
Geological Survey, 133, 162
German Alliance Insurance Co. v. Lewis, 503
Gillette razor blade, 533
Good, characteristics of, 531, 539
Goodrich tire, 105
Goodyear Tire and Rubber Co., 95, 96,
 103-106, 108-116
Grain market, 540
Gulf and Valley Oil Co., 276
Gulf Oil Co., 134, 135
- H
- Haldane, Chancellor, 486
Harvard Bureau of Business Research, 378
Haulage by truck, 532
Hazards, buying, 120-124, 334-339, 395-
 397, 413-415, 512-519
Health inspection, 462-474, 519, 524
Hegeman Farms v. Baldwin, 503
Heller Committee for Research, 337
Hepburn Act, 147
High, Luther, 505
Highland Farms Dairy v. Agnew, 505
Highways, 38, 42-43
Hochman, Julius, 360
Hogs, 208
Holt, E. G., 95
Home Economics, Bureau of, 385, 388
Hot oil, 164, 167-168, 555
House dress industry, 301-302, 548
Household economy, 11, 25, 431
Housing, 545, 548
Houston Merchants Exchange, 246
Houston Packing Co., 270
Hughes, Mr. Chief Justice, 179, 180, 184,
 187, 504
Humble Pipe Line Co., 148
Humko Oil Co., 276
- I
- Independent merchant, 105, 106, 108-116
Independents, 117-119, 127, 133, 139, 168-
 172, 195-196, 413-416
Industrial unionism, 63-65
Industry, 1-26, 525-556
 adaptation, 525-526, 549-550
 authority in, 14-22, 527-529, 549-556
 characteristics of, 525-527
 definition, 1-6
 flexible price, 543-549
 government of, 549-556
 location of, 90, 320-324
 organization of, 9, 52-56, 74-81, 89-92,
 189-199, 223-239, 320-324, 332, 361,
 461-474, 549-556
 pattern, 6-14, 341-352, 408-413, 431-433
 penetration of, 9-10
 policy of, 14-23, 526-549
 price and costs, 536-543
 prices of wares, 529-536
 problem of order, 525-529
 variety in, 525
Insolvency, 324-329, 542
Installment selling, 42, 79-80, 530
Institute of American Meat Packers, 283
Institute of Cottonseed Oil Foods, 281
Integration, 57, 134-135, 411-412
Interest rate, 530
Interior, Dept. of, 119

