

The
WORLD COFFEE ECONOMY
with special reference to
CONTROL SCHEMES

By
V. D. WICKIZER

**FOOD RESEARCH INSTITUTE
STANFORD UNIVERSITY
STANFORD UNIVERSITY, CALIFORNIA**

THE WORLD COFFEE ECONOMY

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DIRECTOR'S PREFACE

Large surpluses of staple commodities constituted an impressive feature of the interwar period. The coffee surplus was notably huge and persistent. Brazil, which bore most of the burden, spectacularly resorted to burning parts of her excess supply. In the ten years before war again engulfed Europe, over 68 million bags of coffee were destroyed. This was 28½ per cent of Brazilian production in that decade, or enough coffee to meet consumption requirements of the world for two and one-half years. Despite such drastic measures, stocks continued abnormally heavy. Late in 1937 Brazil reluctantly admitted the disastrous failure of her "permanent coffee defense" policy and made radical modifications in it.

Many control schemes for foodstuffs and raw materials of world importance owe their origin to severe dislocations that resulted from World War I and the Great Depression. Government intervention in economic affairs, extensively practiced in wartime, became easier to apply in peace. Coffee, however, is one of a few commodities to which national controls had been applied much earlier. Failure attended efforts to reach an international control agreement until 1940-41. Then, in the face of urgent need for Pan-American solidarity, the United States joined fourteen Latin American coffee-growing countries in a scheme for coping with new problems created by the closing of Continental European markets.

The present war threatens even more serious dislocations than followed the last one. Government controls are more extensive than ever before, and the trend of responsible opinion is against hasty decontrol as soon as hostilities cease. In some quarters it is expected that international commodity arrangements will play a significant role both during and after the war-peace transition period.

In recent years, indeed, more and more official support has been given to the idea that commodity problems of world importance can be dealt with effectively by international bodies, set up under international commodity agreements, and employing one or more control devices such as export quotas, produc-

tion restraints, minimum and/or maximum prices, and "buffer stocks." This idea, with specific reference to a few important commodities, has been under investigation by the Food Research Institute.

One conviction grows as this problem is studied. Commodities differ widely one from another in many ways, and no two commodity economies are closely similar. International commodity agreements must take these differences into account. If commodity arrangements are to be successfully devised and carried out, they need to be founded on extensive and intensive commodity research.

Coffee thoroughly merits special investigation. Coffee growing and exporting is of dominating importance in the economies of a number of Latin American countries. These countries account for the bulk of world coffee production, and all are located within the area of the United States vital interests. The United States is by far the most important consuming market. When the war closed the second most important outlet in Continental Europe, coffee assumed greater economic and political significance than ever before. Experience under the various Brazilian coffee controls, and wartime experience under the Inter-American Coffee Agreement, both yield warnings against superficial assumptions regarding the virtues of ambitious and fairly comprehensive international schemes for the regulation of the world coffee industry. But only a provisional answer can yet be given to the question: What, if any, type of agreement or scheme for postwar control of coffee is desirable and feasible?

Mr. Wickizer's present study makes timely contributions to an understanding of the commodity coffee, the evolving world coffee economy, experience with coffee controls, and the problems that lie ahead. Grateful acknowledgment is made to the Rockefeller Foundation for a grant of funds to the Food Research Institute that made possible the preparation and publication of this book.

JOSEPH S. DAVIS

July 30, 1943

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My greatest debt, however, is to J. S. Davis, director of the Food Research Institute and of the broader general investigation of international commodity agreements of which the present work on coffee is one part. His counsel and criticism have been invaluable. I am indebted specifically to two former business associates, D. Rae TeRoller and A. C. Glover of Mannings, Inc., for many suggestions and for reading the manuscript. John E. Duff and W. O. Granicher of Leon Israel & Bros., Inc. should also be singled out for their helpful review and criticism of the galley proof. None of these individuals, of course, bears any responsibility for views or conclusions expressed herein.

The task of nursing the manuscript through its various drafts, seeing the book through the press, and making the index has fallen to Helen M. Gibbs. The map and charts were made by P. Stanley King and reflect many of his own useful ideas. The co-operation of these two principal assistants is highly valued. I am also indebted to members of the Institute's statistical staff, under the direction of Rosamond H. Peirce, for many of the statistical compilations and computations.

A number of unforeseen circumstances arising from war-time conditions have delayed earlier publication of this study. To those in trade and government circles whose impatience has hardly equaled my own, I wish to extend apologies.

V. D. WICKIZER

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CHAPTER I

BASIC FACTORS IN THE COFFEE SITUATION

Coffee is primarily a Western Hemisphere product and problem. Over 85 per cent of the world supply comes from Latin America, mostly from Brazil and countries bordering on the Caribbean. The United States constitutes by far the greatest market, absorbing more than half the entire world output. Before World War II the countries of Continental Europe took another 40 per cent of all coffee exports, but today this market is closed and the United States is left as the only important outlet. World coffee consumption, as well as production, is now more than ever concentrated in countries of the Western Hemisphere.

Many common interests have drawn the Americas closer together since the outbreak of war. New economic and political relationships have been and are being established. The importance of coffee in the economies of Latin American producing countries, and in the diet of United States consumers, made it a logical first choice of commodities to come within the new Inter-American understandings.

So much of the world's coffee has long been grown in Brazil that problems of the industry in the past have very largely been Brazilian problems. As production expanded in neighboring countries to the north, such as Colombia, they broadened in scope. When the Continental market was closed to all Latin American producers alike, it was at a time when the United States found it highly desirable to further strengthen the ties with its southern neighbors. Thus, under the stress of war and for reasons of national interest, the essentially conflicting objectives of coffee producers and consumers were resolved in a new manner.

Today three basic facts in the world coffee situation, three main problems, may be singled out for special attention in characterizing the world coffee economy. The first is of longest standing and is inherent in the nature of the demand for and

supply of coffee. Annual consumption requirements are relatively stable, while the supply is highly variable because of wide variations in year-to-year crop yields. The second problem has been with the industry for more than a decade and is largely the outgrowth of attempts to solve the first by Brazilian control measures. It concerns the excessive aggregate world coffee supplies that have persisted since the early 1930's. The third problem may be considered as temporary, the result of war, but it is nevertheless acute. It relates to the effect on producing countries of the loss of Continental Europe as a market and the adjustments being attempted through the Inter-American Coffee Agreement.

SUPPLY VARIABILITY

The first and oldest problem of the coffee industry is not man-made but arises from the nature of the coffee plant. The coffee tree itself has its own yield cycle; it bears less in the years immediately following a large output. Weather conditions also profoundly affect the yields obtained. When, by chance, the trees are rested and weather is favorable, the crop will be unusually large; when the trees have yielded heavily the previous season and are thereby exhausted, and the rainfall is well below normal, an unusually small output will result. Characteristic variations in yields are such that the output of a particular plantation may at its high be ten times the production at its low. Furthermore, output cannot be adjusted from one year to another. Several years are required to bring coffee trees into bearing, and, once in production, they are not readily abandoned or destroyed.

This problem, inherent in coffeegrowing, is accentuated by concentration of production in one part of the world. For many decades, three-fifths or more of the world coffee output has come from Brazil, and about two-fifths of the world total from a single state, São Paulo, located partly in the Temperate Zone, where climatic influences are likely to be less stable than in strictly tropical areas. If the world's coffee trees were more evenly distributed over the different continents, variations in yields would tend to offset one another because of compensatory

influences. But when such a large proportion of all bearing trees is concentrated in a relatively small area, the effect on the world's annual supply is very pronounced.

Coffee consumption, on the other hand, does not vary much from one year to another. It is very mildly responsive to changes in prices or in purchasing power within brief periods. Growth of population, and changes in consumer habits accompanying persistently high or low prices to consumers, largely account for discernible changes in the volume of coffee consumption. Unlike many foodstuffs, coffee has only one significant use, and for most of those accustomed to drink it no fully acceptable substitutes are available. As long as the one all-important use of coffee is for the brewing of a beverage, the use of which tends to become fixed in the individual's dietary, there will be narrow limits to the adjustments in consumption that can be achieved solely through price changes from year to year.

Since green coffee is not highly perishable, and storage costs are not heavy, variations in stocks voluntarily held by producers, middlemen, and speculators in futures contracts help to moderate the price influence of highly variable annual outputs. But the commercial risks involved are so large that wide fluctuations in prices of green coffee tend to occur nevertheless.

Under such circumstances, in the absence of government intervention, coffee growers find that large crops bring distressingly low prices, and even that large crops often bring less income than small crops. Growers tend to underrate the compensating influence on their income from the inverse variation of crops and prices. Like other agricultural producers, they are easily persuaded that middlemen derive large speculative gains at their expense. Hence, in Brazil especially, they have long sought to further their interests by governmental regulation of coffee marketing.

POTENTIAL NONBEVERAGE USES

Although coffee has been used as a beverage for about six hundred years, today it may be on the threshold of a quite different and potentially important use in industry in the making of plastics. If so, it is conceivable that an entirely different

approach may be made toward a solution of the problem of annual supply-demand adjustment.

A very small fraction of the coffee consumed is used for flavoring such products as mild drinks, "soft drinks," and ice cream, and small amounts are employed in similar uses in the household or in public eating places. Very early in the history of coffee, the whole berry was used as food, but the practice never became popular. More recent efforts to revive and spread such use among native populations have not met with much success. The pulp surrounding the coffee bean has no present commercial importance.

Many attempts have been made to find nonbeverage uses for coffee that would be commercially feasible under conditions of excess supply. Such efforts were intensified during the past decade when millions of bags of surplus coffee were being destroyed in Brazil. Efforts to utilize certain chemicals, oils, and other components of the berry have met with small success, because the processes employed in extraction are still too costly to be commercially practicable. Experiments in Brazil designed to make use of surplus green coffee as a fuel or a paving material for roads have not produced satisfactory results. Indeed no simple, inexpensive method is known for utilizing coffee unsalable for beverage purposes, or even for conveniently disposing of such stocks in large quantities.

The only promising possibility now in sight for other than beverage uses is that raw coffee may be found suitable for the manufacture of plastics. To prove the commercial feasibility of a process developed by a New York inventor for converting green coffee beans to moulding powder for a new thermosetting plastic, a pilot plant, financed by the Brazilian Government, was constructed in São Paulo in 1941. With this process, one 60-kilogram bag of coffee is said to produce 40 square feet of plastics $\frac{1}{2}$ inch thick, 1 pound of caffeine, and $1\frac{1}{4}$ gallons of coffee oil.¹

Two large plants, capable of utilizing as much as 5 million bags of coffee that would otherwise be burned in accordance

¹ Albert Gray, "Coffee Plastics," *Modern Plastics*, May 1939, p. 72. See also C. E. Nabuco de Araujo and H. S. Polin, "Industrial Utilization of the Coffee Plant," *News Edition, American Chemical Society*, Aug. 25, 1941, pp. 877-81.

with Brazil's destruction program, were scheduled for completion in 1942. However, early in 1943 the one pilot plant in São Paulo, with an annual capacity of 50,000 bags, was not yet in regular operation. Difficulties have been encountered in the mechanical adaptation of the process.

If such an important industrial use of coffee should be developed, the whole aspect of the industry might be changed. Problems of surplus supply could be dealt with by utilizing poorer grades for nonbeverage purposes. Such use on any important scale, however, might discourage the lowering of coffee prices to consumers in countries now using very little coffee. It would introduce a complex array of factors into the coffee situation, for, as a raw material for industry, coffee would undoubtedly be highly competitive with a variety of other materials. It is much too early to forecast the prospects of "cafe-lite" as a competitor of the multifarious other plastics that the postwar world will have at its disposal.

OVERPRODUCTION

The persistence of excessive coffee supplies in relation to effective demand is a condition largely originating in Brazil. It is also primarily the problem of Brazilian growers, though the effects of a decade of surpluses in Brazil have been felt throughout the coffee world. In the 12 years 1931-42 over 75 million bags of coffee were destroyed, or enough to supply the consumption requirements of the entire world for three years. When an excessive number of producing trees resulting from an earlier overextension of planting, rather than unexpected bumper crops, became the underlying cause of oversupply, the market effects became lasting. Growers, always reluctant to abandon or destroy trees that require several years to bring to bearing, clung to hopes that, as many times before, conditions would be set right by unforeseen events. Unfortunately, the conditions grew worse rather than better.

Brazilian price-supporting schemes in the interwar period stimulated production not only at home but in other coffee-producing countries of Latin America, Asia, and Africa. Production in Africa and Asia was further stimulated by the tariff

protection and preferential treatment accorded colonial coffees in the metropolitan markets. Such protection was introduced or increased about the time Brazil's situation became most acute, and accentuated the difficulties that reached a climax during the world economic depression of the early 1930's.

Brazilian coffees, long the major portion of the world's supply, are considered by the trade in a class quite apart from all other coffees. Although not with strict accuracy, the coffees grown in all countries outside Brazil are classed as "milds." So-called mild coffees are considered better in quality, sell at higher prices, and, though available in smaller volume, offer Brazilian bulk coffees quality rather than price competition. Milds are commonly used to impart flavor to blends predominantly composed of various Brazilian growths. Over several decades, their importance in world trade and consumption has grown even more than their importance in world production.² This is the most significant aspect of the decline in the dominance of Brazil in the world's coffee trade.

Because of the superior quality of much of the output outside Brazil, and because of the artificial price differential prevailing over extended periods between Brazilian and other coffees, the burden of the world-wide tendency toward expanding coffee production fell most heavily on Brazilian growers. In general, the mild coffees found ready markets, and the excess capacity for production accumulated in Brazil. Non-Brazilian producers profited as Brazilian coffee fell into the position of making up the difference between world coffee consumption and the production of mild coffees.

This second major problem of the coffee industry, overproduction, is solvable, and was, in fact, approaching solution at the outbreak of World War II. In the natural course of events, depressed or unprofitable coffee prices discourage new planting until production is brought into adjustment with consumption. In the past the Brazilian industry has always come back, owing to the persistent growth in world consumption and fortunate circumstances of weather. The saying in Brazil that "God is a

² Non-Brazilian production, though almost doubling during the interwar period, remained at slightly over two-fifths of world output. Non-Brazilian exports, however, rose from around 38 per cent of the world total in 1919-23 to approximately 46 per cent in 1934-38.

Brazilian" reflects an unquenchable faith that, even when controls break down, events will occur to rescue the industry from critical situations. Rain or frosts have come, as needed, upon numerous past occasions. Hence voluntary adjustments by growers themselves tend to be slow and delayed as long as possible.

When the economic forces working toward adjustment between world coffee production and consumption are not permitted to operate, or are influenced or modified by measures of state intervention, another retarding factor is introduced. Controls need not be a retarding influence, but usually they are, chiefly because they are fostered to protect special interests. They provide a temporary form of relief, but soon become an important factor contributing to later difficulties. Brazil's surplus problem of the past decade can be attributed to the coffee policies followed during the previous decade.

WARTIME CONTROLS

Late in 1937 Brazil abandoned the price-supporting measures that had been employed in one form or another over a long period of years, and adopted a new trade policy of free competition. When coffee control was first tried in 1906, Brazil supplied four-fifths of the world market. By 1937 Brazilian coffee accounted for only half of aggregate world exports, and almost 57 million bags of coffee had been destroyed since 1931. Before the Brazilian export tax was reduced from 45 to 12 milreis per bag in November 1937, the Santos No. 4 grade was selling for $11\frac{3}{8}$ cents a pound in New York. After the adoption of the new policy, prices in December averaged $8\frac{1}{2}$ cents. The average price in the same market for the whole of 1938 was $7\frac{3}{4}$ cents; in 1939 it was $7\frac{1}{2}$; and in 1940 slightly over 7 cents.

The fall in coffee prices, following abandonment of price-supporting measures, enabled Brazil to regain some of the export business which had been lost to countries producing mild coffees. But competition was intensified, and the outbreak of war in Europe in 1939 threatened to close the second largest coffee market. Producers attempted to dump on the United States market coffee that could not be sold in Europe under war

conditions. In 1940 prices of both Brazilian and mild coffees fell to the lowest level in two decades. The situation confronting the coffee industry seemed to call for some type of controlled marketing if further demoralization was to be avoided.

The Inter-American Coffee Agreement, worked out late in 1940, became effective on April 15, 1941 retroactive to October 1, 1940. Fourteen producing countries of Latin America and the United States, practically the only market remaining, were parties to the pact. It set up a system of basic quotas for exports from each producing country and imports into the United States as well as into other markets not closed by the war. United States sponsorship of this agreement was impelled by the evident need of averting or alleviating economic distress in the coffee-producing countries, and of winning their adherence to Pan-American solidarity against the Axis powers.

Under the Inter-American Coffee Agreement the downtrend of coffee prices was strikingly reversed; within a year they had doubled. Developments during the war have necessitated important modifications in the operation of the Agreement, and the United States is faced with shouldering a large share of the burden of the wartime coffee surplus. The ultimate outcome cannot yet be predicted, but it is not too early to examine the experience to date and the direction in which it is leading.

While designed initially to meet an immediate crisis due to war dislocations, the Agreement was also viewed as a mode of attack on the underlying problems of the coffee industry. Accordingly, the experience under this international agreement merits careful appraisal with reference to the significance and utility of some such control in the postwar world.

Conceivably, solution of the wartime problem may point the way toward solving the recurrent peacetime problems of coffee. Inherent supply-demand maladjustment and excessive producing capacity are both problems susceptible to at least partial solution through soundly conceived co-operative measures among producing and consuming countries. In the discussion of the world coffee economy in the pages that follow, special attention is given to those phases and features of the industry that have a particular bearing on its main problems.

CHAPTER II

COFFEE AS A WORLD COMMODITY

Coffee is one of the five so-called "enjoyment goods" of world importance.¹ Tea is consumed by a larger population, cocoa possesses a greater food value, tobacco is used more nearly universally, and wine is shipped in larger volume. By all measures of commercial importance, however, coffee ranks among these five as the premier enjoyment good. In the mid-1930's, despite the relatively low coffee prices at the time, world coffee exports ranked fifth among the foodstuffs important in international trade, being exceeded in value only by wheat, sugar, pork products, and butter. Both in volume and value, coffee was of greater importance in international trade than such raw materials as silk, copper, and tin.

In the international political sphere, coffee has a significance comparable with that of many basic foods and raw materials. It is of dominating importance in the agriculture and economic life of seven Latin American countries, and of secondary importance in many more. Wide use of coffee as a beverage in the United States and Continental Europe gives rise to an overseas trade which, if interrupted or unprofitable, creates problems of first magnitude in the producing countries with inevitable repercussions elsewhere.

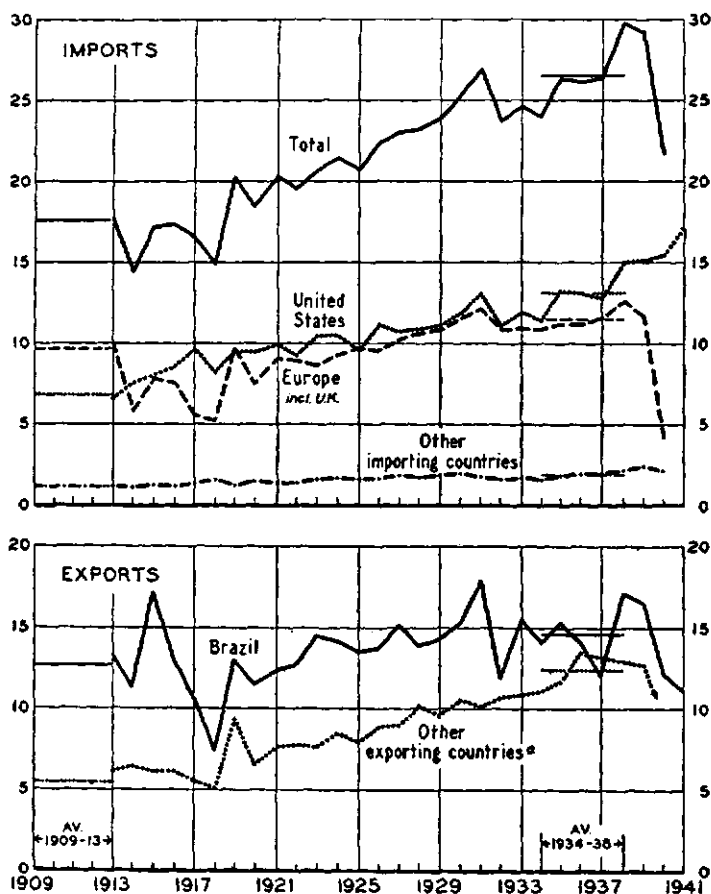
WORLD COFFEE CONSUMPTION

The United States and European countries accounted for over 90 per cent of world net imports of raw coffee in 1935-39, a slightly smaller proportion than in 1909-13 when aggregate imports were only two-thirds as large (Chart 1). Although coffee has been shipped in increasing volume to miscellaneous American, Asiatic, and African markets, growth in per capita

¹ Many types of alcoholic drinks are produced throughout the world for local or national consumption. Although important enjoyment goods, beer and distilled spirits enter very little into world trade. Similarly, numerous tropical plants furnish beverages used for their stimulating properties, but consumption is confined principally to natives in tropical countries. In addition to coffee, tea, and cocoa, maté and kola have attained some commercial importance.

consumption there has been slower than in Europe, and much slower than in the United States.

CHART I.—WORLD IMPORTS AND EXPORTS OF COFFEE, 1909-41*
(Million bags of 60 kg.)



* Data in Appendix Tables III, IV, and V. Horizontal lines represent averages for 1909-13 and 1934-38 respectively.