INDEX

- International Ladies Garment Workers' Union, 318, 341, 346
- Interstate Commerce Act, 16
- Interstate Commerce Commission, 147, 148, 149, 548
- Interstate compact, 163-164, 191-193
- Interstate Cottonseed Crushers Assoc., 231, 239
- Interstate Cottonseed Oil Foods, 281
- Inventories, 90-95, 217, 412-413
- Investment, 51, 58-59, 326-328, 537
- J
- Joint products, 20, 140-143, 201-223, 269-274, 459, 461-462, 473-475, 487, 493-497, 538-540
- Julian v. Capshaw*, 176
- Justice, Dept. of, 171, 180-182, 249, 279-281
- Justice tire, 108
- K
- Kelly, Ernest, 448, 459
- Kettering, C. F., 43, 46
- Kickbacks, 346, 418
- Kopold, Sylvia, 352, 353
- Kraemer, A. J., 141
- Kuzneta, Simon, 345
- L
- Labels, 386-387
- Labor, 61-66, 266-269, 352-364, 447, 537, 540, 552, 553
- Lard, 208, 210, 214, 220, 284
- Law and Contemporary Problems*, 112
- Leigh, W. W., 102
- Leigh v. Wallace*, 510
- Leland Stanford University, 278
- Lever Bros. Co., 276
- Level of prices, 426-429
- Levine, Louis, 312, 352
- Lindsly, H. C., 159
- Little Rock Cotton Exchange, 246
- Local self-government, 521-522
- Location of industries, 90, 320-324
- Loftus v. Dept. of Agriculture of Iowa*, 468
- M
- MacMillan v. R. R. Commission of Texas*, 179
- McReynolds, Mr. Justice, 501, 504, 506
- Machine process, 7, 10, 56-57, 120-124, 140-146, 310-320
- Magee, Mabel A., 314, 317
- Magnolia Pipe Line Co., 150
- Magnolia Provision Co., 278
- Mail-order house, 103-105, 110, 373
- Major oil company, 117, 127-133, 140-141, 163-172, 195-196
- Majority rule, 550-553
- Markdown, 377-382
- Market, 139-190, 196-197, 542, 549-550, 556
- Market practice, 416-420
- Marketing, 66, 98-108, 364-374, 449-461
- Markup, 374-381, 540, 541
- Marsh, C. F., 327, 356
- Marshall, J. Howard, 160, 163
- Marx, Karl, 323
- Mayflower Farms v. Ten Eyck*, 504
- Meat packing, 540
- Meloy, G. S., 240, 241
- Meloy method, 239-243
- Memphis code of ethics, 238, 245, 247
- Memphis Merchants Exchange, 293
- Metabolism, 433-436
- Metzger, Hutzler, 476
- Meyers, Norman L., 160, 173
- Michigan, University of, Bureau of Business Research, 378
- Milk, 431-524
- basis for demand, 433-440
- big business, 449-461
- classes of, 474-475, 509
- consumers' interest, 511-524
- cooperative, 453, 471-497
- costs, 446-449, 458-461
- country station, 484
- deductions, 483-487
- farm economy, 440-449
- hauling charges, 484
- inspection, 461-474, 521-524
- milkshed, 465-466, 471-474
- price making, 474-497
- regulation of, 497-510
- sheltered market, 461-474
- in theory of price, 526, 538, 546, 548, 549, 551
- Miller, Ben E., 159
- Miller v. Wallace*, 469
- Miller-Tydings Act, 420
- Mines, Bureau of, 163, 166, 174
- Minimum Wage Office, N. H., 512

PRICE AND PRICE POLICIES

Minnesota, University of, 512
Mints v. Baldwin, 468
Montgomery Ward Co., 105, 110
Multiple inspection, 463-465
Multiple price, 474-497
Municipal regulation, 461-464
Munn v. Illinois, 503

N

National Assoc. of Independent Tire Dealers, 115
National Automobile Chamber of Commerce, 59
National Bureau of Economic Research, 345
National Credit Office, 312, 324-326, 328, 329, 332
National Cottonseed Producers Assoc., 238, 240, 242, 244, 249, 250, 252, 253, 257, 261, 268, 277, 288, 291, 294
National Dairy Products Corp., 522
National Distillers Corp., 410
National Dress Manufacturers Assoc., 334, 349, 392
National Industrial Recovery Act, 20, 119, 182-183, 301
National inspection, 521-524
National Labor Relations Board v. Jones and Laughlin Steel Corp., 187
National milk market, 522-523
National Products Corp., 411
National Recovery Administration, 21, 64, 65, 72, 103, 142, 164, 175, 279, 302, 320, 323, 324, 339, 340, 346, 348, 362, 370, 372, 388, 548, 550, 552
National Retail Dry Goods Assoc., 373, 380, 381, 384, 385
Nebbia v. New York, 497, 501-503, 505-506
Needle trades, 322
New Orleans Cotton Exchange, 246, 289
New State Ice Co. v. Liebmann, 469
New York Daily Investment News, 239
New York Milk Exchange, 476
New York Produce Exchange, 275, 289
Newsprint, 530
Nonpecuniary economy, 224-227, 301, 460, 537-538, 547
Nystrom, Paul H., 304, 306

O

O'Brien, Ruth, 384, 388
Obsolescence, 325-326, 377, 537

Octane rating, 123, 126-127
Ohio Oil Co. v. Indiana, 176
Oil, 140-146, 152-165, 180-181, 189, 194, 555
 competitive drilling, 159-161
 conservation, 175-176, 276-278
 pool, 158
 subsidy of production, 155-157
Oil and Gas Journal, 179
Oil Administrator, 166-172
Oil burner, 531
Oil Miller and Cotton Ginner, 258
Oil States' Committee, 163
One-price system, 375
Open market, milk, 196-197, 493-497
Orth, A., 43, 46