* Mostly exporters of mild coffees.

During the last three decades the positions of the United States and Europe in world coffee consumption have been approximately reversed. Before World War I something over one-third of world net imports were accounted for by the United

States, while Europe absorbed over half of all exports. In the five years immediately preceding the outbreak of World War II, Europe took over 40 per cent of the total and the United States nearly one-half. Broadly, but more accurately, the distribution of world coffee imports (net) for various periods is as follows:

Years	World total (thousand bags of 60 kg.)	Per cent of world total		
		United States	Europe	Other countries
1909-13 average.....	17,554	38.9	54.6	6.5
1924-28 average.....	22,134	47.6	44.6	7.8
1929-33 average.....	24,907	47.5	45.3	7.2
1934-38 average.....	26,534	49.3	43.4	7.3
1939.....	29,184 ^a	51.7	40.0	8.3
1940.....	21,638 ^a	71.1	19.2	9.7

^a Estimate of the International Institute of Agriculture.

After the closing of most European markets in 1940, and the effective elimination of all important ones in the following year, the United States purchased and consumed more Latin American coffee than ever before, at prices approximately twice those prevailing in 1940.

During the interwar period the composition of world coffee supplies, as between Brazilian and all other coffees, changed very little, but a large fraction of the Brazilian output was destroyed. Commercial blends were altered to include a higher proportion of mild coffees. In the years immediately preceding World War I, approximately 70 per cent of all coffee consumed was Brazilian coffee; in the late 1930's Brazils constituted only a little more than half the total (Chart 1). The gradual growth in preference for mild over Brazilian coffees has been one of the most impressive trends in world coffee consumption during recent decades.

Another significant trend is the relatively rapid expansion in coffee consumption in the United States, in contrast with the failure of European consumption to gain correspondingly. Proximity to producing areas and the absence of import duties and taxes on consumption, together with rising prices of liv-

ing and the tempo of life in the United States, contributed to this expansion. Low prices during the 1930's, importation of greater amounts of finer-quality coffee, and still further improvement in the quality of the beverage made, were other influences.

Until recently, the Scandinavian countries had a higher per capita consumption than the United States. In most other parts of Europe high tariffs, taxes, colonial import preferences, and relatively lower purchasing power have conspired to keep coffee beyond the means of the masses. Hence growth in consumption has been discouraged, and per capita consumption has remained at levels lower than in the United States.

In the years just preceding the outbreak of World War II, France and Germany were by far the most important European markets. Aggregate imports of these two countries constituted over half the total of all European coffee imports. Their per capita consumption, however, was lower than that of most of the Scandinavian and Low Countries (p. 68). Following France and Germany in order of importance were Belgium, Sweden, Italy, and the Netherlands. These four countries accounted for an additional 25 per cent of European coffee imports. Denmark, Spain, Finland, Norway, Switzerland, and the United Kingdom followed in the order listed (Table 1).

In the Americas only Argentina and Canada provide markets of much importance in addition to the United States. All of the coffee-producing countries of Latin America are known to be heavy consumers, but statistics that might show the level of intake in comparison with the leading import markets are largely lacking. The Union of South Africa and Algeria each normally absorb about the same amount of coffee as the United Kingdom—under 1 per cent of world net imports. Australia, New Zealand, Japan, and a large number of miscellaneous countries imported even less coffee, and in the aggregate they accounted for only 3 per cent of world imports.

For several centuries coffee drinking has been a custom predominantly of nationals of European origin. The British are the important exception. Europeans took up the habit of coffee drinking in the seventeenth century, about the same

TABLE 1.—NET IMPORTS OF COFFEE INTO PRINCIPAL CONSUMING COUNTRIES, 1929-38*

Country or countries	Thousand bags of 60 kg.		Per cent of world total	
	1929-33 average	1934-38 average	1929-33 average	1934-38 average
World total	24,907	26,534	100.0	100.0
United States	11,834	13,089	47.5	49.3
Europe and United Kingdom	11,268	11,503	45.3	43.4
France	3,087	3,077	12.4	11.5
Germany	2,387	2,762	9.6	10.4
Belgium	772	821	3.1	3.1
Sweden	738	801	3.0	3.0
Italy	720	618	2.9	2.3
Netherlands	658	599	2.6	2.3
Denmark	447	466	1.8	1.8
Spain	396	407	1.6	1.5
Finland	278	343	1.1	1.3
Norway	275	294	1.1	1.1
Switzerland	246	261	1.0	1.0
United Kingdom	301	236	1.2	1.0
Czechoslovakia	222	188	.9	.7
Other Europe	741	630	3.0	2.4
Other countries	1,805	1,942	7.2	7.3
Argentina	380	380	1.5	1.4
Canada	232	283	.9	1.1
Algeria	221	244	.9	.9
Union of South Africa	215	237	.9	.9
All other countries	757	798	3.0	3.0

* Data from Appendix Table IV.

time that tea and tobacco were introduced.² Coffeehouses, first opened in Constantinople and Venice, had been established throughout most of northern Europe by the middle of the century. Sometimes attempts were made to suppress them on the

² Earlier, by the opening of the sixteenth century, coffee drinking had become popular in Arabia. Despite religious objections that the beverage was intoxicating, the coffee-drinking habit persisted and soon spread to Egypt, Turkey, and other Mediterranean countries. The first recorded use of coffee, however, was as a food; later it came to be used as a wine, a medicine, a devotional refreshment, a confection, and finally as a beverage. The intrepid travelers of the sixteenth and early seventeenth centuries introduced coffee into Europe from the Near East. But the character of the beverage prepared in Europe was radically different. Eastern methods of brewing were soon discarded in favor of processes appropriate to the many types of coffee-making apparatus that were invented in England, France, Germany, and Italy. The resulting beverage made a far greater appeal to Western tastes. W. H. Ukera, *All about Coffee* (2d ed., New York, 1935), pp. 13-48, 623-28.

grounds that they were centers of sedition. But they continued to flourish despite heavy government taxes on coffee and the application of various measures restrictive of consumption. By the nineteenth century, taxes were less severe, planes of living had improved considerably, preparation techniques had progressed, and coffee drinking had increased enormously.

Today, in countries where coffee is outstandingly the popular beverage, as in northwestern Continental Europe and the United States, from 12 to 17 pounds annually are normally used for every man, woman, and child. Average consumption of the coffee-drinking adult portion of the population runs higher, equivalent to two or more cups a day. In some countries such as France and Germany, per capita consumption is considerably lower, even though the aggregate volume of imports is ordinarily very large. When some other beverage has a strong hold, as in Canada, Argentina, and the Union of South Africa, consumption per capita is only 3 to 5 pounds annually. When another beverage is even more strongly entrenched, as in Great Britain, per capita coffee consumption is far lower.

Estimates of annual per capita coffee consumption, in pounds, for selected countries during the 10-year period 1929-38, are given in the accompanying tabulation:

Denmark	16.6	Switzerland	8.2
Sweden	16.4	Germany	5.1
Norway	13.2	Argentina	4.2
United States	13.0	Union of South Africa...	3.3
Belgium	12.8	Canada	3.2
Finland	11.0	Spain	2.2*
Netherlands	10.1	Italy	2.1
France	9.8		

* Seven-year average, 1929-35.

Of these countries, Spain and Italy had the highest coffee duties or taxes during the period and showed the lowest per capita consumption. In 1937 various duties or taxes in these countries amounted to more than 35 (U.S.) cents per pound, a burden which, in terms of purchasing power, was much higher than it would have been, for example, in the United States.

Taxes on coffee, tea, and tobacco have long been a favorite

means of raising revenue in some countries. No European market has kept coffee consistently on the free list, though duties have usually been lowest in the United Kingdom, where per capita consumption during the period 1929-38 was only .7 or .8 pound annually. High taxes, combined with low purchasing power, help to explain the low coffee use in southern European countries, but not in the British Empire.

The United Kingdom ranks low as a coffee market, owing to the strong preference for tea as a hot drink. Coffee was the preferred drink of the British until about the middle of the eighteenth century, a historical fact to be remembered when it is common to overemphasize the inflexibility of consumer habits. It was, moreover, the London coffeehouses that popularized tea in England. The explanation of the shift doubtless lies, in large part, in the history of the Far Eastern ventures of the East India Company, which owed its greatest success to monopolization and development of the world's tea trade.³ As coffee drinking increased in popularity in Continental Europe, tea remained the preferred beverage in the United Kingdom, as it did also in Russia and most of the Orient. Moreover, wherever the British colonized, as in Australia and Canada, tea also became the favorite. In the Union of South Africa, however, the large Dutch element accounts for the relatively greater preference for coffee.

Coffee has an established place in the dietary of most users. It is not in fact a food, but it is commonly regarded as a food. Its unique flavor and aroma, and its contribution to one's sense of well-being, place it in a group of commodities that are prized and consumed for their value as stimulants. Except for cocoa, the enjoyment goods of world importance possess little or no nutritional value. Such as may be obtained from the consumption of coffee or tea is incidental, and is derived from the sugar, milk, or other additions served with the beverage.

³ "It constituted not only the world's greatest tea monopoly but also the source of inspiration for the first English propaganda in behalf of a beverage. It was so powerful that it precipitated a dietetic revolution in England, changing the British people from a nation of potential coffee drinkers to a nation of tea drinkers, and all within the space of a few years." W. H. Ukers, *All about Tea* (2 vols., New York, 1935), I, 67. For an account of the development of the tea trade of the East India Company, see H. B. Morse, *The Chronicles of the East India Company Trading to China, 1635-1834* (5 vols., Oxford, 1926-29).

All of the so-called enjoyment goods of world importance tend to be habit-forming. Hence, devotees have difficulty in finding substitutes, and higher prices, over the short term, have less immediate effect on consumption than they do for many foods. The average coffee consumer considers a certain minimum number of cups as a necessity, and only those over and above this amount are regarded as having sufficiently less utility to be omitted. It is not surprising, therefore, that habitual users of coffee tend to rank its continued availability as almost as important as the satisfaction of the basic want for food.

WORLD COFFEE PRODUCTION AND TRADE

Important as continued "availability" may be to the coffee consumer, "accessible" and profitable markets are even more important to the producer, and to nations heavily dependent upon the coffee industry. World coffee production, though still heavily concentrated in Brazil and secondarily in Colombia, reflects the agricultural efforts, and determines the economic results, of many nations or colonies in various parts of the world.

Three-fourths to four-fifths of the world's annual coffee crop is grown in three countries—Brazil, Colombia, and the Netherlands Indies. Four other Latin American countries—El Salvador, Venezuela, Guatemala, and Mexico—account for another 9–10 per cent of world output (Table 2). The remaining one-tenth or more of production comes mostly from numerous small countries or colonies in Latin America and Africa. The map inside the covers of this book shows the approximate location of most of the coffee-growing regions of the world and indicates the relative importance of each country in world production, based on average output for the period 1934–35 to 1938–39.

Changes in the relative positions of coffee-growing countries have not significantly altered the high concentration of world production in one part of the Western Hemisphere. However, over a longer period—since the beginning of the present century—the dominance of Brazil in the coffee world has become less marked.

During the past decade coffee crops have tended to increase in size in Central America and Mexico and to decrease in South

America. Even now, however, production north of Panama constitutes only 12-13 per cent of the world total, while roughly 75 per cent originates in South America. African production, at around 7 per cent, is now second in importance to American production, having more than doubled since the late 1920's. Asiatic output (chiefly in the Netherlands Indies) seems to be stabilized at approximately 6 per cent of the world total.

TABLE 2.—WORLD COFFEE PRODUCTION, 1929-40*

Continents and countries	Thousand bags of 60 kg.			Per cent of world total		
	1929-30 to 1933-34	1934-35 to 1938-39	1939-40	1929-30 to 1933-34	1934-35 to 1938-39	1939-40
World total	37,860	37,867	37,782	100.0	100.0	100.0
South America	29,633	28,347	27,832	78.3	74.9	73.7
Brazil	24,519	22,441	22,067	64.8	59.3	58.4
Colombia	3,545	4,154	4,450	9.4	11.0	11.8
Venezuela	940	988	800	2.5	2.6	2.1
Other	629	764	515	1.6	2.0	1.4
Central America and Mexico	4,389	4,898	4,933	11.6	12.9	13.1
El Salvador	1,000	1,013	1,117	2.6	2.7	3.0
Guatemala	749	919	917	2.0	2.4	2.4
Mexico	635	714	873	1.7	1.8	2.3
Other	2,005	2,252	2,026	5.3	6.0	5.4
Africa	1,371	2,138	2,600	3.6	5.6	6.9
Asia	2,377	2,381	2,317	6.3	6.3	6.1
Netherlands Indies	1,978	1,999	1,888	5.2	5.3	5.0
Other	399	382	429	1.1	1.0	1.1
Oceania	90	103	100	.2	.3	.2

* Data (from Appendix Table II) are for marketing years July 1 to June 30.

The consumer's ability to make a good cup of coffee, the merchant's skill and efficiency of operation, the government's commercial and fiscal policies, the grower's judgment in planting and preparing his crop for market, the state of domestic industry and employment, the behavior of the weather, the cost of ocean transportation, and literally dozens of other more or less important factors determine the course of international

trade in coffee, but perhaps nothing so much as the coffee policies of Brazil.

Brazil, though less important than formerly, remains the chief factor in this trade. In the five years before World War I Brazil's exports accounted for 70 per cent of the world total; in the five years immediately preceding the onset of World War II they constituted a little over half of the total. Thus, though the position of Brazil has gradually become less dominating since the turn of the century, it still far overshadows that of her nearest rival, Colombia. In the period 1909-13, Colombian exports were only 4.3 per cent of the world total; in 1934-38, they had grown so much more rapidly than Brazil's that they accounted for 14.2 per cent of the total. Today, these two countries dominate the international coffee trade. Together they ship over two-thirds of all the coffee exported to overseas markets. A summary view of the distribution of world coffee exports during the period 1934-38 follows:

Country	Thousand bags of 60 kg.	Per cent of total
World total	27,021	100.0
Western Hemisphere	23,316	86.3
Brazil	14,579	54.0
Colombia	3,831	14.2
El Salvador	903	3.3
Venezuela	794	2.9
Guatemala	788	2.9
Mexico	608	2.3
Haiti	463	1.7
Costa Rica	387	1.4
Other	963	3.6
Netherlands Indies	1,409	5.2
Kenya and Uganda	437	1.6
Madagascar	373	1.4
Other Asia, Africa, Oceania.....	1,486	5.5

The dozen countries specifically listed accounted for over 90 per cent of world exports. The "other" groups include 113 countries, colonies, or territories (including secondary exporters), only a few of which are of much importance. Ten Latin

American countries, six African colonies, two secondary exporters (the United Kingdom and the Netherlands), and one Asiatic colony—19 countries in all—accounted for 96 per cent of the world's coffee exports. Both the volume and general direction of this trade for the five years preceding the outbreak of World War II are shown graphically on the endsheet map.

COFFEE AND NATIONAL ECONOMIES

Persistent experimentation in Brazil with coffee-control schemes⁴ had a number of perhaps unforeseen results, not the least of which was the effect upon the economies of other Latin American countries. Until slowed by the huge world surplus and low coffee prices that prevailed throughout most of the 1930's, coffee production and exports in countries growing the better grades of mild coffee tended to expand rapidly. But in the course of this expansion, coffee came to dominate more and more the national economies of a number of Latin American countries. Thus, they were left in a position highly vulnerable to the changing fortunes of the coffee industry, and politico-economic relationships both within and without were given new or additional importance.

Coffee is one of the few commodities of world importance today that continues to shape the economic life of more than half a dozen nations. The vulnerability of countries largely dependent upon a single export crop or raw material has been demonstrated many times; hence, there has been a general tendency for nations to attempt diversification in agriculture and industry. Still, El Salvador, Colombia, Guatemala, Nicaragua, Haiti, Costa Rica, and Brazil remain primarily dependent upon coffee exports for the exchange that will permit importations of foreign-manufactured and semimanufactured goods. In addition, the British colony of Kenya in East Africa and Madagascar have also been heavily dependent upon coffee exports.⁵

Despite tendencies toward diversification of exports in most of these countries, and the drastic deflation of coffee prices from

⁴ See chapter x.

⁵ During the period 1931-35 coffee accounted for 38 per cent of the aggregate value of exports from Kenya, but in later years the proportion decreased considerably. Coffee constituted approximately 32 per cent of the value of all exports from Madagascar in 1938.

the 1929 level,⁶ coffee has continued to account for 30-90 per cent of the total value of all exports. This is indicated by the following tabulation in which coffee exports are expressed as a percentage of the total value of all exports:

Country	1929	1931-35 average	1938	1939
Brazil.....	71.0	65.9	45.0	40.0
Colombia.....	60.6	66.8	{54.4 {61.5*	{49.2 {63.8*
Costa Rica.....	62.1	66.7	48.7	51.1
Guatemala.....	76.6	71.5	61.8	56.3
Haiti.....	77.1	70.6	49.9	51.5
Nicaragua.....	54.3	46.5	{34.5 {46.9*	{31.8 {55.1*
El Salvador.....	92.6	93.5	86.9	83.7

* Calculated by excluding exports of gold. In other instances gold movements were of slight consequence.

The contrast of most significance is between Brazil and Colombia. Coffee production and exports increased during the 1930's in Colombia and declined in Brazil. Colombian coffee prices were also better sustained than Brazilian.⁷ The struggle with the coffee problem in Brazil and the rise in importance of other export crops, such as cotton, are reflected in the fall in value of coffee exports from 71 per cent of the total in 1929 to 45 per cent in 1938 and 30 per cent in 1941. The dependence of Colombia on coffee, on the other hand, has remained considerably greater.⁸

⁶ Coffee prices in the late 1930's were at a level less than half that prevailing in 1929. The decline over a decade was greater than that for any other commodity of world importance. The following figures, taken from the League of Nations, *Review of World Trade, 1938, 1939*. II. A. 11 (Geneva, 1939), p. 13, show the percentage decline in average gold export prices for a number of commodities between 1929 and 1938: coffee (Brazil), 80; raw silk (Japan), 79; cotton (United States), 71; copper (United States), 67; wool (Argentina), 65; sugar (Czechoslovakia), 64; rubber (British Malaya), 59; wheat (United States), 57; tin (British Malaya), 47; and tea (Ceylon), 46 per cent. But coffee prices in 1929 were abnormally high and were artificially supported by Brazil, so that when the deflation came they had a greater distance to fall. See pp. 157-60.

⁷ Chart 9, p. 145.

⁸ After 1933, exports of gold from Colombia rose spectacularly, but even if gold is included in the value of all exports, coffee continues to account for almost half the total (47.3 per cent in 1941). In 1929 gold exports accounted for only 4.1 per cent of the total value of all exports; since 1939 they have been more important than petroleum exports and about half as important as coffee, as indicated below (data in million pesos):

Commodity	1938	1939	1940	1941
Coffee	88.8	87.1	74.0	83.3
Gold	18.8	40.6	41.8	42.6
Petroleum	37.2	32.0	40.0	40.5

Over a longer period, the indirect effects of Brazilian coffee policy on the world situation and the economy of Colombia and other Latin American countries is clear. For example, in 1915 coffee accounted for about 45 per cent of the total value of Colombian exports; by 1939 the proportion had risen to 64 per cent of merchandise exports and 49 per cent of all exports (including gold). Similarly, coffee exports constituted 78 per cent of the total value of export trade of El Salvador in 1912 and 84 per cent in 1939, while the figures were 35 and 51 per cent for Costa Rica for the years 1913 and 1939 respectively.⁹ In some other Central American countries, the importance of coffee has tended to decline. For example, coffee accounted for 55 per cent of the total value of Nicaraguan exports during the period 1911-15, and thereafter rose in importance; but in the 1930's, along with bananas and woods, it became less important, as gold and cotton exports expanded. If it had not been for the expansion of gold exports, however, from about 4 per cent of the total in 1929 to 42 per cent in 1939, coffee would have had approximately the same importance that it had in 1913 and in 1929. Similarly, Guatemala has become less dependent upon coffee during the past decade or so; exports of bananas and chicle increased in importance while coffee declined.

The Latin American countries with a high degree of dependence upon coffee exports are in a singular position. Other coffee-producing countries are more important factors in the world coffee trade than some of those listed; but in the total trade of these other countries coffee is only one of many export items, and therefore of relatively minor importance.¹⁰ The changing fortunes of the coffee industry have much less effect upon countries so situated. Still other countries or colonies in different

⁹ Gold exports also became of some importance in these countries during the 1930's but not enough to create serious distortion in the figures, as in the case of Colombia and Nicaragua.

¹⁰ The Netherlands Indies normally exports more coffee than El Salvador; but rubber, petroleum, copra, sugar, tea, tin, tobacco, and similar products loom far larger in the Netherlands Indies totals, and the value of coffee exports is only about 3 per cent of the aggregate. Venezuela exports more coffee than Guatemala; but the value of exports of petroleum and derivatives far overshadows everything else, amounting to 93.3 per cent of the total in 1938. In 1929, however, prior to the expansion in petroleum exports, coffee accounted for 17.2 per cent of the total. Mexico exports more coffee than Haiti, but these exports accounted for only 3.1 per cent of the total value of Mexican exports in 1938. Products of mines and petroleum loom largest in Mexico's export trade.

parts of the world—usually poorly developed economically—are also heavily dependent upon a single export crop. Whatever the crop grown, a restriction of export opportunities has profound effects upon the domestic economy. The political repercussions, however, are ordinarily less pronounced, because most of these countries happen to be located somewhat off the main economic and political currents.¹¹

All of the Central and South American countries in which coffee is of first importance economically are within the zone of the United States vital interests focusing on the Panama Canal. The two leading coffee-producing and exporting countries of the world depend more upon the United States market than all others combined. The third coffee producer and exporter of the Western Hemisphere, El Salvador, not only “lives” very largely on coffee, but almost all of her exports to the United States are coffee. In short, coffee plays a part in the exports of at least 15 Latin American countries and a dominating role in seven, and is by far the most important single commodity imported into the United States from all of Latin America.¹²

¹¹ Thailand, French Indo-China, and Burma, for example, live largely on exports of rice, the basic food of the Orient; but only Thailand was an independent country before World War II, and was considered of little political importance to those controlling strategic spheres of influence. Similarly, the bananas of Jamaica, the cocoa of the Gold Coast, and the sugar of Mauritius, dominate the exports and economic life of these colonies but have small significance elsewhere.

¹² The five major imports (by value) from Latin America into the United States in 1939 were coffee, cane sugar, copper, bananas, and crude petroleum and semifinished oils. The war changed the composition of imports somewhat, eliminating bananas from the list of the first five, and adding raw wool after petroleum and semifinished oils.

COFFEE QUALITY AND CHARACTERISTICS

Coffee is by no means a homogeneous commodity. Although a beverage may be made from any coffee, in the commercial coffee world the product sold to the ultimate consumer is usually a blend. Blending is necessary to produce a desired flavor result in the cup, for the characteristics of different coffees vary widely and are best harmonized in this manner. Coffees differ in inherent characteristics and are further differentiated on a quality basis by the prominence of such characteristics. The character of the raw product depends in part upon variety and climatic and soil conditions, and in part upon cultural practices and methods of preparation for market. The character of the prepared beverage not only depends upon the character of the raw product used, but also upon the techniques employed in roasting and brewing. Thus, some of the factors affecting coffee quality are controllable, while others are not; but all bear on the industry's problems of production, influence consumption, and are reflected in coffee prices.

The most marked strides in the development of coffee as a beverage have been made in roasting and blending, packaging, and especially in brewing. In general, it may be said that consumption has been stimulated more by progress in preparing green coffee for final consumption than by improvement of the raw product itself. Coffeegrowing has not been influenced in any spectacular fashion by the progress of agricultural science. Yields of coffee, unlike those of rubber, sugar, and some other plantation crops, have not increased appreciably as the result of improvement in varieties by selection and breeding, or by better cultural techniques. In preparation for market, some progress has been made. The methods employed in preparing coffee for market influence appraisals of quality. So-called "washed" coffees, for example, are generally more highly regarded than unwashed coffees. Every factor that affects the character of the final product helps to determine the satisfac-

tion to be derived from coffee drinking, and thus influences the level of coffee consumption.

BRANDS AND BLENDS

Consumers the world over are the final judges of coffee quality. Although the trade may exercise an important influence in educating consumer tastes, the satisfaction derived from drinking coffee is purely an individual matter. Nowadays the consumer's problem is relatively simple: coffee quality is largely a matter of finding a brand of coffee that satisfies the taste and is, at the same time, convenient to purchase and use, and available at a price that can be afforded.

Most coffee sold at retail to consumers is identified in some fashion by a roaster's or distributor's brand name. Identification is commonly effected through the package or container in which the coffee is sold. Branding constitutes the coffee merchant's chief means of ensuring that his promotional sales efforts will benefit his own business to the exclusion of competitors. The broad objective of all merchandising effort is to fix in the consumer's mind a definite association between satisfaction from coffee drinking and a particular brand of coffee.

Almost all brands of coffee are blends of different kinds of coffee; relatively few consist of a single type. Coffee is not just coffee, either to the trade or to most consumers. Consumer distinctions between coffees may be based upon taste preferences, and purchases may be motivated by habit, convenience, price, and other considerations. The trade, however, must translate taste distinctions into kinds and proportions of coffees in a blend necessary to produce a given result in the cup. Some coffees are characteristically strong in flavor, some are mild, some have a finer aroma than others, some have a better appearance, and so on. All of these characteristics are described by a trade jargon that helps to identify any particular lot of coffee as to its commercial utility,¹ and therefore more or less establishes a value for it in relation to all other kinds and grades of coffee.

¹ In describing coffee flavor such terms as "bitter," "mild," "astringent," "harsh," "mellow," "pungent," "neutral," "dry," and "rancid" are used. Such terms as "strictly soft," "soft," "hard," and "Rioy" are also used in describing Brazilian coffees.

SPECIES, VARIETIES, AND TYPES

A large number of different kinds of coffee enter the United States, and innumerable grades find their way into the blends that are sold under a wide assortment of brand names. Most of the world's coffee—probably more than 90 per cent of all coffee consumed—is of the *arabica* species. Of some two dozen others, only *robusta* and *liberica* are of any commercial importance. There are numerous varieties within the different species of *Coffea*, and the characteristics of these varieties are different when they are grown under the different conditions prevailing in the numerous coffee-growing regions of the world. Hence, the relatively large number of different kinds or types of coffee bear names usually associated with the place grown or port of export.

The three main species of coffee differ not only in appearance, resistance to disease, and place grown, but, most important, in flavor. *Arabica*, by far the most important commercially, is grown in nearly all of the Western Hemisphere as well as in parts of Africa and Asia (Ethiopia, Kenya, Arabia, and to some extent in the Netherlands Indies), usually at elevations of 2,000–5,000 feet. *Robusta* and *liberica*, both cultivated for the first time in relatively recent decades because of their resistance to disease and pests, are grown mostly in low, hot country (2,000 feet down to sea level), where *arabica* does not thrive.² Over 90 per cent of the production of the Netherlands Indies is now of *robusta*.

Coffea arabica is a rather small evergreen tree or shrub, indigenous to Abyssinia or Arabia, which seldom exceeds 20 feet in height when full grown. In Brazil, where coffee trees are more numerous than in any other part of the world, the average height attained is about 8–10 feet. Each tree flowers three or four times during a year, but in that country the September–October flowerings are most important as the berries mature at the most favorable time for harvesting. The small

² *Robusta* has a rather neutral, flat taste and is used chiefly as a filler in cheaper coffees. *Liberica* coffee tends to be a small-holder's crop, and is usually found in countries with a limited labor supply. The berries of *liberica* varieties do not fall from the tree when ripe, and hence may be left for picking when desired. This is an advantage when extra help for harvesting is not readily available. Both *robusta* and *liberica* must compete in the world market with the lower-grade coffees of Brazil and other countries.

and very fragrant white blossoms create an impressive picture, which is, however, short-lived. Under favorable conditions coffee trees blossom and bear fruit simultaneously, different parts of the same branch having flowers, green fruit, and ripe fruit at the same time. This is not so common in higher and drier regions (Costa Rica and Guatemala, for example) where there tends to be only one blossoming season.

The fruit of the coffee tree resembles an ordinary cherry, and assumes a dark red color as it ripens, about seven months after blossoming. Beneath the skin of the berry is a yellowish pulp in which two seeds are imbedded, the seeds themselves being enclosed in a thin, parchmentlike endocarp. These semitranslucent greenish or bluish seeds are the raw coffee beans of commerce. They tend to be rounded and oval-shaped on one side and flat on the other, the hard flat surfaces of the two beans being laid against each other, as the berry grows.³ In preparation for market, the coffee berry is processed by drying or washing so that the beans become free of their outer covering. After drying, cleaning, and grading, the raw or green beans are bagged for shipment overseas to consuming centers. There the green beans are in turn roasted, usually ground, and packaged for distribution to ultimate consumers.

Although most coffees grown in the Western Hemisphere are *arabica*, the trade makes a broad distinction between coffees produced in Brazil and all other coffees. The terms "Brazils" and "milds" are commonly used, though such a general classification is somewhat inaccurate. All coffees grown in Latin America outside of Brazil and all coffees grown in the Eastern Hemisphere, regardless of species or variety, fall into the "mild" category under this broad classification.

Coffees are also described as "hard" or "soft." In Brazil the hard flavor characteristic is associated with most coffees grown in the vicinity of Rio de Janeiro and Victoria, and the soft characteristic with coffees grown mostly in the premier

³ For a more precise and detailed description of the coffee plant and its fruit, see Ukers, *All about Coffee*, pp. 269-91. This is a bulky but interesting volume containing much information on the historical, technical, scientific, and commercial aspects of coffee. Unfortunately, it is not adequately indexed. On the botany of coffee, see also R. H. Cheney, *Coffee: A Monograph of the Economic Species of the Genus Coffea L.* (New York, 1925), Part I.

coffee-producing state of São Paulo and exported through the port of Santos.

Further distinctions are made within each of these categories. The soft Santos coffees are generally considered the best grown in Brazil. As a group, they are the ordinary or medium-quality and medium-priced coffees of world commerce. They are mellow and somewhat sweetish, in contrast with the more acid coffees known as milds. São Paulo coffee, and much of that grown in Minas Geraes, has the soft-flavor characteristic. Coffees shipped from Santos, regardless of their origin, are usually known as Santos coffees, and "Santos coffee" has come to mean, generally, soft coffee. Of the Santos coffees the best is that known in the trade as "Bourbon," obtained from the first few harvests from trees grown originally from "Mocha" seed. After the trees have borne for a few years, the fruit changes form and flavor characteristics. The berries from the same tree are then sold under the name of "Flat Bean Santos." Bourbon Santos is considered the most satisfactory low-cost blending coffee, as it can be used with most higher-priced milds to reduce the cost of the blend and still impart the characteristic flavor desired by the average consumer. Another Santos coffee, termed "Harsh Santos," commands a lower price and sometimes has characteristics of the hard Rio coffees.

Of the hard coffees, those produced in Brazil are the low-quality and low-priced coffees of commercial importance. The varieties of *robusta* and *liberica*, which also belong to this group, are grown on a much smaller scale, mainly in the Eastern Hemisphere. Hard Brazilian coffees have a very penetrating flavor. A small proportion of such coffees will alter the character of a large lot of soft coffee. The cheaper Rios and Victorias are not much in demand in quality coffee markets or even in mass coffee markets such as the United States. The trade description of a hard flavor is that it has a peculiarly rank characteristic.

Before the turn of the century Rio de Janeiro was the world's largest coffee-exporting city. It relinquished its leadership to Santos about 1901. When Brazilian exports consisted far more largely of hard coffees, the trade distinction between Brazils and milds became established. It has continued, but the com-

parisons implied are less significant today, because hard Brazilian coffees are relatively unimportant in the world's leading markets. There are some, however, who contend that certain consumers "wish and expect to find in coffee the 'Rio' taste." Regray believes that coffees exported from Rio, Victoria, Bahia, and Pernambuco have a particular clientele in the Mediterranean Basin (Morocco, Algeria, Tunisia, Egypt, Turkey, and the Balkans) as well as in certain regions of northern France, Belgium, Germany, and the United States.⁴

Brazilian authorities now maintain that the so-called "Rio flavor" is "not due to any peculiarity of the soil or climate, but is merely the result of an easily preventable fermentation; so much so, that coffee entirely free from 'Rio flavor' has been obtained with adoption of simple and inexpensive measures designed to prevent such fermentation." However, the Departamento Nacional do Café also states: "Rio coffee has a peculiar, rank flavor and a heavy, harsh taste which traders in the United States do not favor, either straight or in blends. However, its low price recommends it to some packers for their cheapest blends."⁵ Independent investigations carried out in Costa Rica are said to have confirmed that the "Rio flavor" is not due to the nature of the soil, and that it is possible to produce soft coffees in regions hitherto well known for harsh coffees.⁶ Considerably more than half of Brazil's coffee production falls into the "ordinary" class, but a small part compares with growths produced in other countries whose coffees are classed as mild.

So-called mild coffees have none of the rankness of Rio coffee; they are distinctly strong and acidic in the desirable sense, usually possess a much finer aroma and appearance, and go further in the cup.⁷ They bring a better price than either hard

⁴ Léon Regray, *Brésil-Café*, 1934, quoted in W. Bally, "Recent Efforts for the Improvement of Brazilian Coffee," *International Review of Agriculture*, January 1937, XXVIII, 15 T). Something very similar to the so-called Rio flavor is also found in coffees grown under less favorable conditions in the mild-producing countries.

⁵ *Brazil Coffee in Word and Picture* (Rio de Janeiro, n.d.), p. 28; see also Bally, *op. cit.*, pp. 13-21 T.

⁶ Bally, *op. cit.*, pp. 17, 20 T.

⁷ Compared with Santos coffee, for example, good-grade Colombians not only give more strength, better flavor and aroma in the cup, but produce about a fourth more liquor. The caffeine content is very high, always higher than other coffees, and varies from 1.12 per cent in Boyacas to 3 per cent in Medellín. International Institute of Agriculture, *Coffee in 1931 and 1932* (Rome, 1934), p. 138.

or soft Brazils. Of the world's coffee supply, the high-quality portion consists of the mild varieties of *arabica* produced in Colombia and other Central and South American countries, plus the smaller output of Arabian coffee and some of the produce of African colonies such as Kenya.

Among coffees classed as milds, the variations in characteristics are even more marked than those found among Brazilian coffees. Although Colombia is the chief producer of high-quality mild coffees, other countries grow as fine or finer coffees, but since the output of these countries is not large, only a relatively small number of coffee brands contain the finest coffees obtainable. For a long time Mocha coffee from Arabia has been regarded as best, but very little is available. The British regard certain coffees from their colonies as the best obtainable. Some coffee interests in the United States consider high-altitude growths from Costa Rica or Guatemala to be the best, while others prefer the *Medellíns* of Colombia or the local produce of other countries when available commercially. Most Latin Americans consider particular coffees grown in their own countries as superior to all others. But the output of many countries classed as producers of milds is not highly regarded in foreign markets, though the supply available for export is usually so small that a market somewhere in the world is readily found in normal times. Some coffees, like Mocha or Kona from Hawaii, command premium prices partly because of their limited supply and "romance appeal."

Mild coffees are identified not only by country of growth but also by region within the country or by port of shipment, just as Brazils are similarly identified. Thus, for example, Colombian coffees are known as "*Medellíns*," "*Manizales*," "*Bogotá*s," "*Bucaramangas*," and so on. In this case, the type name is indicative of a quality ranking. In other cases involving smaller countries, some kind of a grading system tends to displace regional designations, and coffees may be known by the country of production plus specifications such as "high-grown," "washed," "naturals," "hard-berry." However, the most important coffees in world commerce are identified both by region and by grade. The coffee trade thus concerns itself not only

with a great number of different kinds⁸ of coffee but with a far greater number of grades.

CUP QUALITY AND BLENDING

The price the consumer pays for a pound of coffee is a rough measure of the quality of coffees that go into the blend. Each kind of coffee has its distinguishing characteristics, and each lot commands a price that depends upon its value to importers, roasters, and distributors. But commercial grade may have little or nothing to do with the cup or drinking quality of a coffee, for grading is based on such factors as size of bean, and the number of defects and impurities.⁹ Thus, a coffee classified as well up the grading scale may have poorer drinking qualities than one further down the scale. Important factors affecting coffee quality, in addition to bean size and imperfections, are soil, altitude, and care in drying and preparation. Before the turn of the century most coffees imported into the United States were appraised largely upon the appearance of the green or roasted bean. Coffee can be graded for such characteristics but not for taste or cup quality. It is therefore necessary, and is standard practice today, for both buyers and sellers to employ a cup test to determine the merits of particular lots of coffee.

The composition of any given blend (brand) of coffee is usually a closely guarded trade secret. It is apparent, however, that the coffee merchant has considerable latitude in varying his formula as conditions dictate.¹⁰ Changing price differentials between coffee types or grades may require changes in the formula from time to time. Generally, such changes will be

⁸ See Ukers, *All about Coffee*, pp. 212-32, for a listing of the principal kinds of coffee grown in the world together with their trade values and cup characteristics.

⁹ See pp. 43-44.

¹⁰ Although some brands consist of a single type of coffee, perhaps with different proportions of grades within the type, most are blends of two or more types with perhaps several more grades. Ukers (*op. cit.*, pp. 251-52) gives a few examples of the composition of blends found in the United States. Low-priced blends may be 50 per cent washed Robustas and 50 per cent Colombian Consumos, or half Santos 6's and half Colombian Consumos. Medium-priced blends may be half medium-grade Bourbon Santos 4's and half Colombian Girardots, or one-third medium-grade Bourbon Santos 4's, one-third Colombian Consumos, and one-third Cúcuta Maracaibos. First-quality blends may be 40 per cent high-grade Bourbon Santos and 60 per cent Colombian Medellins; or 40 per cent high-grade Bourbon Santos, 40 per cent Colombian Medellins, and 20 per cent old-crop washed Maracaibos. Highest-priced blends may consist of one-third Colombian Medellins, one-third old-crop washed Maracaibos, and one-third acid Mexicans, or two-thirds fancy Ankolas and one-third Mochas.

undertaken for the purpose of adjusting cost factors without creating any noticeable change in the cup quality of the blend. Cup testing, performed by expert coffee tasters, is essential to arriving at just the right combination of coffee and of roasting and grinding techniques necessary to produce the desired result in the cup.

Despite the wide variety of coffees available, the coffee merchant sometimes finds it difficult to maintain a blend formula from year to year. Changing price differentials between types or grades of coffee are a reflection of numerous influences. Standard good brands of coffee in the United States are a blend of 15-40 per cent of mild Colombian or Central American coffees with good Brazilian coffees. High-quality brands are blends of milds and may contain no Brazilian coffee, while the cheapest coffees may consist entirely of Brazils. Except for Colombians, the supplies of other mild coffees are relatively small; yet the variations in characteristics important to the blender are greater than those among Brazilian coffees. Hence, when weather or conditions of preparation vary enough to affect the quality of the season's output, the merchant using certain Central American coffees in his blend may find it necessary to shift to a different type and supply source because of the limited quantities of high-quality blending coffees available during a particular season. The buyer of Brazilian coffees, on the other hand, may find it feasible merely to shift to another grade of coffee from the same supply source.

Since the milds in any blend of coffee are chiefly responsible for the body, flavor, and aroma of a brand, it is especially important to the coffee merchant that the premium coffees for blending with ordinary grades be available in the desired quantities and at prices that permit him to keep his over-all blend cost at or near a predetermined figure. When a short supply of the necessary blending coffees or an abnormal demand forces the price upward, the coffee roaster first seeks alternatives in coffees of similar characteristics. Failing in this, he must make the closest approach possible under conditions of prevailing price differentials. This usually means altering the proportions of the various coffees used in the blend.

In practice, the coffee merchant's formula for an established brand is never rigidly fixed. The changes in blend composition necessitated by variations in availability and price of blending coffees has little short-term significance except to the merchant. Over longer periods, however, cyclical changes in supply and prices induce significant modifications in consumption. If the changes in blend composition were sudden rather than gradual, the consumer might be able to detect differences in his favorite brand. The favorable or unfavorable effects upon the demand for one brand have limited significance to the coffee industry as a whole. But a general tendency in important consuming markets for coffee merchants to use better-quality or poorer-quality coffees because of price considerations does have an undeniable influence upon consumption habits and hence upon demand and international trade.

Roasting, blending, and grinding techniques should impart additional values to the green coffee available. Methods of packaging and merchandising should maintain those values in the product that reaches the ultimate consumer. Unfortunately, processing sometimes detracts from the qualities inherent in the green coffee, and distribution methods fail at times to preserve freshness in the roasted product. When this happens, all the care in growing and preparing green coffee for market is wasted. But even when all of the factors affecting coffee quality, from seed on the plantation to the package on the retailer's shelf, are under control, and when the best possible product is available to the consumer, there is no assurance that the quality of the prepared beverage likewise will be high. If the consumer cannot brew a good cup of coffee, the coffee industry has failed in its job of demand creation. So important is this aspect of the subject that it is considered separately in chapter vi.

CULTIVATION AND PREPARATION FOR MARKET

Coffee is grown in many parts of the tropics and subtropics and even on the fringes of the Temperate Zone. All species require a warm, moist climate, frost free with abundant rainfall. *Coffea arabica*, however, is less able to withstand extremes of climate than some of the more rugged species. It tends to be a typical highland crop, grown at altitudes from 2,000 to 5,000 feet or more, the upper limit being set by low temperatures and transportation difficulties. Nevertheless, so many regions found between 25° N. and 30° S. latitude possess the requisite conditions of heat and humidity, as well as rich, well-drained soil, that there appears to be abundant scope for expansion of the world coffee output.

The mild *arabica* coffees produced outside Brazil tend to be high-grown and washed. In general, crops produced at the higher altitudes and prepared for market by the "wet" method have the best quality. Although the coffee tree requires a hot climate, it does not need the full intensity of the sun. Permanent shading is practiced in many tropical growing regions, especially at the lower altitudes. Such protection is ordinarily provided by planting other trees alongside or between rows of coffee.

São Paulo, the Brazilian state that leads the world in coffee production, lies partly in the Temperate Zone. Average elevation of the coffee districts is between 1,500 and 3,000 feet above sea level. Shading is not considered necessary. In contrast, the coffee regions of mild-producing Colombia are found at altitudes between 3,000 and 6,500 feet. Shading is customary except at the high altitudes, the guamá and several types of acacia trees commonly being used for this purpose. Colombian coffees are mostly washed, whereas Brazilian are largely unwashed, prepared for market by the "dry" method. Similar, but less striking, contrasts are to be found within the smaller producing countries or colonies.