P

Paintings, 545
Panama Refining Co. v. Ryan, 182-184
Paper, 535, 538, 539, 544, 551
Pasteurization, 452, 455-457, 516, 520
Patent monopoly, 544
Patent Office, 339, 340
Patents, 530
Pathfinder tire, 106
Peaches, 530, 533
Pecuniary calculus, 529-530, 536-543, 549
Pennsylvania Bureau of Milk Sanitation, 466
Pennsylvania Experiment Station, 512
Pennsylvania State Milk Control Board, 499
People v. Dept. of Health of City of New York, 463
Petroleum Administrative Board, 130, 132, 135, 166, 169, 181-182
Petroleum code, 164-175, 182
Petroleum Industries Committee, 162
Petty trade, 548
Philadelphia Interstate Dairy Council, 466, 470
Phillips Oil Co., 134
Physiology, 433-436
Pipe lines, 146-152, 539
Piracy of styles, 336-341
Pittsburgh, University of, 332
Plane of competition, 18, 552
Planning and Coordination Committee, 166
Platt's Oilgram, 144

INDEX

- Police power, 15, 175-189, 406-408, 461, 467-469, 497, 511
Polinsky v. People, 468
 Political controls, 15-22, 549-556
 Politics, of industry, 525-556
 of price, 474-524
 Popular Dress Manufacturers Assoc., 334, 363
 Portsmouth Refining Co., 278
 Preferred resources, 369
 Premiums, 118
 President's Reemployment Agreement, 268
 Price, attitudes to, 547-549
 class, 48-49
 cost and, 536-543
 cutting of, 496-551
 definition, 24-26
 differentials, 117, 121, 125-126, 232-233
 fiction of quoted, 107-108, 531-535
 function of, 190-191, 194-199, 215-223, 422-424, 543-549
 making of, 529-535
 markets and, 540-541
 in nonpecuniary economy, 224-229, 360, 537-538, 547
 planes of, 514-519, 548-549
 policy, 28-43, 73-74, 98-108, 194-199, 295-297, 299-303, 426-429, 511-524, 547-556
 posting, 179, 197, 245-251, 551
 price-fixing, 168-172, 178, 420, 530
 price lining, 302, 331-334, 338, 346, 379, 381, 531
 price war, 106-107, 117-119, 136-139
 structure of, 152-158, 164, 269-277, 295-298, 408-420
 theory, 14-26, 525-556
 trends, 206-223, 475-476
 variety, 529-535, 547-548
 zoning, 245
Printers' Ink, 67
 Proctor and Gamble Co., 236, 258, 271, 276, 278, 280, 282, 285
 Production and price, 215-223
 Production control, 92-98, 162-175
 Profession, the, 11-12, 35, 537
 Profits, 256-259, 515-516, 548, 549
 Proprietary medicines, 530
 Proration, 162-164, 175-180, 551
 Public Health Reports, 468
 Public Health Service, United States, 456, 464, 513
 Public tolerance, 395, 420-426
 Public utilities, 538
 Pure Food and Drug Act, 205
 Pure Oil Co., 135
 Pyramiding, of control, 201-297
 of tax, 423-424
- Q
- Quality, 531, 532-534
 Quantity discount, 369
 Quoted price, 107-108, 531-535
- R
- Radio, 536, 545
 Radio broadcasting, 532
 Ranson, L. A., 205
 Razor blades, 534
 Refinery prices, 144-146
 Reilley, Philip J., 369, 384
 Reorganization, 542
 Research Bureau of Retail Trade, 382
 Resident buying office, 367-372
 Restraint of trade, 551, 554
 Retail Code Authority, 87
 Retail outlets, 116-118, 124-140
 Retail trade, 367, 372, 375, 449-461
 Returns of merchandise, 377, 534, 535
Reynolds v. Milk Commission of Va., 506
Ribnik v. McBride, 503
 Rice, Walter L., 279
 Richfield Oil Co., 135
 Right price, 299
 Risks of enterprise, 89-92, 324-326
 Roberts, Mr. Justice, 497, 502, 504
 Robinson-Patman Act, 22, 112-114, 116
Royal Farms, Inc. v. Wallace, 510
 Rubber, raw, 92-98, 544
 Rubin, Louis, 363
 Rule of capture, 160-161, 174-175
- S
- Schechter Poultry Corp. v. United States*, 21, 174, 184, 187
 Schenley International Corp., 411
 Sears Roebuck and Co., 103-105, 108-116
 Secondhand car, 42, 71-72
 Security, industrial, 89-92
 Selekmán, B. N., 321, 322, 352, 353
 Self-government in industry, 407, 552-553
 Seltzer, L. H., 31, 54