RAINFALL, TEMPERATURE, AND SOIL REQUIREMENTS

Coffee is grown in parts of Brazil with as little as 40 inches of rain annually, and in other parts of the world with as much as 120 inches. The important consideration is distribution. Generous, regular rain, followed by a strong sun, is desirable while the berries are maturing. At harvest time, and thereafter during preparation for market, dry weather is best. An annual precipitation of less than about 40 inches necessitates irrigation, as in Arabia and Ethiopia, whereas over 120 inches usually indicates the lack of a dry season. Average annual rainfall in the principal coffee-growing regions of Brazil is about 59 inches; in Central America it is somewhat higher (about 70 inches).

Most coffee is grown where the annual average temperature range is between 63° F. and 77° F., but the ideal range is said to be 65° F. to 75° F., or as close to 68° F. (20° C.) as possible. Temperatures as low as 59° F. and as high as 86° F. (15°–30° C.) are not prohibitive but do not permit the best development of the berries.

The interaction of high temperature with other conditions, particularly high humidity, sets the equatorial limit of coffee production in tropical regions the world over, where rainfall is adequate, at the 27° C. (80.5° F.) isotherm for the warmest month of the year The cold limit for coffee production corresponds most closely with the 13° C. (55° F.) isotherm for the coldest month. In some lands, like Brazil, this approaches the annual isotherm of 20° C. (68° F.), which does not hold good for conditions in a number of other countries. . . .¹

Coffea arabica is tolerant neither of frost nor of drought. Frost "scares" are a common occurrence in Brazil, especially in São Paulo, southern Minas Geraes, and Paraná, but apparently only in a few years (1850, 1870, 1886, 1902, and 1918) was damage to the trees really severe. The worst frost since 1918 occurred in 1940, inflicting considerable damage to trees in São Paulo and Paraná. Comparatively rare though they are, cold winds and frosts, lasting only a few hours, have had an important direct influence on the fortunes of the coffee industry in Brazil, and indirectly on the world coffee situation.

¹ Olof Jonasson, "Natural Conditions for Coffee Culture," *Economic Geography*, October 1933, IX, 359–60.

Since rainfall is perhaps the most important climatic factor in coffee production, dry spells, especially during flowering or while the crop is maturing, are likewise to be feared because of their damaging effects on the crop. The drought that occurred in the state of São Paulo in 1940-41 was characterized officially as "one of the most calamitous of any in the memory of man in that region."²

The coffee tree makes exacting demands upon the soil; yet "no conclusions or generalizations can safely be made regarding the soil requirements of coffee in various producing regions."³ A deep, porous, and permeable soil, and a rich mixture of disintegrated volcanic rock and decomposed mold, appears most nearly to satisfy the plant's requirements. In Brazil, best results are obtained from growths on the reddish, clayey soil of volcanic origin known as *terra roxa*. Some of the best coffee lands of Colombia, Central America and Mexico, Java and Sumatra are found in regions with rich loamy soils of volcanic origin.

Rich, moist soil produces a large yield but no quality. Dry uplands produce better quality but inferior style and small berries. Coffee grown on lower ground, even at almost sea level, often has good appearance, with larger and more regularly formed berries. Such coffee is often of good strength, but very lacking in flavor and aroma, and will not class as high grade. Higher ground, that from three to five thousand feet, usually produces high grade coffees, such ground being usually table lands or "benches," and sometimes steep mountain slopes.⁴

Other natural conditions also influence coffee culture. Rolling land or hills are better than valleys as sites for plantations, for they avoid too much sun exposure and facilitate drainage. Ample running water is a great advantage and is necessary for the wet method of removing the coffee beans from the harvested berries. The absence of strong winds is another advantage. Shelters or windbreaks must be provided in many areas to protect the trees during the blossoming and maturing period.

² J. F. Guedes, *Brazil Coffee in 1941* (Report submitted on April 30, 1942 to the Advisory Council of the National Coffee Department by its President, Rio de Janeiro, 1942), p. 45.

³ Jonasson, *op. cit.*, p. 362.

⁴ F. N. Foot, *Coffee the Beverage* (New York, 1925), p. 48.

METHODS OF CULTIVATION⁵

Coffee plants are usually grown from seed either in the position they are to occupy as producing trees or in seedbeds for later transplanting. When seeds are planted "at stake," i.e., in the position they are to occupy permanently, as is commonly done in Brazil where the plantations are large, several are sown to a hill, and the hills may be anywhere from 6 to 14 feet apart. Usually all but the strongest plants are removed after germination. In this case, one hill (two to four trees) may be known as one coffee tree for statistical purposes.⁶ When seeds are sown in a seedbed, as is the more common practice in Colombia and Central American countries, the seedlings are usually transplanted to a nursery where they are allowed to grow for about a year, or until they are 1 to 1½ feet high, before final transplanting to the plantation. In either case, some shading is necessary for the young plants, and careful selection of seed to be planted is of utmost importance in assuring successful propagation.⁷

Coffee trees begin to bear within three to five years from seed, but do not produce in commercial quantities until the sixth to eighth year. Thereafter good yields of 1 to 3 pounds per tree are secured until about the fifteenth year. With some exceptions, the productivity of the tree then begins to decline, and crops usually become unprofitable before the close of the tree's 30- to 40-year productive cycle.⁸ Yields per tree may range any-

⁵ The practical aspects of coffeegrowing are discussed in various planters' handbooks or manuals available for most of the important coffee-growing countries. A few general references on coffeegrowing in different parts of the world are: E. G. Windle, *Modern Coffee Planting* (London, 1933); J. H. McDonald, *Coffee Growing with Special Reference to East Africa* (London, 1930); Frédéric Martin, *Le Cafèier—Principes techniques et économiques de la culture de cette plante* (Paris, 1938); and République d'Haïti, Service National de la Production Agricole et de l'Enseignement Rural Bull. 12, *Le Café au Salvador et au Guatemala* (Rapport sur un voyage d'études dans ces pays par M. Monfils, agronome en chef, Port au Prince, Haïti, 1938).

⁶ Such is the practice in São Paulo. In Brazil three to six trees to a hole are "no rarity," but in many countries a single tree is planted to each hole.

⁷ In some places catch crops planted between rows of coffee provide the necessary shading. They also provide the farmer with additional food or income, but catch crops tend to deplete the soil and generally their planting is not encouraged. During periods of depression, however, tenants and unemployed laborers are sometimes forced to resort to interplanting. This occurred in Brazil in the early 1930's on a considerable scale (p. 92).

⁸ In Asiatic countries bearing begins earlier than in Brazil, crops are fully mature in 7-10 years, and the period of profitable production may be up to 30 years. Paying crops have been obtained in Brazil from trees 20-30 years old, but this apparently is not so common.

where from $\frac{1}{2}$ to 8 pounds, depending upon variety, age, weather, cultural practices, and so on.⁹ A yield of 1–2 pounds of dry coffee per tree is generally considered satisfactory. In Brazil the average yield of cleaned coffee per tree runs a little over 1 pound, but individual trees occasionally yield as much as 12 pounds or even more.

If allowed to grow naturally, coffee trees may attain a height as great as 40 feet, but often they are topped at anywhere from 5 to 15 feet. Topping increases the bearing of the lateral branches and also keeps the trees down within reach of the pickers. Pruning is likewise considered desirable if the strength of the tree is to be conserved for producing coffee rather than for growing wood. Several systems of pruning are employed, representing different ideas as to the most profitable practices under given conditions. The three main ones are the single-stem system (Kenya), the *Agobiada* (plants are bent over and pegged down when the tree is about one year old), and the multiple-stem (Costa Rica).¹⁰ In Brazil, however, it is common only to prune the useless sprouts, and little effort is made to keep trees low for picking.

Aside from annual pruning, cultivation may be limited to weeding. In Brazil weeding is done two to five times a year. The extent of hoeing, plowing, fertilizing, and similar cultural practices depends not only upon local needs but upon the availability and cost of labor, equipment, and fertilizing materials. There are wide differences of opinion on the appropriate choice and use of manures, not only within but among the various coffee-producing countries.

When trees have been planted on virgin soil, little fertilizer is employed until they begin to bear. The older they become, the more potash, nitrogen, and phosphoric acid are taken from the soil and the greater is the need for restoring these elements by the use of natural or commercial fertilizers. Decomposed weeds, leaves, and prunings, leguminous plants, pulp from coffee cleaning, natural manures, wood ashes, bone and fish meal,

⁹ For a discussion of yields and the factors affecting them, see chapter viii.

¹⁰ For a description of each practice, see International Institute of Agriculture, *Coffee in 1931 and 1932*, pp. 167 ff.

oil cake, and commercial fertilizers are all used. Chemical fertilizers are gradually being introduced, especially in Brazil, but in most coffee-growing regions manuring is limited to the use of organic matter of animal or plant origin. Government agronomists in Colombia favor the use of coffee pulp that is otherwise wasted and presents a problem of disposal. Coffee pulp is also used for manuring in Brazil and Java.

Cultivation practices differ in detail throughout the coffee-growing areas of the world, but are quite similar within broad regions in Central America, East Africa, and Brazil. Shading, pruning, and manuring are all more common outside Brazil than within. Favorable climatic conditions and natural soil fertility have both contributed to the great development of the Brazilian coffee industry, and only within relatively recent years has artificial fertilization become really necessary in some regions.

Probably the differences in methods involved in growing different species of coffee are greater than are found in scattered areas growing different varieties of the same species. *Robusta* cultivation, for example, differs from *arabica* in methods of spacing, shading, pruning, picking, and so on, since the trees grow much taller, 26–50 feet as against less than half that size for the *arabica* species. As noted earlier, *robusta* is also more disease-resistant, and therefore its cultivation entails fewer measures to cope with a problem that growers must face in many places where *arabica* is planted.

Usually the most annoying and destructive coffee pests and diseases are insects and fungi. The coffee-bean borer (*Stephanoderes*), found in Africa, Java, and Brazil as well as elsewhere, is one of the worst.¹¹ The fungus disease known as Ceylon-leaf is more famous. First appearing in Ceylon in 1869, it is generally held responsible for the destruction of the coffee industry there and in India, and later in most of Java and other south-

¹¹ This insect, referred to in Brazil as "the coffee plague," has been the cause of great concern since 1924. Upon discovery of its spread, prompt action was taken to control it, but "the nature of the *Stephanoderes* is such that the pest can never be eliminated entirely. If untiring efforts are made to keep it down, it will not be a serious handicap, although it is practically certain that it will gradually spread over the entire country." W. G. McCreery and Mary L. Bynum, *The Coffee Industry in Brazil* (U.S. Dept. Comm., Tr. Prom. Ser., No. 92, 1930), pp. 26–29.

eastern Asiatic coffee-growing countries.¹² Rats, birds, squirrels, elephants, buffalo, and native cattle also do considerable damage to the coffee crop in various parts of the world.

PREPARATION FOR MARKET

Care exercised in preparing harvested coffee for market is one of the important factors affecting the quality of the product that finally reaches the consumer. Coffee grown in a favorable environment and cultivated diligently may lose much of its inherent value through poor preparation. This is recognized in the trade by the price differentials that prevail between "washed" and "unwashed" or "natural" coffees, according to whether they are prepared by the so-called "wet" or "dry" method. Both have as their purpose elimination of the soft, gummy material that surrounds the coffee berry, either by drying it and scaling it off or by washing and fermenting it until removed.

Wet and dry methods.—All coffee was once prepared by natural drying, and this is still the most common method in Brazil and in those countries producing mild coffees where the water supply is limited at harvest time. Given several weeks of uninterruptedly clear, warm weather, the advantage of the dry method is that berries of different degrees of ripeness can be handled at the same time, but in different lots. This is an important consideration in Brazil, where harvesting is ordinarily done by the fast, cheap method of stripping the whole tree regardless of the maturity of the berries.¹³ It is not vital, however, in countries like Colombia, where only the ripe berries are picked at one time. When the dry method is employed, mixed lots of overripe, ripe, and green berries are usually segregated for separate treatment by dumping them into a tank of water and then drawing off each kind at different levels.

¹² J. H. McDonald discounts the idea that this disease, *Hemileia vastatrix*, was the sole reason for the ruin of the coffee industry in Ceylon, Java, and elsewhere. The real reasons were financial stringency, bad cultivation, ignorance, and planters' neglect of scientific investigation. Describing the Ceylon-leaf disease as "the malaria of coffee," McDonald holds that it should lose its terror if common sense is applied and adequate control measures employed. McDonald, *op. cit.*, pp. 7-22. This book contains two chapters on fungus diseases and insect pests (chapters v and vi) to which the reader desiring specific and descriptive material is referred.

¹³ As the result of education, greater care than formerly is used in picking operations. The Brazilians are now tending to follow the practice common in mild-producing countries of harvesting only the ripe berries without damaging the green ones or blossoms.

In an effort to improve the quality of their product, Brazilian growers have been encouraged by the government to use the wet process. This seems to be in recognition of the superior merits of washed coffee. The advantages appear to be sufficient to justify the added cost of the washing and fermentation process. Over 90 per cent of all coffee shipped from Colombia, Brazil's most important rival, is washed.

Preparation of coffee by the wet process requires special equipment and an ample supply of water. Cleaning establishments (*beneficios*) are commonly located on streams where also it is an advantage to have falling water for power. Plantations usually possess the financial resources for the rather extensive equipment needed, but the small grower must depend upon others, or resort to the sun-drying method. A shift away from the dry method in Brazil will probably be slow, for the small grower is naturally conservative, he lacks the resources for pulping equipment, and the shortage of labor during the harvest season presents other difficulties.¹⁴

Pulping, fermenting, washing, and drying are the stages in the wet process prior to hulling or milling. Fermentation is probably the most critical step. First, most of the outer pulp is removed from the berries by a pulping machine, and the remainder loosened by the rubbing action of its rotating disks or cylinders. The berries are then fed through a water channel to the pulping machine and run into tanks where they are either left in water or drained to a semi-dry condition for fermentation.

Fermentation must be controlled so that it is wholly alcoholic and not acetic (vinegar-producing); otherwise, color of the beans and quality are adversely affected by the acid action. Care must therefore be exercised to wash off every trace of the mucilaginous substance at the proper time. The berries are then spread out on drying floors or trays, and stirred frequently until hard, or are artificially dried until the parchment skin can be removed by hulling or peeling. A comparatively new development in equipment, apparently not yet widely adopted, is a machine for pulping under high water pressure which wholly removes

¹⁴ It has been estimated that for one reason or another 80 per cent of the coffees of São Paulo cannot be treated by the wet method. Bally, "Recent Efforts for the Improvement of Brazilian Coffee," *International Review of Agriculture*, January 1937, XXVIII, 20 T.

the mucilaginous coating and thereby makes fermentation unnecessary.

Hulling and polishing machines remove the parchment and "silver skin" by abrasive action. This is done either on the plantation, at the port of export, or sometimes—like the final milling and polishing of rice exported to Europe from southeastern Asia—in the country of consumption. The advantage of final treatment at the import market is the freshly-cleaned appearance imparted to the beans, but offsetting this is the additional shipping weight and expense involved. Practically all coffee arriving in the United States is without parchment.

Coffee grading.—After hulling, the beans are graded for size by means of sieves or screens, and then hand-sorted for removal of defective or discolored beans. The care with which grading is done has much bearing on the price the coffee will bring in the market. Some producers of mild coffees, operating on a small scale in scattered places, are especially handicapped because they have difficulty in turning out a uniformly-graded product over a period of time sufficient to establish a reputation, and hence to command a more favorable market price (p. 96). Much progress has been made over the years in grading; yet the criteria for grading have been little changed. It is impossible to evaluate cup or drinking quality by any mechanical grading system, but grading is an essential first step. Before the introduction of cup-testing methods, grading had more influence in establishing prices than it has today.

Coffee-grading systems differ appreciably from one producing country to another both in method and in effectiveness, but their objective is always the same: to facilitate marketing and thereby enhance the growers' financial return. In Brazil, grade is determined by the number of imperfections in an average sample of given weight. The grades run from 1 to 8 or 9. The No. 1 grade implies perfection, and is not found in commerce. The best grade purchasable is No. 2, while the average grade of coffees harvested in São Paulo is No. 5.¹⁵ The black bean commonly found in green coffees has been arbitrarily chosen as a standard for expressing other imperfections. For example, one

¹⁵ The No. 2 grade allows for four imperfections per pound; the No. 5, for 46.

defect (or one black bean) is equal to five broken beans, two "floaters," three shells, one husk, or one average-sized stone. In other countries grading systems are either more or less elaborate.

Transportation and storage.—From interior growing centers, green coffee is transported by muleback, boat, train, or truck to the nearest shipping port, where it is stored in warehouses to await loading and shipment overseas. Sometimes final cleaning, polishing, grading, and resacking is done at the port. The condition of coffee upon arrival at its foreign destination depends largely upon proper stowing aboard ship. Because it is liable to sweating, care must be taken that no metal touches the bags. Ample air circulation during the voyage is necessary to assure dryness of the cargo. If the coffee becomes wet, it must be given special treatment at the receiving port, and this adds to the cost of handling. No particular difficulty is encountered on the typical voyage from Brazil or Colombia to New York until the ship leaves the warm Gulf Stream about three days from its destination. The sudden drop in temperature after many days of warm weather and water may cause excessive sweating between decks.

Coffee is packed for overseas shipment usually in new jute bags. The filled bag varies in weight from country to country and sometimes within the country. Brazilian coffee is shipped in bags of 60 kilograms net, or approximately 132 pounds.¹⁶ In other countries the shipping unit is more commonly around 145–150 pounds. When statistics of production or trade are presented in terms of bags, however, it is customary to use the Brazilian 60-kilogram bag as the standard unit. Data expressed otherwise are converted.

At the receiving port, newly-arrived green coffee goes into jobbers' or roasters' warehouses to await distribution to outlying markets where it is roasted, ground, and packaged for sale to the ultimate consumer. The chief coffee-receiving ports and

¹⁶ For many years this approximate figure in pounds was used by the trade and government agencies in statistical compilations. In the operation of the Inter-American Coffee Agreement, however, more accuracy was desirable; hence a presidential executive order in 1941 established official conversion factors for use in administering quotas on imports of coffee into the United States. One bag of 60 kilograms of coffee is now considered equal to its exact equivalent in pounds, or 132.276. By adoption of this conversion rate, 33,176 more bags of coffee are permitted entry into the United States under the basic quota of 15,900,000 bags of 60 kilograms.

trading centers of the world are New York, New Orleans, and San Francisco in the United States; and normally Havre, Hamburg, and Antwerp in Europe.

Roasting and packaging.—Roasting involves simply the application of heat to the green beans, which are turned constantly in a revolving container, but roasting is nevertheless a highly specialized skill. In the process green coffee loses 12–20 per cent of its weight, but increases in bulk by 30–50 per cent.¹⁷ The roasting time varies with the kind and condition of the green beans. Since most coffees purchased by consumers are blends, this means that each constituent of the formula must be processed in just the right manner in order to maintain the over-all character of the blend. Most roasted coffee sold in the United States is ground and then packaged in vacuum tins, glass, or paper bags, but some is sold in the roasted-bean form or ground and packaged at the time of sale.¹⁸

¹⁷ For purposes of administration of the Inter-American Coffee Agreement 1.2 pounds of green coffee are considered the equivalent of 1 pound of roasted coffee. This implies an average shrinkage of 16½ per cent.

¹⁸ Divergent practices in merchandising coffee are discussed in connection with the demand for coffee (pp. 55–56, 80–84).

DEMAND AND COFFEE CONSUMPTION

With only one important use, the demand for coffee has always been considered as reflecting consumer wants for a special type of beverage. Minor miscellaneous uses of coffee are mostly derived from this demand and are related especially to flavor characteristics. Potential uses in the industrial field are wholly unrelated. Any demand that may be created for the use of coffee in industry would possess characteristics entirely different from those for coffee as a beverage. Aggregate demand for coffee has been, and remains today, a composite of the demands of all coffee drinkers and of all the varied factors that influence the amount each consumes.

Because coffee drinking is generally a habit, it is common to observe that moderate changes in price produce slight responses in consumption. The demand for coffee is thus considered to be quite inelastic. This is largely true of consumer demand, especially over short periods, because habits are not quickly changed. It is less true of the responsiveness of trade demand over short periods, and of consumer demand over long periods. The demand of the trade for raw coffee over longer periods must, of course, reflect consumer demand for the beverage. It is desirable to keep in mind the distinctions between consumer and trade demand, and the differences in short- and long-term effects of price variations on consumption.

TRADE DEMAND AND CONSUMPTION

While consumer demand for roasted coffee is fairly stable and comparatively inelastic in respect to price, the commercial demand for raw coffee is not; indeed the international movement of the raw product is quite responsive to price changes. This means in part that the trade tends to build up imported stocks in periods of low price and to reduce them when prices are high (Table 3). But it also means that abundance and low prices stimulate the trade to embark on campaigns not merely

to dispose of large stocks but to raise the level of public demand.

TABLE 3.—COFFEE IMPORTS INTO THE UNITED STATES, VISIBLE SUPPLY, AND WHOLESALE PRICES, 1913-42*

Year	Monthly averages (thousand bags of 60 kg.)		Average price Santos No. 4 New York (cents per lb.)
	Imports	Visible supply	
1913	538	1,835	13.2
1914	638	1,576	11.5
1915	776	1,727	9.6
1916	737	2,016	10.6
1917	812	2,611	10.2
1918	664	1,851	12.1
1919	844	1,213	24.8
1920	819	1,695	19.0
1921	847	1,686	10.4
1922	787	1,086	14.3
1923	890	903	14.8
1924	897	726	21.3
1925	810	737	24.5
1926	943	779	22.3
1927	905	759	18.7
1928	920	799	23.2
1929	936	724	22.1
1930	1,010	838	13.2
1931	1,099	1,320	8.7
1932	948	874	10.7
1933	1,001	828	9.3
1934	962	904	11.2
1935	1,108	799	8.9
1936	1,098	914	9.5
1937	1,071	930	11.1
1938	1,255	763	7.8
1939	1,271	864	7.5
1940	1,297	1,014	7.2
1941	1,420	1,748	11.4
1942	1,093*	828	13.4

* U.S. Dept. Comm., *Survey of Current Business, 1942 Supplement*, p. 125; *ibid.*, March 1943, p. S-27. Annual prices are averages of weekly quotations. Visible supply figures are averages of stocks on hand at the end of each month. They do not include stocks afloat in transit to the United States.

* Preliminary.

Except in countries imposing heavy duties and taxes on imported coffee, the cost of the raw product is always the largest

single item in the retail price paid by the consumer. The lower green coffee prices are, the less effect changes in the green coffee market will have on retail prices. Conversely, the higher the price of green coffee and the larger the ratio it bears to the retail price, the greater the influence of changes in green coffee prices. Most of the expenses of transportation, storage, roasting, packaging, and selling tend to remain more or less stable in relation to the volume of coffee handled, regardless of its value. Thus, if the cost of green coffee at the point of export in some foreign country represents, say, 25 per cent of the retail roasted price in the United States, green coffee prices could double, and theoretically this would result in only a 25 per cent increase in the retail price. But if green coffee represents half the retail price, doubling would result in a 50 per cent increase in price to the consumer.

Expansion of per capita consumption in the United States has undoubtedly been promoted by trade efforts, sporadic though they have generally been, when green coffee prices were low. On the other hand, a high or rising price level for raw coffee necessitates noticeable increases in retail prices and hence discourages consumption. Under these circumstances, merchants often adopt a policy of narrowing their margins in order to maintain their sales volume, but in doing so they reduce their promotional efforts because of restricted profit possibilities.

The necessary data for showing short-term changes in coffee consumption are not available, but changes over a period of a few years can be easily inferred.¹ Some indication of changes in coffee stocks may also be obtained from the data available on "visible supplies" in the world and in specific countries. Al-

¹ For an accurate current record of coffee consumption, data are needed on the movement of coffee through distributive channels (deliveries by roasters to wholesalers, retailers, and direct sales), plus information on stocks in the hands of the trade and consumers. Household stocks of roasted coffee do not ordinarily amount to more than one- to three-weeks' supply, nor are the stocks of retailers usually very large. Roasters and wholesale distributors apparently carry a two- to four-months' supply of green coffee, depending upon their appraisal of market conditions. These "invisible" stocks, under ordinary conditions, are presumably not subject to wide variation, but at times the variations may be important. Data compiled by the New York Coffee and Sugar Exchange, Inc. provide information on "visible supplies" in the United States, which are mostly stocks in public warehouses and piers in New York and New Orleans. The accuracy of these figures has been questioned from time to time, but no other data are available for earlier years. The first comprehensive survey of green coffee stocks in the United States was made by the Census Bureau in 1941 (pp. 134-35).

though visible supplies by no means accurately measure actual stocks, they are probably an important market factor and are the best indication available of changes in trade buying over a period of years.

During World War I coffee stocks accumulated in the United States, reaching peak proportions in 1917, when known visible supplies here averaged approximately 2.6 million bags. Prices were moderately low until the steep rise in 1919, when visibles were reduced to an average around 1.2 million bags. As the depression and deflation of 1920-21 brought prices down to low levels again, the trade built up stocks, as suggested by an increase in United States visible supplies to 1.7 million bags. The price recovery from the 1921 lows of 9 cents per pound (for Santos 4's in New York) to around 15 cents in 1922-23 was accompanied by a fresh drop in the visible supply to an average under a million bags. Thereafter, until 1931, as high coffee prices prevailed between 1924 and 1929, and as hand-to-mouth buying was in general vogue, visible stocks averaged only .7 to .8 million bags.² But the depression of the early 1930's again brought prices sharply lower (from 22-25 cents in 1929 to 8-9 cents in 1931), and the initial reaction of the trade is shown by an increase in visible stocks from something over .7 million bags in 1929 to 1.3 million bags in 1931. As the depression continued, and excessive supplies persisted in producing countries, prices remained low. There was no incentive to build up stocks until dictated by events of World War II (pp. 174 ff., 198). The visible supply in the United States increased sharply in 1940, while average coffee prices reached the lowest level of any year included in Table 3. Thereafter prices, imports, and visibles all rose under the abnormal conditions that came to prevail.

The two decades 1921-40 may arbitrarily be divided into three periods: one of three years (1921-23) of readjustment and of moderate green coffee prices; one of six years (1924-29) of high prices; and one of eleven years of low prices. During the period of high prices, little progress was made in indicated

² It was also the policy of the control authorities in Brazil to keep stocks within the country in so far as possible rather than allow them to accumulate abroad (see pp. 128-30, 142-44).

per capita consumption in the United States, though from the middle to the late 1920's a strong demand for tropical products and other commodities and services accompanied high and rising national income. The 1930's witnessed several years of severe decline in income followed by recovery, but steady progress was made in the expansion of consumption with the generally low green coffee prices that prevailed and the declining trend in retail prices of roasted coffee. The significant changes during the two decades are indicated by these data, taken mainly from Table 3:

Period	Average monthly imports	Average visible supply	Average price Santos 4's	Average retail price	Indicated per capita consumption
	<i>Thousand bags</i>		<i>Cents per lb.</i>		<i>Pounds</i>
1921-23 (3 years)	841	1,225	13.2	36.4	11.8
1924-29 (6 years)	902	754	22.0	47.8	12.0
1930-40 (11 years)	1,102	913	9.6	27.0	13.6

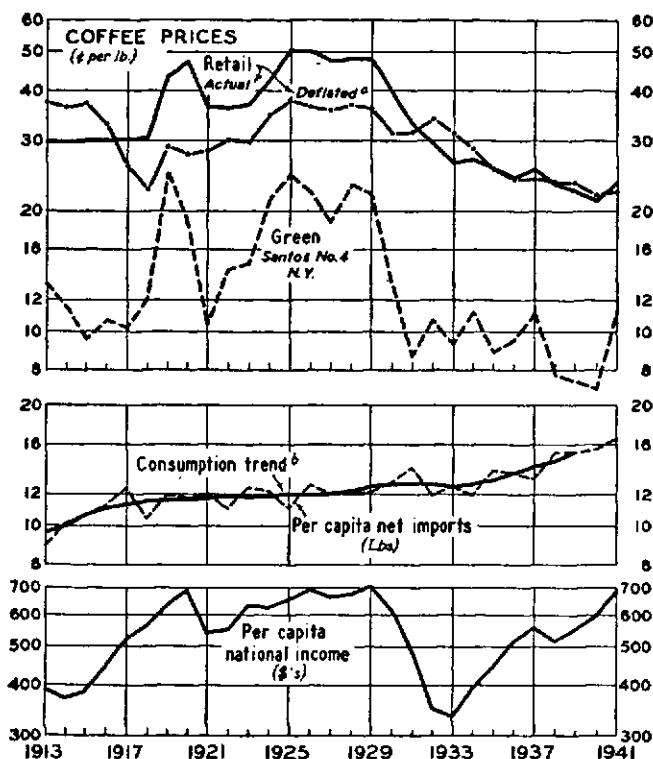
Consistent progress in coffee consumption in the United States throughout the 1930's may be attributed very largely to low retail prices and the generally better quality of coffees that were available. From an average level of 39.5 cents a pound in 1930, retail coffee prices had fallen more or less consistently to a level of 21.2 cents in 1940. Chart 2 shows clearly the influences that operated during the 1930's to encourage coffee consumption. The chart also suggests that there was no period throughout the past three decades that could be described as "normal"; yet the only other substantial growth in per capita consumption occurred in the 6-year period 1913-18, when circumstances were somewhat different but were also conducive to increased coffee consumption. The favorable conditions then present were: a moderate and steady level of retail coffee prices at around 30 cents a pound, a cheapening of coffee in relation to the prices of all other foods, and rising national income.

It is interesting to note that sharp reductions in per capita national income during the 1920-21 depression, and later in the Great Depression of the 1930's, apparently did not result in much reduction in coffee consumption. This might be expected in the short depression of the early 1920's, because a readjust-

ment of coffee-drinking habits does not take place quickly; yet it seems probable that, if coffee prices had not fallen in the 1930's enough to compensate for reduced purchasing power, some lowering of the coffee-consumption level would have occurred, at least early in the decade. On the other hand, high or rising national income seems to have had little stimulating influence in the 1920's in the absence of "favorable" retail coffee prices. Coffee at 45-50 cents a pound was dearer in terms of

CHART 2.—COFFEE CONSUMPTION IN THE UNITED STATES 1913-41, AND RELATED PRICE AND INCOME FACTORS*

(Logarithmic vertical scales)



* Retail coffee and food prices from U.S. Bureau of Labor Statistics; green coffee prices represented by Santos 4's in New York from Table 3; per capita net imports from U.S. Department of Commerce; income per capita calculated from estimates of the National Bureau of Economic Research and the U.S. Department of Commerce.

^a Average retail prices of coffee divided by the Bureau of Labor Statistics index of all food prices at retail, base 1935-39.

^b Four-year moving average of per capita net imports, once smoothed.

other foods. It was not until 1932-33, when retail coffee prices had dropped to their 1913-18 level and then went lower, that consumption per capita began to expand noticeably.

Promotional efforts of producer organizations and the trade were helpful in stimulating coffee consumption during the 1930's,³ but it is doubtful that promotional efforts alone, however well conceived and executed, could have made much headway in the absence of low prices and other favorable factors. It is impressive that this increase in consumption occurred in a decade broadly characterized by depression.

There seems to be a tendency within the coffee trade to accept without much question the assertions made by groups responsible for advertising programs on behalf of the coffee industry. For example, the Pan-American Coffee Bureau states:

It seems now definitely established, beyond all possible doubt, in the opinion of the Bureau, that the coffee promotion campaign which has been conducted in the United States since 1938 . . . has been a complete success. This is evidenced in a striking manner by the following table, which shows . . . total imports for the last six years. It appears clearly from these figures that, while coffee imports were decreasing during the 3-year period immediately preceding the inauguration of the campaign, a complete reversal of this trend has taken place since the campaign has been in operation.⁴

In its enthusiasm, the Bureau fails to point out that in 1935, as coffee prices dropped sharply, imports expanded to the highest figure then on record but declined naturally through 1936 and 1937 as prices rose to their 1934 level; and that prices declined throughout the 1938-40 period coincident with an expansion of imports and the Bureau's advertising campaign. Part of the expansion of imports was undoubtedly due to Brazil's abandonment of price-supporting measures late in 1937 in favor of a policy of free competition in the world's coffee markets.⁵

³ The evidence of the past does not support the views of some economists who have held that, because of the inelastic nature of the demand for coffee, little increase in demand or consumption can be expected except from population growth. For example, Mrs. Gilboy stated: "Brazilian producers have recently spent a good deal of money on an advertising campaign to increase the consumption of coffee but they cannot count on an increase in demand [consumption?] greater than population growth." Elizabeth W. Gilboy, "Time Series and the Derivation of Demand and Supply Curves: A Study of Coffee and Tea, 1850-1930," *Quarterly Journal of Economics*, August 1934, XLVIII, 677.

⁴ *Coffee Statistics* (Pan-American Coffee Bureau, New York), Release No. 2, Feb. 15, 1941, p. 6. See also Guedes, *Brazil Coffee in 1941*, pp. 58-59, wherein the same report on the success of the propaganda campaign is carried. Brazil, of course, is the chief factor in the Pan-American Coffee Bureau.

⁵ See pp. 152-53, 171-73.

Without minimizing the importance of promotional efforts, it is nevertheless necessary to point out that failure to recognize and give proper weight to all important factors influencing consumption will result in unwise industry policies.

Low green coffee prices, especially after a period of high prices, give merchants an opportunity to feature coffee and to promote sales. Low prices also tend to permit small roasters to survive and profit. Eventually low prices lead to retail price cutting and using coffee more commonly as a "leader." Competition becomes intensified, and the number of brands and the amount of advertising increases. Some interests within the trade benefit at the expense of others, and handling coffee may become generally unprofitable for many. In the process, however, and apart from importers', roasters', or retailers' interests, consumer buying is stimulated and aggregate coffee consumption tends to increase.

CHARACTERISTICS OF CONSUMER DEMAND

Among those who have become habituated to its use, the demand for coffee is tenacious and fairly inelastic. If coffee is an established part of a consumer's dietary, it tends to be used in fairly constant quantities per cup, and the user tends customarily to consume a certain number of cups per day or week, almost regardless of price variations within a rather wide range. Contraction of consumption below this usual level is regarded as privation, and resisted even if economies in other parts of the budget are necessitated. Expansion of the individual's consumption above the customary level occurs typically only with changes in habits, such as using more ground coffee per cup, drinking more cups per meal or between meals, or drinking it on more numerous occasions.

For many consumers, however, coffee drinking is not a firmly-established habit relatively uninfluenced by price. For them, coffee is regarded more as a luxury than as a necessity, and their demand is considerably more elastic. Coffee is used by this group of consumers for social and other reasons. Consumption is noticeably curtailed, and may even cease, if their

purchasing power is reduced or if retail coffee prices rise by an appreciable amount. On the other hand, the demand for coffee from such sources tends to have a one-way elasticity, for a material lowering of price, or a rise in living levels, does not greatly encourage consumption beyond that already customary, unless in the form of increased waste.

This typical behavior of users to whom coffee does not seem a necessity indicates, generally but not always, poor education in the use of the beverage. When there is no economic reason for it and coffee is still not important in one's dietary, such coffee as is served is very likely to be indifferent coffee, both because of the quality of the roasted and ground beans used and because of the manner of brewing. Just how large a proportion of all consumers belong to this group is a matter of speculation, but the strength of this category of demand has considerable significance to the coffee industry in matters both of consumer education and of price policy. A certain price level will encourage continued limited use by the consumers in this group; higher prices will discourage or stop their consumption; yet lower prices will not stimulate it until they have been educated to a greater appreciation of coffee drinking.⁶

Finally, a third broad class of consumers undoubtedly vary their consumption with both a rise and a fall in coffee costs. These are the people who aspire to the coffee-drinking habit in its most enjoyable sense, but for various reasons, mostly economic, cannot fulfill this desire. They are not indifferent to coffee; but when retail prices are high, whether because of world market conditions or import duties, they are forced to use cheaper coffee, adulterate it, use less per cup, or resort to substitute or competing beverages. When the cost of coffee is low, they tend to use better grades and more per cup, to omit adulterants, and to consume more cups per day or per week. Many consumers, especially in European countries where import duties have often been very high, fall into this category. Their demand for coffee appears to be far more elastic than that of either of the groups mentioned earlier.

⁶ This is the sort of question that apparently has never been studied by the coffee industry. In fact, investigations in the field of demand seem to have been limited to very broad, and usually quite theoretical, aspects of the subject.

Differences in the demand for coffee are thus not always matters of taste or habit. Among sections of the coffee-drinking population of Europe, low purchasing power combined with high taxes on imports or consumption, and the availability of substitutes, have effectively kept down the level of consumption. But when these factors are not all-important and when they become less important, opportunities exist for refinements in the nature of the demand. When coffee is reasonably within reach of consumers, the range of choice enlarges and specific preferences emerge. Thus, preferences for one type of coffee over another, one method of purchase or packaging over another, one method of preparation, and so on, become matters of more importance to the coffee industry.

The United States provides perhaps the best example of such differences. The demand for mild coffees appears to be greater on the Pacific Coast than elsewhere, and the demand for Brazils greatest in the South. The explanation seems to be at least partly geographical, and probably reflects trade influences on consumers' tastes. The Pacific Coast is economically closest to the Latin American countries producing high-quality and mild coffees;⁷ and, on the whole, the purchasing power of consumers is such that the higher price of milds is not a deterrent to the expansion of consumption. In the South, purchasing power is lower, and cheaper Latin American coffees can usually be landed at a lower cost than elsewhere in the United States. Coffee imported through New Orleans, however, also finds middle western markets along the Mississippi River.

Preferences in purchase and packaging are suggested by the character and composition of the coffee industry in the United States. At the time of the NRA codes (1933-34), approximately 1,200 firms came within the code definition of the industry, but the 10 largest did nearly half of all coffee roasting

⁷ More Central American coffee is exported through Pacific than through Caribbean ports, not because the harbors and shipping facilities are better but because it is easier and cheaper, since most of the coffee lands lie closer to the Pacific. In fact it is easier and cheaper to ship to Pacific ports and then through the Panama Canal to Europe and eastern United States than across Central America. Louise Hearst, "Coffee Industry of Central America," *Economic Geography*, January 1932, VIII, 63-64. Prior to the opening of the Panama Canal, the Pacific Coast of the United States was, of course, the logical market for coffees from western Central American countries. Since 1938 approximately half of Colombia's exports have moved through Pacific ports, whereas earlier the bulk of the movement was through Atlantic ports.

and the 600 smallest did only about 10 per cent.⁸ The practices of the three largest firms, which then accounted for about 36 per cent of total coffee imports into the United States, exemplify different methods of merchandising coffee and reflect consumer responses to these methods. The Atlantic and Pacific Tea Company sold and still sells its own brands through its own stores; the roasted coffee is ground at the time of sale, and packaged in paper bags. At the time, Chase and Sanborn attempted to render essentially the same service, but ground and packaged its coffee (in bags), and then delivered it at frequent intervals to grocery stores for final sale.⁹ Maxwell House told the consumer that the vacuum can was the best assurance of coffee freshness and distributed to retailers through regular wholesale channels. There is something to be said for and against each system, but patronage and growth of the brands of A & P, Standard Brands (Chase and Sanborn), and General Foods (Maxwell House) are the measure of consumer acceptance.

Not many years ago much coffee was sold in bulk, i.e., the grocer bought in large lots and sold out of bins in small lots without any great importance being attached to brands or packages. Bulk selling is still common in Europe, but in the United States most coffee—probably over 90 per cent—is now sold packaged and branded. *The Milwaukee Journal's* annual survey of the Greater Milwaukee market indicates that, whereas in 1928 half of all families purchased coffee in bulk, in 1940 only 5 per cent used bulk coffee and 95 per cent used packaged coffee. This is another example of change in the nature of consumer demand under the influence of persistent advertising. Strictly speaking, consumers first accepted what the trade offered, and this acceptance then became a characteristic of demand. Similarly, the majority of housewives now prefer the percolator or drip method of making coffee and ask for percolator or drip grind. This reflects acceptance of devices that manufacturers have offered and of roasters' recommendations.

⁸ H. S. Kantor, *Price Control in the Coffee Industry* (Office of National Recovery Administration, Trade Practice Studies Section, Work Materials No. 55, March 1936), p. 7.

⁹ After a few years' experimentation with the system described here, Chase and Sanborn returned to an earlier method of packaging in slip-top cans in some areas and vacuum packaging in others.

Certain qualifications are necessary to the generalizations made previously on the responsiveness of consumption to price changes among the different categories of consumer demand. One has to do with the place where consumption takes place, especially with the distinction between consumption at home and in a public eating place. The consumer who would cling to his usual habits of coffee drinking in the home, even if the cost of a pound of coffee were doubled, will in many cases curtail his consumption if compelled to pay, for example, 10 cents a cup rather than 5 cents, in a restaurant where coffee is sold by the cup.

There is no reason why price adjustments in public eating places must be in round numbers of monetary units, but custom fixes the prices of many items, and the restaurant operator will ordinarily do everything he can by manipulating the portion served before he will change the price. If such manipulations in size or method of serving are too much of a departure from custom, an unhappy choice must be made between keeping the portion fixed and departing from the customary price, or keeping the price the same but departing from customary service. This problem is most acute when costs rise; when they fall, commonly no adjustment is made either in portions or in the selling prices of standard items.

Wherever coffee is the representative hot drink, the vast majority of adults are consumers. In the United States probably four-fifths or more of all persons over 16 years of age are coffee drinkers.¹⁰ The age at which coffee becomes an habitual part of the individual's consumption varies, but the average has probably risen with the increasingly general availability of milk and the influence of health teachings on consumption by children and adolescents. Among the elderly—now a larger proportion of the population than formerly—medical advice has probably led to a reduction in the proportion of consumers as well as a

¹⁰ According to one survey of the U.S. market, 82 per cent of all men and 81 per cent of all women over 16 years of age are coffee drinkers, 15 per cent of all children between 6 and 16, and 4 per cent of all children under 6 years of age are also coffee drinkers. In terms of pounds, 50 per cent of the coffee consumed is at breakfast, 19 per cent at lunch, 25 per cent at dinnertime, and 6 per cent between meals. See *A National Consumer Survey of Coffee Consumption*, conducted by Arthur Kudner, Inc., for the Pan-American Coffee Bureau (New York, 1939), p. 8.

reduction in their per capita consumption. Accordingly, it seems probable that the coffee-drinking percentage of the total population in the United States has tended to decline slightly.

Per capita consumption, however, has increased by somewhat more than enough to offset any decline in the proportion of coffee drinkers. This means that those who use coffee are drinking more of it, and thus tend to fix their habits more firmly than ever. A number of reasons account for this development. Some of the more important are: improvements in coffee making in homes and public eating places; better-quality coffee at lower prices, especially during the 1930's; and increasing resort to public eating places where, prior to the wartime restrictions introduced in 1942, the practice of making no charge for an extra cup of coffee had become quite common. Much less important influences, also tending to increase aggregate coffee consumption probably more than per capita consumption of the coffee-drinking portion of the population, are the more recent expansion in the serving of iced coffee and the use of partially decaffeinated and powdered coffee.