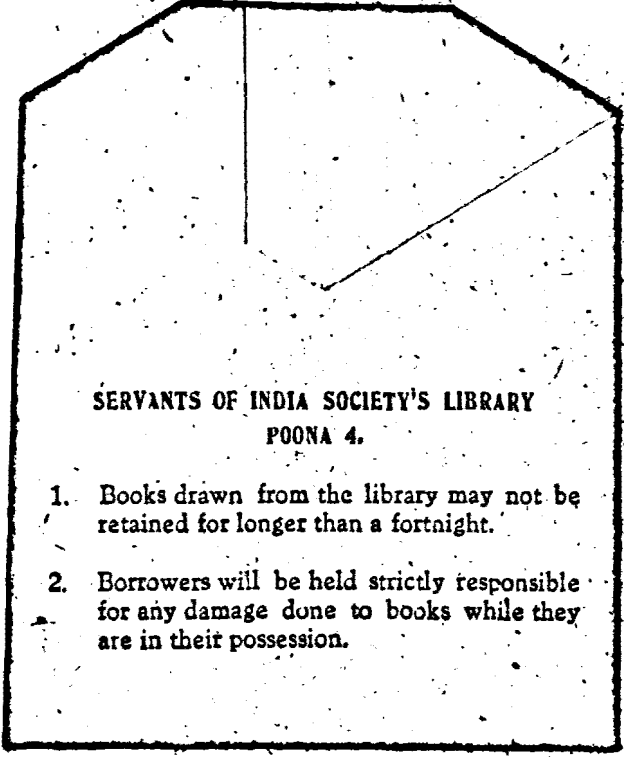
PRICE AND PRICE POLICIES

- Share cropper, 224-229, 296, 537
 Share Croppers' Union, 223
 Sheffield Farms Co., 481
Sheffield Farms v. Seaman, 469
 Shell Oil Co., 135, 148
 Sheltered market, 461-474, 551
 Shepard, John B., 444
 Sherman Act, 14-17
 Shoes, 533, 546
 Sinclair Oil Co., 135
 Singer Sewing Machine Co., 317
 Single price, 531
 Sit-down strike, 63
 Sizes, 387-388, 532
 Small debtor, 530
 Smith, Richard K., 444
 Social attitudes, 404-408
 Social Security Act, 116
 Society of Automotive Engineers, 55
 Sons of Plato, 237
 South Texas Cotton Oil Co., 276
 Southern Cotton Oil Co., 236, 252, 276, 278, 282
 Southern Oil Co., 276
 Southern Tenant Farmers' Union, 228
 Specialty store, 371
 Spencer, Leland, 459
 Splawn, Walter M. W., 149
 Standard of living, 24, 227-228, 355-356, 447, 545, 556
 Standard Oil Co. of N. J., 105, 129, 134, 148, 162
 Standard Oil Co. of N. Y., 134, 135
 Standardization, 55-56, 83-85
 Standards of quality, 533-534
 State, the, 11, 12-15, 424, 549, 553-555
State Board of Equalization of Cal. v. Young's Market Co., 425
 State economy, 424-426
 State enterprise, 12
 State milk boards, 498-500
 State monopoly, 416-417
 State regulation, 162-164, 174-175, 191-193, 406-407, 416-417, 497-500
 State tariff, 424-426
 Steam coach, 35
 Steel, 551
Sterling v. Constantin, 164, 179
 Stevenson plan, 96-97
 Stone, Mr. Justice, 186, 505
 Stripper wells, 157
 Sturges, A., 512
 Style, 303-310, 320, 321, 336-341, 533
 Subsidy, good by good, 539-542
 Sun Oil Co., 148
 Supply and demand, 161-162, 543-549
 Surplus milk, 474-475, 493-497
 Sutherland, Mr. Justice, 187, 504, 506
 Swift and Co., 236, 253, 271, 277, 280, 281
- T
- Tariff barriers, local, 424-426, 472, 474
 Tariff Commission, 448
 Taxes, gasoline, 145, 146, 167
 whiskey, 420-426
 Technology, 9, 121-124, 133, 140-146, 155-162, 198-199, 307, 310-320
 Ten Per Cent, the, 20, 167, 550
 Tennessee Valley Authority, 548
 Terms of bargain, 483-490, 531, 534-535, 552
 Texas, University of, 512
 Texas Oil Co., 134, 135
 Texas R. R. Commission, 152, 179
 Textiles, 547
 Thomas' Register of American Manufactures, 283