FACTORS INFLUENCING CONSUMPTION

Changes in housing, heating, occupational groupings, length of the typical working day, and so on, have a significant effect on the consumption of a wide variety of consumer goods, but seem to have had little or no influence on coffee consumption. The amount of coffee consumed, however, is influenced by a variety of factors such as climate and weather, type of occupation, mode of living (e.g., the frequency of dining out or, in Europe, patronizing a coffeehouse), and age, quite apart from price considerations. Evaluation of the importance of such influences is extremely difficult in the absence of factual data.

Coffee drinkers tend to increase their consumption in cold weather, and with manual labor, but some of them turn to iced coffee in hot weather; and some office workers, given the opportunity, consume as much as or more than any day laborer. About the only well-established and measured influences on coffee consumption relate to seasonality and to income of consumers.

Coffee consumption in the United States is at peak levels during the winter months and at lowest levels in midsummer. Although there is a definite seasonal behavior, with peak consumption occurring somewhere between November and March, and the low in July or August, the seasonal differences are not especially marked. Coffee consumption during the summer quarter of the year is probably not over 15 per cent lower than the average of the other three quarters.¹¹

The volume of coffee consumed by coffee drinkers in the United States is not greatly influenced by differences or variations in income.¹² Quality of coffee consumed, however, bears a definite relationship to income status, the better grades being used by those in the upper brackets.¹³ In Europe, because of the

¹¹ The Pan-American Coffee Bureau reports that trade sources "are of the opinion that actual consumption by the public may not really decrease by more than 10 to 15% during the summer time, but that the 21.5% average reduction resulting from the above calculations [based on Department of Commerce survey of stocks and roasting volume] may actually develop in the stocking of coffee by grocers in that period. The reason for this is entirely psychological, as dealers and grocers do not want to increase their inventories at a time when a slump in sales is taking place and therefore, curtail their orders by a substantially higher margin than the actual reduction in consumers' demand." See *Coffee Statistics*, Release No. 6, July-December 1941, p. 13.

This impression tends to be confirmed by data at hand on sales of coffee at retail, which are a better measure of the seasonality of consumption than deliveries to roasters, changes in stocks, or even the volume of coffee roasted during a particular period. The reasons for this are chiefly that coffee is an item with little or no seasonal price variation, is perishable unless vacuum-packed, and hence is not customarily purchased by the housewife in quantities beyond immediate family needs. Data kindly supplied by a Pacific Coast chain of coffee stores indicate that regional differences in the seasonality of sales (e.g., for the Pacific Northwest and southern California) are undoubtedly due to weather influences, but, on the average, summer consumption declines only some 11 to 13 per cent from the higher winter levels.

A calculation made by the Commodity Research Bureau of New York (based on coffee deliveries between 1908-09 and 1940-41 as reported by the New York Coffee and Sugar Exchange) suggests that peak coffee consumption in the United States occurs in March (9.31 per cent of the yearly total), whereas smallest consumption is in July (7.15 per cent of the yearly total), a considerably greater decline from high to low than indicated above. However, on a quarterly basis, summer consumption is indicated as being about 15 per cent lower than the average for the other three quarters.

¹² According to *A National Consumer Survey of Coffee Consumption* (p. 10): "Coffee drinking is evenly spread over all income classes—in fact it is slightly higher in the lower incomes." At the time this survey was conducted (1939) coffee prices were at a low level. It is quite possible that under other circumstances coffee consumption, as distinguished from the coffee-drinking habit, would not be higher in the lower incomes. A contemporary survey by the Market Research Department of the *New York Times* concluded that "the average High income family consumes about $\frac{1}{4}$ of a pound per week more than the average Low income family." *Coffee: A Study of Coffee in the New York City Market, October 1939 Compared with February 1938*, p. 33.

¹³ But more than half of the 2,193 families using coffee in Appleton, Wis., purchased the best coffee regardless of income. Those with incomes under \$5,000 used 3.069 pounds per month, while families with incomes over \$5,000 used 3.234 pounds per month. "Apparently, as incomes rise, the purchase of high-grade coffee increases markedly." See W. B. Pitkin, *The Consumer: His Nature and His Changing Habits* (New York, 1932), p. 215.

high price of coffee in many countries, the situation is different. Both volume and quality consumed vary to a marked degree with the income of consumers. Still, in periods of depression, the prices of better-quality coffees tend to decline less than those for cheaper coffees, since demand comes in large part from groups either less affected or better able to withstand a shrinkage in income without seriously cutting into their food budget.

Throughout Continental Europe many present-day versions of the early coffeehouses continue to play an important role in coffee consumption, far more than in the United States. These institutions vary greatly in size, service, and patronage; but they seem to have one main function in common—to provide meeting places for all who can afford the price of a cup of coffee. This price often includes music, entertainment, the use of newspapers and periodicals, and sometimes between-meals food. Small establishments serving only coffee, soft drinks, and limited food companions to such beverages are common in small as well as large cities. Sidewalk or boulevard cafés may serve wines, liquors, and foods in addition to coffee, while still another type of café provides entertainment. Similar institutions are found in Latin America, but in the United States there is no real counterpart to the continental cafés where the time of day may be passed in drinking, eating, reading, or talking with friends.

In the eighteenth century, coffeehouses flourished in such cities as Boston, New York, and Philadelphia, much as they did in England and on the continent. After they lost popularity, however, no substitute built around the drinking of coffee was evolved. Today in the United States, bars and cocktail lounges are about the closest approach to an institution where companionship plays an important part in consumption. Coffee producers are inclined to regard the growth of consumption of alcoholic liquors as a deterrent to the expansion of coffee consumption. Brazilian coffee propaganda makes such statements as "alcohol stupefies, whereas coffee uplifts. The use of coffee is a benefit to all mankind. Where the consumption of coffee increases, the social scourge of alcohol diminishes. To spread and recommend the use of coffee is a work of social benefit." There is little real evidence, contrary to popular belief, that prohibi-

tion in the United States was a boon to coffee consumption, or that the elimination of cocktail lounges, for example, would have very much influence on coffee consumption. On the other hand, in Europe, a decline in the use of wines and beers might possibly have a favorable effect on the demand for coffee.

Although perhaps not so important as formerly, sociability and customs like that of afternoon coffee, much as the British have afternoon tea, are still factors of far greater influence in European than in American coffee consumption. When coffee prices are very high, substitutes are used for breakfast in the home, and great care is employed in brewing real coffee upon those occasions when such a luxury can be afforded. In the cafés, however, whether pure or adulterated coffee is served, it tends to be used moderately, not because coffee is not enjoyed but because it is somewhat incidental to the individual's purpose in patronizing the establishment. In the aggregate, undoubtedly a large portion of continental coffee consumption is accounted for by the popularity of such outlets. The frequenting of a meeting place rather than drinking coffee is the habit formed or custom observed.

Consumer demand for coffee is undoubtedly influenced by the availability and prices of other beverages and a wide assortment of drinks both hot and cold, but it is very difficult to appraise the importance of such influences. Some hot beverages such as tea, cocoa, and maté¹⁴ may be directly competitive in some regions and for some consumers. For others, soft drinks, wine and beer, and even milk may be just as competitive when their consumption is an alternative for a cup of coffee. Decaffeinated coffee may offer competition, and also various cereal drinks. In general, however, all such competition is very limited.

Some of these products may influence the demand for coffee at one time and not at another because of season, environment, cost, type of meal, and similar factors. In the United States, at

¹⁴ Maté (yerba maté) is produced in Brazil, Argentina, and Paraguay and is mostly consumed in the rural areas of these countries, Uruguay, and Chile. Some 10 million persons are estimated to be regular users of this tea-like beverage, which is brewed from the toasted and ground tender leaves of a wild tree. See Octavio Cabral, "South American Tea," *Agriculture in the Americas* (U.S. Dept. Agr.), January 1942, II, 11-13; and L. C. Nolan and J. L. Wooster, "Yerba Maté," *Foreign Agriculture* (U.S. Dept. Agr.), August 1942, VI, 313-19.

least, it is undoubtedly still true that the "use of coffee as a price leader in retail sales is a far more important element in coffee marketing than is the competition of substitutes."¹⁵ In other countries less strongly committed to the coffee-drinking habit, the competition of other beverages is more important. But in most such cases relative costs of coffee, and of substitutes or alternatives, are also a major consideration in consumption.¹⁶ The consumer of cereal coffee-substitutes in Europe would most certainly prefer real coffee. The addition of chicory to coffee, however, is not regarded as adulteration by many consumers who have developed a coffee-and-chicory taste.¹⁷

Because habits are not changed quickly, even with strong if temporary price incentives, coffee consumption is not readily adjustable to the enormous annual variations in the supply. The relatively inelastic nature of the short-run demand for coffee has meant that producers could not look to adjustments in consumption for much immediate assistance in the solution of temporary surpluses or deficits. Probably for this reason the longer-term aspects of the demand for coffee have received less emphasis than they deserve. Since the coffee-producing countries, at least of Latin America, have been brought together during recent years by such organizations as the Pan-American Coffee Bureau and the Inter-American Coffee Board, there seems little reason for deferring the undertaking of long-range demand studies which could be of great value to the industry generally.

Although the short-term demand for coffee may be quite inelastic, over the longer term, habits and customs change just as commercial policies and income status of consumers change. Considerable flexibility in demand has existed, and does exist.

¹⁵ Kantor, *op. cit.*, p. 12.

¹⁶ Among the numerous coffee substitutes and adulterants are chicory, dandelion root, dried beet pulp, peas, beans, and practically all the important cereals, but especially barley. In several European countries roasted chick-peas or acorns are also used quite extensively.

¹⁷ The amount of chicory used with coffee varies widely. One ounce added to each pound of coffee leaves a beverage closely resembling pure coffee, but sometimes, especially in Europe, a mixture of coffee and chicory is 40 per cent or more of chicory. Roasted and powdered chicory root is ordinarily mixed with ground coffee when the latter is scarce or expensive in order to make it go farther. Chicory contains neither caffeine nor tannin, but has a bitter principle and a volatile oil. When roasted, it develops an aroma and a sugar content. Added to ground coffee, it gives body, color, and "bite" to the brew. The Census of 1940 reported United States chicory production at over 44 million pounds, mostly from Michigan, where it grows wild.

One needs only to recall how substitute foods, introduced usually under conditions in which the preferred good was not available, scarce, or too expensive, became first acceptable and later preferred to the original.¹⁸ Flexibility in demand is found in the British shift in preference from coffee to tea in the early years when both were becoming popular; in the shift from Brazilian to mild coffees in the United States after World War I; in the tendency to consume higher or lower grades in prosperity and depression; and in the regional differences in demand that develop within consuming markets and among coffee-drinking countries.

¹⁸ In this connection, see pp. 65, 216-17 on the effects of wartime rationing on consumer habits and consumption.

POTENTIALITIES FOR EXPANSION OF CONSUMPTION

Essentially the same factors that explain recent rates of coffee consumption will determine future or potential rates, but the combinations are subject to change. Demand for coffee is largely a matter of consumer psychology, individual purchasing power in relation to coffee prices, availability and prices of coffee and of competing and alternative beverages, and the cost of desired additions to the beverage such as sugar and cream or milk.¹ Of such influences, consumer purchasing power in relation to coffee prices would seem to be of most immediate importance for the expansion of consumption. Prices of other beverages have some effect, but, because of the habit-forming nature of coffee, tea and cocoa are not directly substitutable in most instances, nor are alcoholic beverages. When and where such additions as sugar, cream, milk, or other items used with coffee are deemed indispensable but may be expensive, their cost undoubtedly has a bearing on the amount of coffee consumed.

Unlike many basic foodstuffs, coffee is not a commodity with strict physiological limitations to the expansion of consumption. There is, however, a saturation point beyond which expansion in consumption is limited for each individual. Presumably this saturation point is not often reached; in most cases other factors are responsible for the limits placed on individual coffee consumption.

The stimulating effect of coffee drinking becomes displeasing for some if carried beyond a certain point, and for a very small percentage of the adult population the response to caffeine

¹ The demands for coffee, tea, and sugar are interrelated, but measurement of this interrelationship is difficult. There are few markets in which coffee and tea are consumed in roughly equal volume; usually one or the other beverage is used predominantly. Furthermore, data on consumption are usually inadequate, and the chief demand for sugar is commonly for purposes other than sweetening coffee or tea. Schultz analyzed Canadian demands for these products as a test of the special theory of interrelationships, but, aside from confirming the competitive relationship between coffee and tea (see p. 70) and the "completing" relationship of sugar to both commodities, his results were inconclusive. Per capita imports were used as a measure of consumption but the data were insufficiently accurate for the purpose of measuring the interrelations of the demands. See Henry Schultz, *The Theory and Measurement of Demand* (Chicago, 1938), pp. 585-89.

stimulation is unfavorable.² This has given rise to the manufacture of commercial products in which the caffeine content is reduced, but thus far these have made no marked contribution to the expansion of consumption.

Although there are no strict physiological limitations to the expansion of coffee consumption, there are different degrees of utility or satisfaction imputed to each cup consumed. The importance attached to the circumstances of consumption differs among individuals. Thus, for some the very first cup with breakfast in the morning is most essential, a second cup may be desirable, but if a choice had to be made, perhaps another cup at dinnertime would rank in utility after the first cup at breakfast. For others, the second breakfast cup is more important than any between-meal, luncheon, dinner, or after-dinner cup, and so on. When coffee is abundant and cheap, choices do not have to be made, but when coffee is scarce or expensive an "order of sacrifice" must be established by each individual.³

Once coffee drinking was popular because it was fashionable. During the early period of European coffeehouses, the beverage was consumed primarily for its stimulating properties and the sociability accompanying the place and time of consumption. After coffee-making devices were developed and methods of brewing perfected, coffee was consumed primarily because of its flavor. Place and time of consumption had less influence in restricting the expansion of consumption. Fashionable or companionable surroundings were no longer necessary to encourage it, though they remain a factor of considerable

² The literature on the effect of coffee drinking on the individual is voluminous. In connection with a review of it, Dr. S. C. Prescott has this to say: "Careful study has brought out the interesting fact that with coffee, as with numerous other articles of food, there are personal or individual idiosyncrasies; that a small percentage of the population responds unfavorably to caffeine stimulation, and a still smaller percentage cannot use coffee without unfavorable results, although they may be able to drink tea which contains caffeine, and vice versa. This recognition of specialized behavior in a few instances—probably not more than one per cent of the population—gives us a basis by which we may explain the diverse opinions which have arisen." See "Pharmacology of the Coffee Drink," in Ukers, *All about Coffee*, p. 307.

³ Coffee rationing in the United States has altered consumption habits though perhaps not permanently. Rationing forces most coffee drinkers to make choices both as to when consumption shall occur and how it shall occur. Some will choose more cups of a weak or adulterated brew to fewer cups of full strength straight coffee. Others will prefer fewer cups at certain times of the day, while still others will endeavor to continue former habits with regard to place and time of consumption but will adjust their volume of consumption, and so on.

importance in some places. The stimulating properties of the beverage became a secondary consideration. Coffee, under these circumstances, became the popular drink of all classes in many countries.

PURCHASING POWER AND COFFEE PRICES

The most promising and practical opportunity for expanding coffee consumption lies with consumers having the desire but not the purchasing power. Although the number who might someday acquire the desire is undoubtedly enormous, consideration may well be confined to those already somewhat familiar with the satisfaction to be derived from coffee drinking. High coffee prices and limited ability to buy make a luxury of an item which, under other circumstances, would be regarded as a standard part of the dietary. This is especially true in Europe and countries where taxes and duties are high.

Prior to World War I, the United States, Belgium, and the Netherlands⁴ were the only important coffee-consuming countries that allowed coffee to be imported duty free, though rates in the Scandinavian countries were generally low. During the interwar period rates were raised appreciably in practically all European countries; in fact, the duties in some countries were as high per pound as the average retail price of a fair grade of coffee in the United States. Holland retained coffee on the free list until early 1940, but otherwise the United States was the only important market where coffee entries were without duty.⁵ Approximate import duties on raw coffee in selected countries for periods immediately before World War I and World War II, in U.S. cents per pound, were as follows:

⁴ At this time, the Netherlands, Belgium, and the United Kingdom carried on a re-export trade of considerable importance. In the past few decades this trade has become less and less important. It had almost disappeared before the outbreak of World War II, as shown by the following tabulation (in thousands of bags):

Country	1909-13	1924-28	1929-33	1937
Netherlands	1,431	323	138	33
United Kingdom	508	230	296	72
Belgium	253	3	23	37

⁵ Free entry of coffee into the United States has been guaranteed Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, and Venezuela by a series of trade agreements concluded since 1935.

Country	Pre-World War I*	Pre-World War II†
United States	none	none
Belgium	none	3.8
Netherlands	none	none‡
United Kingdom	3.0	3.1
Sweden	1.5	5.2
Norway	3.6-6.1	6.1
Denmark	2.1	8.7
France	11.9-26.3	12.9
Germany	6.5	29.2
Spain	10.5-15.8	35.6
Italy	11.4-13.2	38.2

* From H. C. Graham, *Coffee Production, Trade, and Consumption by Countries* (U.S. Dept. Agr., Bur. Statistics Bull. 79, Dec. 31, 1912), pp. 121-24.

† Based on data from Brazil, Departamento Nacional do Café, *Anuário Estatístico 1938* (5th ed.), p. 300, converted at average rates for 1937.

‡ The Netherlands imposed a duty of roughly 6 U.S. cents per pound in February 1940.

So far as the United States is concerned, material contraction in per capita coffee consumption is not to be anticipated unless coffee prices should rise much further, relative to consumer income or prices of other components of the diet, than is in prospect. Expansion in per capita consumption among coffee drinkers seems likely to depend mainly on a variety of factors by which demand may be increased through changes in individual habits and in practices of public eating places.

The habits of millions of men in the armed forces are always a potent force affecting the longer-term rate of consumption for certain goods. During the last war cigarette consumption was greatly stimulated, and habits formed at that time became a permanent factor in demand. Similarly, in some countries the demand for shoes showed a marked expansion following the experience of placing many men under arms. Consumption of coffee tends to be greater under the living conditions and stresses of war. As long as it is available and a palatable beverage is provided, the generous use of coffee by the army undoubtedly has the effect of increasing individual consumption, at least temporarily. A certain proportion of men not accustomed to drinking coffee will become users, but the proportion of coffee drinkers in the United States, as distinguished from the amount each consumes, does not appear susceptible to material change.

The position differs considerably in other countries. Coffee consumption has expanded most noticeably in parts of Europe where duties and taxes have been low, purchasing power has been sustained, and the competition of other beverages has been of minor importance. Table 4 suggests that per capita coffee

TABLE 4.—CHANGES IN APPARENT PER CAPITA CONSUMPTION OF COFFEE
IN SELECTED COUNTRIES, 1909-38*

(Pounds)

Country	1909-13 average	1921-25 average	1926-30 average	1929-33 average	1934-38 average
United States	9.0	11.7	12.3	12.6	13.5
Sweden	13.4	14.6	15.4	15.9	16.9
Denmark.....	11.7	14.3	16.1	16.5	16.6
Norway.....	11.9	12.8	13.0	12.9	13.5
Belgium.....	10.4	11.2	11.5	12.6	13.1
Finland.....	9.0	9.7	10.6	10.0	11.9
Netherlands.....	15.7	10.8	9.9	10.9	9.3
France.....	6.2	9.3	8.8	9.8	9.7
Switzerland.....	6.4	7.5	7.3	8.0	8.3
Germany.....	6.2	2.4	4.6	4.8	5.4
Italy.....	1.8	2.6	2.4	2.3	1.9
Spain.....	1.5	2.2	2.2	2.2	2.2 ^a
Algeria.....	3.1	3.3	3.7	4.4	4.4
Argentina.....	3.7	4.9	4.9	4.4	4.0
Canada.....	1.8	2.2	2.9	3.0	3.4
Union of South Africa.....	4.4	4.2	3.5	3.3	3.3
United Kingdom.....	.4	.7	.9	.9	.7

* Data for 1909-30 from International Institute of Agriculture, *Monthly Crop Report and Agricultural Statistics*, November 1931, p. 695 S; for 1929-38 calculated from net imports shown in Appendix Table IV.

^a Two-year average, 1934-35.

consumption⁶ in the late 1930's in Sweden and Denmark had reached, and in Norway and perhaps Belgium and Finland was approaching, a level where further expansion might depend very largely on population growth. In these countries, as in the United States, a material contraction in consumption, under normal circumstances, would occur only with a marked rise in retail prices.

⁶ Per capita figures are the best measure available of the extent of the coffee-drinking habit or custom in a particular country, though they may sometimes be misleading because of important regional variations obscured by the averages.

Retail coffee prices, after declining from the 1925 level, were generally conducive to a growth in consumption during the 1930's. Approximate retail coffee prices in the United States and various European countries on certain dates, in U.S. cents per pound, were as follows:⁷

Country	1925	1932	1939
United States	45.0	30.3	23.2
Belgium	32.9	26.3	30.2
Norway	45.4	27.4	30.5
Sweden	49.8	26.9	32.2
Netherlands	31.0	25.2	35.9
Denmark	46.3	39.8	40.5
France	37.8	35.0	31.1
Switzerland .....	....	25.9	31.3
United Kingdom .....	....	37.2	41.6
Germany	77.7	59.5	....
Italy	62.0	71.8	74.0

Coffee consumption in other European countries has shown varying tendencies during the two interwar decades. A slow downward trend is indicated in data for the Netherlands, where cocoa has apparently become an important alternative. In France and Switzerland there was apparently an extension of coffee drinking. In Germany consumption expanded despite high prices, but remained at a level lower than that before World War I. In Algeria and Canada, both with a relatively low per capita coffee consumption, there was likewise a tendency for consumption to increase. The obstacles to further gains varied; in some countries high prices and low purchasing power appeared most important; in other countries custom had so firmly established other beverages in the dietary that, even with the existence of favorable cost relationships, increases in coffee consumption came at a slower rate. Most of the indicated declines in consumption (Table 4) are explained by one or the other or, in some cases, both of these factors.

⁷ Based on data of International Labour Office, *International Labour Review*, January 1926, p. 116; April 1933, pp. 531 ff.; and April 1940, pp. 429-33; all converted to U.S. cents per pound. Prices are mostly as of Oct. 1. They are not altogether comparable from one period to another, being based on quotations from large or capital cities in some cases and upon a number of towns in others.

COMPETITION OF OTHER BEVERAGES

Comparison of data on import duties and retail prices suggests a partial explanation for the differences in coffee consumption in various parts of Europe, indicated in Table 4. Table 5 assembles information upon other beverages consumed in the principal coffee-importing countries. Some of these are undoubtedly competitive with coffee, but the circumstances of use and the relationships between the different beverages vary to such a marked degree that little more than broad generalizations are justified.

Among beverages of a habit-forming character, it is necessary to make certain qualifications, often overlooked, with respect to their "competitive" relationships. Considerable changes in the price relationships between coffee and tea, for example, have only limited effects upon their respective demands. Coffee and tea are important alternatives for consumers primarily on the basis of taste preferences, and secondarily on the basis of price. They are competitive in the habit-determining sense, but less so by the ordinary yardstick of relative prices. Only when both are very expensive or when the usual price relationship between the two is radically altered, does the price aspect assume more importance than the habit or custom aspect. The same type of "competitive" relationship exists between wine and beer, and between alcoholic and nonalcoholic habit-forming beverages.

The principal coffee-importing countries of the world that are included in Table 5 fall into three or four categories according to the amount of coffee consumed per capita. Sweden and Denmark have the highest per capita consumption, while the United States and Belgium are not far behind. Except for Denmark, where retail coffee prices were apparently somewhat higher than in the other countries, the relationship between prices and purchasing power was conducive to a high per capita consumption. Also the beverages most likely to compete with coffee are consumed in relatively small volume.

Per capita tea consumption was very low in all four of the countries with the highest coffee consumption, and cocoa seems not to have been a serious competitor. However, the data in

Table 5 on per capita cocoa consumption are not very useful, because they are not limited to the amount of cocoa used in the form of a beverage. There seems to be no particular relationship between cocoa and milk consumption, though some contend that a relationship exists between milk and cream consumption and coffee consumption.⁸ Except for Belgium, milk consumption was high in all four countries, and wine and beer consumption relatively low. Per capita beer consumption in Belgium is the highest of all the countries included in the table. No relationship is suggested between the consumption of coffee and that of distilled spirits.

TABLE 5.—ESTIMATED PER CAPITA CONSUMPTION OF BEVERAGES AND MILK IN THE PRINCIPAL COFFEE-IMPORTING COUNTRIES

Country	Nonalcoholic beverages (pounds)				Milk and cream ^c (gallons)	Alcoholic beverages ^d (litres of pure alcohol)			
	Coffee ^a	Tea ^b	Cocoa ^b	Total		Spirits ^e	Wine	Beer	Total
Sweden.....	16.9	.2	2.5	19.6	..*	2.35	.09	1.05	3.49
Denmark.....	16.6	.4	3.1	20.1	36	.49	.28	1.60	2.37
United States...	13.5	.6	3.5	17.6	39	..	..	..	..
Belgium.....	13.1	.1	2.8	16.0	17	1.38	.54	5.91	7.83
France.....	9.7	.1	2.2	12.0	23	2.76	16.70	1.18	20.64
Netherlands.....	9.3	3.3	19.1	31.7	30	1.11	.21	.83	2.15
Germany.....	5.4	.2	2.6	8.2	23	.93	.60	2.65	4.18
Italy.....	1.9	.01	.5	2.4	7	.45	11.28	.07	11.80

* Average for 1934-38, from Table 4 (p. 68).

^b Per capita net imports for 1938, computed from data in International Institute of Agriculture, *International Yearbook of Agricultural Statistics, 1939-40*, pp. 571-77, except for the United States, from *Statistical Abstract of the United States, 1941*, p. 772.

^c Average for 1930-34, from League of Nations, *Statistics of Food Production, Consumption, and Prices, Vol. IV of The Problem of Nutrition*, A. 12 (c). 1936. II. B (Geneva, June 24, 1936), p. 43.

^d Average for 1928-32 from Bureau International contre l'Alcoolisme, published in Denmark, Dept. of Statistics, *Statistick Aarbog* (Copenhagen, 1941), p. 293.

^e Possibly as high as 63 gallons per capita or as low as 32. No satisfactory estimate available.

The Netherlands and France are grouped together as countries in which per capita coffee consumption was not outstandingly high or low. In the Netherlands tea and cocoa consumption were both high, and milk consumption relatively so, whereas

⁸ See pp. 74-75.

in France they were all low and the consumption of alcoholic beverages was very high, especially the consumption of wines and spirits. These marked contrasts in consumption habits seem to be definitely related to the agricultural pursuits in the respective countries and their colonies. Prior to the war per capita coffee consumption was around 9 to 10 pounds in each country. Whatever the competition provided by other beverages, it seems certain that it was not the same for both countries.

Coffee consumption in the Netherlands seems to have declined over a long period of years as the consumption of tea and cocoa significantly increased. This is suggested by data on pounds per capita of each commodity imported and retained for consumption:

Beverage	1900	1925	1938
Coffee	16.7	12.1	9.9
Tea	1.5	2.7	3.3
Cocoa	2.5	13.7	19.0

In France, on the other hand, tea consumption remained small, and cocoa consumption, though more than twice as great as in 1900, was still relatively low at 2.2 pounds per capita. Estimated consumption of distilled spirits declined from 4.6 litres of pure alcohol per capita in 1900 to 2.3 litres in 1938, but the consumption of wines tended to increase. Import duties on coffee were high prior to World War I but were substantially reduced afterward, and this probably helps explain the increase in coffee consumption indicated in Table 4.

Coffee consumption in Germany tended to expand in the years after World War I, but it had not reached the prewar level of 6.2 pounds when World War II broke out. An import duty of 6.5 U.S. cents was imposed on raw coffee even before the first World War, and this had been increased during the interwar period to 29.2 cents per pound. High retail prices for roasted coffee have probably been the principal factor discouraging a more rapid growth in consumption in Germany. Neither tea nor cocoa appear to be important in the average German dietary. Tea consumption increased during the interwar period but rose to only .2 pounds per capita, while cocoa consumption declined. Similarly, the consumption of alcoholic beverages of

all types, and milk, tended to decrease. Coffee substitutes, however, were used freely and seem to be the real competitive beverage.⁹ Such progress as has been made in per capita coffee consumption, despite high prices, seems to be due to the absence of effective competition from true beverages.

Per capita coffee consumption in southern European countries such as Italy and Spain has always been low, and has shown little tendency to increase. Import duties have been high; in 1937, at over 35 cents per pound, they were almost three times the level prevailing before World War I. Under such circumstances, it is not surprising that coffee consumption made small progress in these countries of relatively low purchasing power. At 74 (U.S.) cents a pound in 1939, coffee was definitely in the luxury class in Italy. Tea, cocoa, milk, spirits, and beer are all consumed in exceedingly small volume in Italy, whereas wine consumption, at 11.3 litres of pure alcohol per capita, is the second highest shown in Table 5, far exceeding the figure for all countries except France.

When duties and taxes on coffee are as high as they have been, for example in Italy and Spain, it is apparent that their imposition reflects a governmental fiscal policy that regards coffee as a luxury and nonessential. Despite the fact that coffee may not be important in the diet of some peoples, the question may legitimately be raised whether lower rates that would permit the coffee-drinking habit to develop might not produce more revenue. Unless an extension of coffee drinking actually limits the consumption of other beverages produced locally and thereby adversely affects the interest of home producers, a strong case may be made for low import duties and taxes to the benefit of both importing and coffee-producing countries. During the postwar reconstruction period, when most of Europe will be in need of relief aid, it is doubtful that tariffs and import duties will be permitted to stand in the way, and a reduction of such barriers might reasonably be made a condition of such assistance.

⁹ *Ersatz* coffee was apparently consumed at the rate of over 6 pounds per capita even before World War I, or roughly in the same volume as real coffee. Despite the growth in consumption of coffee substitutes during the interwar period, on a per capita basis a comparable figure for the late 1930's would be little more than 5 pounds.

THE CASE OF GREAT BRITAIN

Although ranking in coffee consumption far below the countries just discussed, the United Kingdom merits special attention, because it is the outstanding tea-consuming country and tea is generally regarded as the most important alternative beverage. Because of the overwhelming preference for tea, per capita coffee consumption in the United Kingdom is very low, only about three-quarters of a pound annually. Most of the coffee imported before the war was good-quality mild, much of it from Empire producers. Although less important than formerly, London was the principal market in Europe for high-quality coffee.¹⁰ Those who drink coffee in Great Britain are mostly consumers of mild coffee, very little Brazilian being sold.

About a decade ago, the Imperial Economic Committee issued a report on coffee, in which obstacles to increased coffee consumption in the United Kingdom were discussed. This report is interesting as an illustration of questionable assumptions and conclusions that are as much an obstacle to promoting coffee consumption as any of the factors examined in the course of the investigation. After correctly pointing out the cheapness of tea, the relatively high cost of milk, the loss of tradition in preparing coffee for the table, relatively wide retail price margins, and similar factors, the report concludes that prospects are not bright for increased consumption of coffee in the United Kingdom. The reasons for this conclusion are worth examining.

The first factor discussed by the Committee is price. Tea, the established beverage, is much cheaper. Even though the retail price for coffee (about 1930) was about the same per pound as that for medium-quality tea, four to five times as much coffee as tea is needed to make a breakfast cup of liquid.¹¹ But tea is much cheaper than coffee in most countries, and this factor alone hardly explains wide variations in coffee and tea consumption in different countries. The report recognizes that other nations with a plane of living no higher than that of the United Kingdom

¹⁰ Before the depression of the 1930's about 46 per cent of gross imports were re-exported, principally to Germany, and secondarily to the Netherlands, the United States, Belgium, and France.

¹¹ Great Britain, Imperial Economic Committee, *Nineteenth Report: Coffee* (1931), p. 42.

are large consumers of coffee, but it points out that such countries are also large consumers of milk.

It is significant that Sweden and Denmark, which have the highest consumption of coffee per head of population (16 and 15 lbs. respectively), also have a milk consumption of between 68 and 70 gallons per head, compared with the United Kingdom figure of 22 gallons.¹²

Of both coffee and milk the Scandinavian countries are known to be large consumers, and the southern European countries are generally small consumers, but beyond this observation it is difficult to establish a relationship of any real significance. Latin American countries are large consumers of coffee¹³ and small consumers of milk, and a number of European countries ordinarily use little more milk than the United Kingdom but have many times the per capita consumption of coffee. France and Germany, for example, used only slightly more milk and cream per capita (23 gallons) than Great Britain, yet consumed very much more coffee. Belgium consumed even less milk and cream than Great Britain (17 gallons), yet had one of the highest per capita coffee consumption figures (13 pounds as against three-quarters of a pound for the United Kingdom).¹⁴

The British report then points out that bulk (Brazilian) coffees are not suited to the United Kingdom market, despite the facts that they are the basis of blends in countries which are large coffee consumers and that they sell, on the average, 30 to 50 per cent below the highest priced mild coffee in the United Kingdom market.¹⁵ The following statement is not convincing: "In the United Kingdom, taste has been formed, for generations, on the superior mild coffees, and it is unlikely that the Brazilian type, with its markedly different flavour, would be acceptable." In a nation of tea drinkers with a reputation for the poor cup of

¹² *Ibid.*, p. 43. Milk-consumption estimates are unsatisfactory and very rough for many countries; but according to data from a League of Nations study, Great Britain consumed 21 gallons of milk and cream per head in 1930, whereas Denmark consumed 36 in the period 1930-34. *Statistics of Food Production, Consumption, and Prices*, Vol. IV of *The Problem of Nutrition*, A. 12 (c). 1936. II. B (Geneva, June 24, 1936), p. 43. No estimate is given for Sweden, but the comment is made that it might be as high as 63 gallons, and that this figure possibly "includes skimmed milk and/or cheese" (p. 80).

¹³ Brazilian figures place per capita coffee consumption at over 20 pounds.

¹⁴ Other countries with a high per capita consumption of coffee consumed the following number of gallons of milk and cream per head, on the average, for the period 1930-34: United States, 39; the Netherlands, 30 (very rough); Switzerland, 58. See League of Nations, *Statistics of Food Production*, p. 43.

¹⁵ Imperial Economic Committee, *Coffee*, p. 43.

coffee served (the Committee admits that this reputation is justified), it is difficult to understand how the taste acquired over generations by a minority group should be an obstacle to introducing cheaper bulk coffees, if by lower prices coffee consumption might be encouraged. The sentences following the above quotation reveal the real concern of the government body:

Should such a change in taste be brought about, it would require a very considerable increase in general consumption to compensate for the loss which Empire producers might at first sustain. Moreover it is not certain how far the position of London as the European centre for mild coffees might not be prejudiced.¹⁶

If this official attitude is really representative of the trade as well, it is not surprising that it is the "general opinion among competent judges that the chances of any considerable increase of coffee consumption in the United Kingdom are slight" (p. 42). The Committee does, however, rightly point out that regaining the lost art of preparing a good cup of coffee for the table is most important. Among the shortcomings common in Great Britain are insufficient quantities of coffee used in making the beverage, serving coffee in public eating places with a standard amount of milk instead of permitting the consumer to make adaptations according to taste, failure to use fresh coffee and to appreciate the importance of purchasing at frequent intervals according to requirements, adulterating coffee with chicory, the absence of regulations indicating the amount of chicory present in a blend, and distributor ignorance and apathy. Outside observers are frequently critical of roasting practices in the United Kingdom as well as of merchandising and brewing techniques.

In considering ways and means of stimulating the demand for coffee the Committee states that,

we have come to the conclusion that success in any general effort on behalf of coffee in the United Kingdom is most likely to be achieved if the whole force of that effort is directed to the single object of removing the still prevalent misconceptions concerning the essential conditions of a good cup of coffee, and the ease with which it can be prepared. . . . (p. 48)

Granting the utmost importance of education in the preparation and use of coffee in any program of demand creation, it seems

¹⁶ *Ibid.*

nevertheless that much could be done to lower the price of coffee in the United Kingdom, especially in the absence of high import duties.

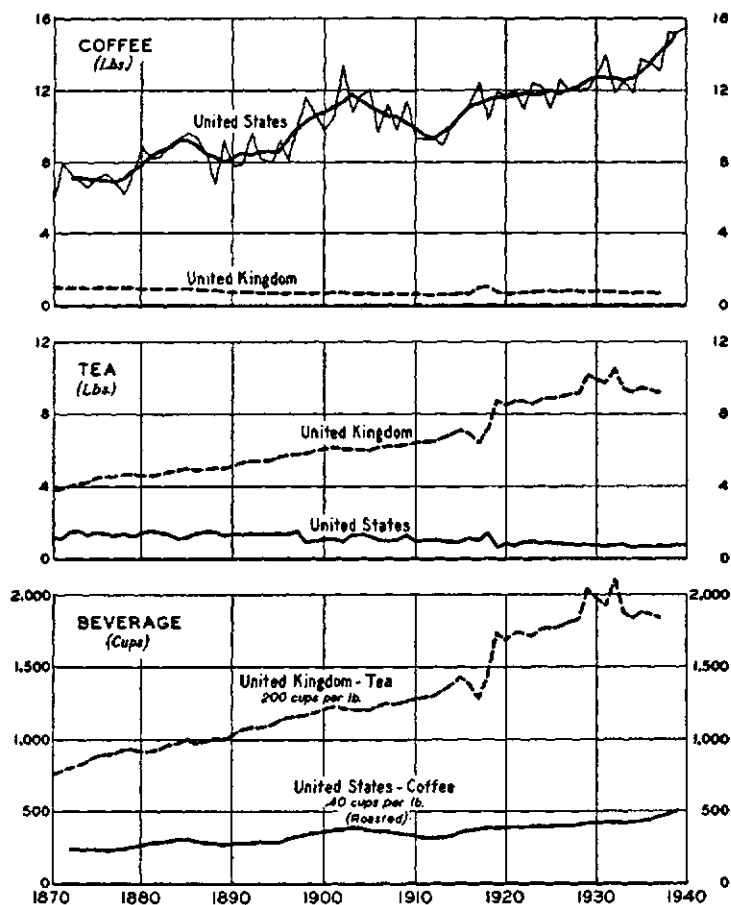
A price reduction might come through the use of more bulk coffees in blends, at the same time eliminating chicory, which has been used in the ratio of one pound to every five pounds of coffee consumed. Despite the fact that London has dealt in high-quality mild coffees for a long time, there seems to be no fundamental reason why potential coffee consumers in Great Britain would not accept bulk coffees in blends, as most coffee-consuming countries have done for generations. Furthermore, coffee merchandising as conducted in the United States, for example, should narrow the spread between import and retail prices, thus further reducing the cost to the ultimate consumer.

Although the United Kingdom and the British Empire tend to prefer tea to coffee, the strength of habit and custom in consumption can be easily overestimated. That is not to say that the British could be converted to coffee drinkers in any short span of time. The essential point is that potentialities do exist for expanding coffee consumption in the United Kingdom, just as tea consumption in coffee-drinking United States can be enlarged.

Expansion in the consumption of one beverage is not necessarily at the expense of the other. This is demonstrated in both the United Kingdom and the United States. Whereas on a per capita basis the consumption of coffee has very gradually declined in the United Kingdom and consumption of tea has declined somewhat more in the United States, the fact that total consumption could approximately double since the 1870's (Chart 3) is an indication that there was ample room for expansion of one beverage without necessarily jeopardizing the position of the other. Even more striking is the contrast shown in the lower part of Chart 3, where per capita consumption is expressed in terms of cups. Because one pound of tea makes four to five times as many cups of beverage as one pound of coffee, the curve for the United Kingdom rises much more sharply than that for the United States, and this indicates that the British water intake in beverage form is far greater per

capita. In terms of aggregate consumption, of course, both products have expanded in use in both countries along with population growth.

CHART 3.—PER CAPITA CONSUMPTION OF COFFEE AND TEA IN THE UNITED STATES AND IN THE UNITED KINGDOM, 1870-1940*



* Data from statistical abstracts for each country, various years. The smoothed curve for per capita coffee consumption in the United States is a 4-year moving average smoothed by a 2-year moving average. One pound of tea makes 180-200 cups of beverage and one pound of roasted coffee 35-40 cups. For convenience, the higher figures have been used, and 1.2 pounds of green coffee have been considered equivalent to 1.0 pound of roasted.

In long-range planning, therefore, the predominance of one or the other beverage in consumption need not close that market to the other. Admittedly it is easier to induce coffee or tea

drinkers to consume greater amounts of the beverage preferred than it is to convert one to the other. Broad industry policies for the long pull, however, will not neglect the essential ground work of demand creation in unpromising markets so long as a favorable relationship exists or can be established between prices and purchasing power.

CONSIDERATIONS IN PROMOTING CONSUMPTION

The use of coffee, like that of any other product, may be encouraged in many ways; but only some of the circumstances and conditions necessary for the promotion of consumption can be influenced by the coffee industry. Growers have considerable influence over quality, and the behavior of growers, traders, distributors, and governments, in the aggregate, is the chief price-determining factor. But the industry has little influence over consumer purchasing power or government policies with regard to duties and taxes on coffee imports and consumption. These considerations are all basic in coffee consumption. Nevertheless, the desire for coffee must be stimulated before questions of availability, quality, and price have any significance. Hence, the discussion that follows deals chiefly with the coffee industry's problem of stimulating demand that should lead to consumption under favorable conditions of price.

Promotional efforts of producers and merchants designed to sell more coffee have had a long-term cumulative effect upon demand. Directly or indirectly, such efforts are educational in that they inform large groups of consumers on the purchase and use of coffee. The implied objective is always to create satisfactions that will encourage greater use of coffee, especially of some particular brand. Sometimes important concerns within the industry have employed methods in attempting to establish the merits of their own brands that have tended to take business from competitors without contributing anything to total demand for all brands of coffee. As in most industries, various conflicts of interest appear within the coffee industry, both in producing and consuming countries. In any future international scheme of regularization, far more attention than heretofore needs to be given to the effects of these conflicts on coffee consumption.

DEMAND CREATION IN THE UNITED STATES

Even in the United States, where per capita consumption has increased notably during recent decades, certain factors continue to retard and restrict an expansion in the use of coffee. Were it not for these, even more progress in consumption might have been made during the past decade when conditions generally favored expansion. One important reason for the failure of coffee consumption to expand more rapidly with low prices, improved quality, and better brewing equipment, has been the conflicting counsel to consumers from varied interests within the industry. Consumer education remains faulty as a result, and countless homes and public eating places continue to brew a concoction that has small right to be called coffee. A greater expansion in consumption is hardly to be expected under such circumstances.