 Thompson, Ernest O., 152
 Thompson, Evelyn, 388
 Tidewater Oil Co., 135
 Tire, automobile, 83-116
 competition, 89-92, 108-116
 costs, 94
 definition, 83-85
 independent v. chain, 108-116
 insecurity, 89-92
 life span, 101-102
 market structure, 98-108
 nature of demand, 85-89
 in theory of price, 546-548
 Trade association, 202, 237-245, 270, 275, 386, 551
 Trade usage, 173-174, 541-543
 Trade unionism, 62-66, 541
 Trade-ins, 42, 71-72, 535
 Trade-marked article, 530, 531
 Treasury Department, 401
 Trowbridge, Sherman, 331
 Turner, H. A., 225
 Twentieth Century Fund, 327
 Twenty-First Amendment, 425-426

INDEX

- Typewriters, 71
Tyson and Bros. v. Banton, 503
- U
- Undertaker, 531
Unit, of measurement, 532
 of use, 531
United Assoc., 346, 349
United States v. Butler, 510
United States v. Buttrick, 510
United States v. Greenwood Dairy Farms, 510
United States v. Seven Oaks Dairy Co., 510
United States v. Smith, 181
United States Rubber Co., 105, 110
United States Supreme Court, 21, 119, 134,
 147, 164, 168, 175-189, 395, 425, 497,
 500-508, 510
Upward merchandising, 532
Used cars, 42, 71-72, 535
Utilization plan, 473-474
- V
- Vacuum cleaner, 531
Van Camp Co., 276
Van Devanter, Mr. Justice, 504, 506
Virginia Milk Commission, 505, 506
Virginia Milk Producers Assoc., 490
Volume rebate, 369
- W
- Waite, W. C., 512
Walter, H. R., 321, 322
Walton v. Toledo, 468
- Wasserman, Max, 459
Weber, G., 278
Wentworth, W. A., 458
Wesson Oil and Snowdrift Co., 230, 236,
 258
Western Union Commercial Dispatches, 246
*Westmoreland and Cambria Natural Gas Co.
 v. De Witt*, 160
Wheat, 530
Whiskey, 395-428
 demand, 396-407
 level of prices, 426-429
 old industry and new, 395-396, 408-409,
 412
 price structure, 408-420
 social attitudes, 404-406, 420-421
 state tariff, 424-426
 taxes, 422-424, 426-428
 in theory of price, 526-540
White, Mr. Justice, 176
Whitney v. Watson, 469
Williams v. Standard Oil Co., 503
Wine, 396, 425
Wingate, J. W., 369, 379
Wilson and Co., 276, 277
Women's Wear, 341, 377, 383
Wright, Philip A., 453
- Y
- Yale Law Journal*, 160, 163
Yardstick, 516
- Z
- Zinc, 531

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