Divergent interests within the industry and conflicting counsel, though sometimes unavoidable, nevertheless adversely affect the growth in coffee consumption in a number of ways. Although there will probably always be legitimate differences of opinion on such matters as the best method of making a cup of coffee, there are in fact several satisfactory procedures. The insistence upon one best way, or the best method for a particular brand, is unnecessarily confusing to the consumer. Many roasters maintain that good coffee cannot be made unless the grind conforms to the type of equipment used.¹⁷ Others advertise and sell an "all purpose" grind for any kind of equipment. Some emphasize, correctly, the utmost importance of freshness in coffee. At the same time, the grocer may offer the consumer attractive price concessions on quantity purchases. Stocking up by the housewife is a mistake unless purchases of ground coffee are in units that can remain sealed from air until ready for use, and no more than, say, ten-days' supply is open or exposed at any one time. When the buyer using a pound of coffee a week

¹⁷ Authorities on coffee making appear to agree that too coarse a grind does not permit rapid and complete extraction of flavor and that a grind so fine that all of the cells are broken is undesirable in that both flavor and aroma are adversely affected. Uniformity of grind is also a factor and may explain why some roasters believe that one uniform grind of a certain fineness gives better results than a choice of grinds of different fineness less uniform in composition. For an account of developments in coffee making in the United States and prevailing differences of opinion, see Ukers, *op. cit.*, pp. 646-55.

purchases a 2- or 3-pound can to save money, it is very likely that the last of the coffee so purchased will not be as satisfactory as the first, when freshly opened. Last impressions are the most important in brand preferences; yet many a merchant, eager to build his volume of sales, neglects to consider the long-run effects of failure to serve the consumer's best interests.¹⁸

Then, too, much coffee has been sold in recent years on the basis of the premiums offered. This is an "old reliable" for the merchandising of many consumer goods, but it remains an open question whether or not in the case of coffee such methods contribute anything to aggregate demand as distinguished from the demand for one competitive brand as against another.

Furthermore, at times overemphasis has been given to the container in which coffee is packaged, and the consumer has been tempted to purchase a container first and coffee only secondarily. Sometimes emphasis on the container has been related to stressing the importance and desirability of coffee freshness. This can be a constructive influence in consumer education, but sometimes only the beauty, utility, or re-use possibilities of the container are made the central theme of merchandising. Differences in merchandising methods among competing coffee roasters and distributors need not become a factor in confusing the consumer if correct emphasis is placed upon the commodity itself.

Attention has also been diverted from the commodity itself by the emphasis placed upon coffee-making equipment during recent years. This is suggested, at least, by the great variety of utensils on the market "guaranteed" to solve all coffee problems in the home. But this emphasis on equipment seems to have been encouraged by some roasters in recognition of the importance of educating the consumer in coffee making. Other distributors have carefully avoided any recommendations.

Despite substantial progress in coffee-making devices, there

¹⁸ The most ridiculous example of poor merchandising of coffee to come to the writer's attention was the case of a grocer in San Francisco who catered to the demand among certain groups for special blends of coffee. He sold one customer a year's supply of roasted and ground coffee, packed in large unsealed glass jars with the owner's name on each. After about one month, the purchaser lost all enthusiasm for the special blend, and it was many months before she finally abandoned the unused supply and resumed an interest in a commercially branded coffee.

seems to be a big field for simple, foolproof, and inexpensive equipment.¹⁹ Such devices are already available, but they seem to have less appeal than the more expensive novelties, gadgets, and complicated equipment that are almost impossible to keep clean. The coffee industry's task of encouraging coffee consumption will be greatly simplified when users possess simple, satisfactory equipment, correctly employed.²⁰

Ordinary coffee, well made, gives more satisfaction than good coffee poorly prepared. But no type of coffee-making equipment, however satisfactory, can take the place of good quality fresh coffee, carefully prepared, with an adequate amount of coffee used with fresh water. Most coffee roasters suggest the importance of accurate measurements in making a good cup of coffee, but few bother to emphasize the importance of clean and "sweet" making utensils, or fresh and fully boiling water. Some have learned that it cannot be taken for granted that coffeepots are always "clean" in the sense that the professional uses the term, or that fully boiling fresh water means something more than hot steaming water in many a home.

Until there is more of a united front within the industry and those serving it on such matters as freshness, grinds, making methods, and equipment, the broad educational work needed among consumers cannot be fully effective. No one of the many minor matters above mentioned can alone be said to affect adversely the spread of the coffee-drinking habit. Taken together, however, they constitute a real obstacle that must be overcome if the industry expects a growth in consumption beyond that which will likely result from mere population increase in present coffee-drinking countries.

Although no institution exists in the United States that is comparable with the earlier coffeehouses of Europe, public dining places have always exerted a certain influence upon home

¹⁹ In view of the long evolution of coffee-making devices, employing essentially the same basic principle, it is somewhat surprising that present-day equipment is not more highly standardized.

²⁰ It has been suggested to the writer that perhaps the emphasis upon coffee-making equipment has had the effect of expanding consumption, at least in the statistical sense, because of the waste involved in processes that result in only partial use of the coffee grounds. In other words, unsatisfactory equipment and brewing methods may result in using more coffee per cup of beverage made. When coffee is plentiful and cheap, the waste may not be important, but it is the satisfaction to be derived from *coffee drinking* that creates a demand for coffee and nothing else.

eating customs. Fashions in food, methods of preparation, serving, and so on, frequently originate in the more distinctive type of restaurant. Restaurants and other institutions are said to consume about one-fifth of all the coffee sold in the United States.²¹

The public eating place that serves a good cup of coffee helps to increase coffee consumption in several ways. Extra cups are sold and consumed as the popularity of such places tends to increase.²² Indirectly, such places frequently stimulate coffee consumption in the home. The husband's comparisons or complaints tend to stimulate efforts to improve the quality of the coffee made at home. Coffee making is a fairly common subject of conversation among housewives.

Such items as the cost of sugar, cream, or milk, if used, and also a portion of the investment in a making utensil, are ordinarily not regarded as important and probably have little influence on consumption in the home. In public eating places, however, they must be given careful accounting and are sometimes more important than the cost of the coffee. In the typical restaurant, the price of a cup of coffee, like many other items, is fixed by custom and does not vary with the operator's costs. The profit on a cup of coffee is usually above the average profit on most restaurant items, but it may be curtailed either by high costs for cream, sugar, and coffee, or by the lack of control over the use of the accessories, sugar and cream.

Ordinarily the restaurant operator will attempt to compensate for a higher food cost on the cup of coffee served, by resorting to one or more of several methods. He may use less coffee per unit of water, purchase a cheaper, lower quality blend, buy in larger quantities in order to effect savings,²³ use

²¹ According to an OWI-OPA press release of Oct. 28, 1942 (OPA-1039).

²² Restaurant patronage falls off markedly in depression, but there is some reason to believe that coffee consumption does not decline correspondingly. Meals tend to be simpler and less expensive, while coffee tends to improve in quality and become a more important part of the simpler meal. At least this was the situation during the depression of the early 1930's.

²³ Buying practices of public eating places influence both the quality and price of the coffee served, and hence the volume of consumption. Inferior results all around frequently result from patronizing suppliers of "hotel blends" which are usually sold at premium prices, but included are many "services" such as coffee-making equipment (sometimes loaned), filters, cleaning compounds, and so on. In order to provide such services, the supplier frequently must skimp on the quality of the coffee sold.

smaller "creamers" to cut cream consumption, keep sugar bowls one-quarter to one-third full instead of half-full to full in order to curtail use of sugar, adulterate coffee with chicory or a cereal "stretcher" and, in the poorer type of establishment, re-use coffee grounds. All of these practices tend to discourage coffee consumption in public eating places, usually because the cup served is less satisfying.

Standard item that it is, there is still considerable variation in price policies for a cup of coffee in different types of public eating places. A cup of coffee may sell for 5 or 10 cents for one cup; 10 cents for as many cups as desired; 10 to 25 cents a pot, and so on. When coffee sells at a fixed price per cup, more control is possible than when customers are given as much as desired. Coffee is commonly included in "combinations," i.e., plates, special breakfasts, lunches, or dinners, because it is the most popular beverage and ordinarily the cheapest. Whatever the practice followed, a definite relationship can be found to exist with the amount of coffee consumed in the establishment.

DEMAND CREATION IN EUROPE

Increasing the demand for coffee in European countries involves many of the same considerations as in the United States; yet there are important differences. These differences are not only regional and economic but psychological as well.

In the United States, taste preferences are far more uniform than they are from one European country to another. Ideas as to what constitutes a good cup of coffee vary in a more marked fashion. Customs in use differ more significantly. Milk instead of cream is far more commonly served, the brew tends to be stronger originally and is then diluted, and adulterants are a factor of appreciable importance in consumption. In most countries the beverage is prepared by infusion, but in the East and some other places it is prepared in the form of a decoction ("Turkish coffee"). Sugar is used in some places in about the same proportion as the beverage, as is the popular Brazilian custom. Competition with other beverages, but especially wines and beers, is greater than in the United States, partly because of different habits of eating and types of meals, and partly because

of the generally higher cost of coffee and accessories in many European countries. Making equipment probably has more influence on consumption than in the United States, and home grinding and roasting are more common.

The factors which account for different levels of per capita coffee consumption in Europe have already been discussed. It is plain that methods of approach to the problem of expanding coffee consumption are necessarily different from country to country. Effective approaches, like those for selling any product or service, must be in terms of the wants of the prospective consumers. Their desires are fundamentally similar, but they are expressed in sufficiently diverse ways to make separate analyses desirable of all the varied factors that affect consumption. This is not the place for the recommendation or formulation of coffee promotional campaigns. It is appropriate, however, to emphasize the point that in the modern history of coffee far too little attention appears to have been given to consumption potentialities, and that too much concern has been given to strictly short-term producer efforts at production control and market manipulation.

An interesting contrast with coffee is provided by the experience with potash, a commodity with an even longer history under controls.²⁴ The German Potash Syndicate had control of superabundant supplies with a limited market. The most important use of potash today is for fertilizer on farms, but demand had to be created for it through scientific research, propaganda, and educational work over a long period of time. The farming habits of world agriculturists had to be changed; and in the absence of such change farmers would have remained indifferent to potash regardless of its price. The farm demand for potash, like the demand for coffee, is relatively inelastic; yet the Syndicate's effective promotional work stimulated demand in a remarkable fashion. Unlike coffee, once potash is adapted to the farm, its continued use depends more upon general conditions of farm prosperity than upon its market price. Once consumers acquire the coffee-drinking habit, continued use seems to depend more upon price than upon income.

²⁴ G. W. Stocking, *The Potash Industry* (New York, 1931), pp. 32-33, 79 ff.

At the termination of the war a difficult reconstruction period will follow. Europeans, after years of privation, will be in need of food, clothing, and all types of materials and equipment for rehabilitating themselves. Delays in providing such essentials will be inevitable. Morale will undoubtedly be low. Perhaps the coffee industry could make no greater contribution to the restoration of morale than by providing coffee-starved Europe with ample supplies of good growths, as promptly as feasible after the cessation of hostilities. At the same time the industry could do itself immeasurable benefit. Stocks will have accumulated during the war which will present a problem of disposition. Purchasing power in the European market will be low. If the industry delays by haggling over price, or if it uses Europe as a dumping ground for inferior coffee, it will miss a once-in-a-lifetime opportunity for developing the important continental market far beyond anything previously known.²⁵

Undoubtedly there is a very large potential demand for coffee from among millions of consumers who have never had the chance to acquire the taste for it. Demand creation within such groups is definitely a long-term undertaking and must be approached in a quite different manner from methods that recommend themselves in countries where coffee drinking is already established.

Readjustments following the war will determine whether or not coffee, like many other commodities, will be burdened by the imposition of heavy export or import duties and taxes. It will be more difficult to reach understandings with consuming countries and to create a stronger demand for coffee than to effect producer agreements on output, the disposition of supplies, or the control of prices; but emphasis on the former objectives offers unquestionably greater promise of lasting benefits.

²⁵ At a meeting of the Inter-American Coffee Board on January 21, 1943, a resolution was passed recognizing this opportunity. See p. 209.

ECONOMICS OF COFFEE PRODUCTION

Since coffee first became appreciated as a beverage in Europe during the seventeenth century, the center of coffee production has shifted several times. Yemen, a province of Arabia and home of the true Mocha coffee, supplied the world's needs until about 1690. Later, and until about 1830, the West Indies became the principal producing region and London the chief trading center. Then Java took the lead until the end of the 1860's, and Amsterdam and Rotterdam became the market places. Finally Brazil achieved dominance, first with Rio coffee—New York and Havre became the trading centers—and then, from the late 1880's until World War I, with Santos coffee, as Havre and Hamburg emerged the leading market places in Europe. For the past two decades New York and the Brazilian ports of Santos and Rio have constituted the most important trading centers, and Santos coffee has retained leadership, but the mild coffees from Colombia and other Latin American countries have become increasingly important in production and trade.

DEVELOPMENT OF THE COMMERCIAL COFFEE INDUSTRY

The first great development of the commercial coffee industry took place in Java and Ceylon, and reached a peak about 1875. When its industry was destroyed by a leaf blight, Ceylon turned to tea; Java, meanwhile, was gradually losing ground to Brazil.

It was the Continental Blockade and the development of the beet-sugar industry in Europe that gave Brazil the initial incentive to shift from sugar-cane production to coffee. Favorable climate, huge tracts of virgin soil, and abundant cheap labor provided ideal conditions for a rapid expansion of the industry. Brazil exported only 13 bags of coffee in 1800, but by 1840 over a million bags were being shipped overseas annually. By the middle of the century, Brazilian production accounted for approximately half the world total. Since then Brazil's output

has frequently reached three-quarters of aggregate world production, though in recent years three-fifths has been the more common proportion.

Although over 50 countries or colonies produce the world's coffee crop today, a dozen Central and South American nations account for 85-90 per cent of the annual output (Table 2, p. 19). Of these, Brazil remains by far the largest producer, with around 60 per cent of the world total, while Colombia leads all other countries but grows only 10-12 per cent of the aggregate output.

If coffee were not a crop produced almost exclusively in tropical areas and consumed chiefly in temperate United States and Europe, much less would be known of the historical progress of world coffee production. As it is, the record of exports, exportable crops, or receipts at shipping ports must very largely be relied upon as a measure of production. Actual coffee output is known for very few countries, and statistics on the area under coffee, the number and age of trees, yields, and similar matters are but poorly recorded. They are much more unsatisfactory for periods as recent as prior to World War I. This is partly because coffee is grown chiefly in countries where the statistical departments of governments are not highly developed, and partly because it is especially difficult to secure and maintain statistics of tree crops on a satisfactory basis.

Until the early 1920's—with the exception of a few years during World War I when stocks accumulated in producing centers—the record of exports provided a sufficiently satisfactory measure of production. Exports continued to be a satisfactory measure of production for countries producing mild coffees until World War II and the closing of the European market. They were not plagued with carryovers of any importance. In Brazil, however, port entries were controlled, beginning with the 1923-24 crop, and stocks were held in the interior. The official returns of receipts at Brazilian ports were no longer a satisfactory measure of production. Retention of stocks in the interior gave rise to various methods of calculating the size of each year's crop. Estimates varied widely, according to the method of calculation used by different authorities. The data on world

stocks compiled by trade sources became less significant as more and more of the total supply was held in Brazil, subject to changing government policies; and information on the size of these stocks became less satisfactory. As they accumulated, and the coffee-destruction program was inaugurated in the early 1930's, the Brazilian production and stocks position became increasingly hazy. Even to this day the size of each year's crop is not known accurately, and no official reports on total stocks have been issued for several years. Unofficial estimates made in the United States are neither confirmed nor denied in Brazil.

At present there are two Brazilian sources of information on coffee production, the National Coffee Department (Departamento Nacional do Café, or DNC), an autonomous body subordinate to the Ministry of Finance,¹ and the Department of Production Statistics of the Ministry of Agriculture. Statistics of the DNC are based on railroad shipments: "Brazil coffee is included in the statistics only when delivered to the railroads for transportation to sea ports and large cities; all home consumption, therefore, except that of the ports and large cities, does not appear in statistics of production." Statistics of the Ministry of Agriculture, "the only official authority having charge of the statistics of production in Brazil," are said to represent actual crops harvested each season. Estimates of domestic consumption are also issued by the Department of Production Statistics. Differences between statistics of this Department and those of the DNC, as well as unofficial estimates, have been enormous, especially since about 1927. The DNC statistics have been used in the present study as they agree fairly closely with commercial estimates and are far more useful in interpreting Brazilian coffee policy.² Developments within the coffee world, moreover,

¹ The DNC describes itself as "the largest independent organization of directed economy in the world," and its work as "the most successful example of directed economy ever witnessed by the modern world." See its booklet *The ABC of Coffee* (Rio de Janeiro, 1941).

² For a comparison of the statistics from each source, as well as other pertinent notes on Brazilian coffee statistics, see J. W. F. Rowe, *Studies in the Artificial Control of Raw Material Supplies: No. 3, Brazilian Coffee* [hereafter cited as *Brazilian Coffee*] (London and Cambridge Economic Service, Special Memorandum No. 35, London, 1932), p. 85; L. B. Bacon and F. C. Schloemer, *World Trade in Agricultural Products: Its Growth, Its Crisis, and the New Trade Policies* (International Institute of Agriculture, Rome, 1940), p. 350; International Institute of Agriculture, *International Yearbook of Agricultural Statistics, 1933-34*, pp. 803-05; *ibid.*, 1939-40, pp. 1076-77.

The following tabulation illustrates the striking differences between the production sta-

are in part a reflection of appraisals by growers and the trade on the basis of the information available or acceptable at the time, regardless of its quality. Nevertheless, the failure of DNC statistics to represent actual production, and delays in issuance of the official production estimates, leave much to be desired.

Any analysis of world coffee production and supplies must center around Brazil, the dominating factor in both. When the Brazilian statistical picture is blurred, it is impossible to provide a very precise view of the world situation. This lack of preciseness, however, does not alter the essential factors of the situation. These stand out clearly for the two interwar decades, the period of present interest.

For over a decade the world's supply of coffee has greatly exceeded consumption requirements at the prevailing levels of price and demand. Surpluses accumulated in Brazil, where huge quantities were destroyed for lack of markets. Although periods of overproduction are nothing new in the economic history of coffee, none has lasted so long. The question may be legitimately raised as to why supply has been so slow in adjusting itself to demand. The growing and harvesting of coffee in Brazil, only to transport it to appropriate places for mass burning, does not seem to make economic sense. Brazilian dictatorship over the coffee world can no longer be held responsible, for attempts at artificial price control have been largely abandoned.³ The explanation for the slow adjustment in coffee production and the apparent prolonged defiance of so-called economic laws lies

statistics of the DNC and the Department of Production Statistics (in million bags of 60 kg.):

Marketing year	DNC	Calendar year	Dept. Prod. Statistics	Marketing year	DNC	Calendar year	Dept. Prod. Statistics
1925-26.....	15.5	1926	16.0	1932-33.....	19.8	1933	29.6
1926-27.....	15.8	1927	18.3	1933-34.....	29.6	1934	27.5
1927-28.....	27.1	1928	27.8	1934-35.....	18.2	1935	18.9
1928-29.....	13.6	1929	26.3	1935-36.....	20.9	1936	26.3
1929-30.....	28.2	1930	27.2	1936-37.....	26.4	1937	22.5
1930-31.....	16.6	1931	21.7	1937-38.....	23.5	1938	22.1
1931-32.....	28.3	1932	25.6	1938-39.....	23.1	1939	20.8

³ J. F. Guedes, President of the DNC of Brazil, described the abandonment of a historic policy when he states that November 1937 "marks the beginning of the Era of Brazilian Redemption" (*Brazil, 1938, A Survey of Brazilian Life, Economic, Financial, Labour, and Social Conditions from a General Point of View*, Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, 1939), p. 116.

partly in conditions inherent in coffee culture and partly in psychological considerations.

IMPLICATIONS OF COFFEE-TREE CULTURE

The time factor of production is perhaps the characteristic of greatest economic importance in coffee culture. Although within reasonable limits production is a known quantity, it cannot be controlled; yet some substitute for direct control of production seems necessary if serious maladjustments are to be avoided in supply-demand relationships. Certain facts about the coffee tree are well known, and certain implications of these facts are apparent. Other implications of coffee-tree culture, however, need to be reviewed if one is to acquire a sympathetic understanding of world coffee history over the past few decades.

Like every other perennial⁴ the coffee tree has a life cycle during which it grows to maturity, reaches maximum bearing, and then gradually declines in productivity until its yield is insufficient to compensate for the cost of tending. The life span of perennials varies from a few years to several decades, but coffee trees (like rubber trees) are long-lived, and their period of commercial bearing, while by no means uniform, extends over many years.

Unlike most perennials, the coffee tree has during its bearing period what might be termed a health cycle. During this cycle it is alternately "rested" and capable of producing a large crop, and "exhausted" and unable to yield heavily. This cycle of vigor is of relatively short duration, usually two or three years, but seems by no means fixed; and it may be lengthened by damage due to frost, cold weather, or drought which necessitates a longer recovery period. The yield of the coffee tree is strongly influenced by weather; yet favorable weather alone will not produce a bumper crop unless it happens to coincide with the "rested" period in the health cycle of the coffee tree. Thus, in forecasting

⁴ Plants are classified as annuals or perennials chiefly on the basis of the life span of their underground stems. Since extreme variations in seasonal temperatures tend to reduce the life span, perennials are especially well suited to seasonless tropical countries. They are also well adapted to hillsides where annuals will not thrive because of the difficulty of cultivation or of water retention. In the various international control schemes for agricultural products, perennials have figured prominently because of the difficulties in rapid adjustment of output.

a future crop, recent experience is given weight as well as weather conditions during the current growing period.⁵

The interval of four or five years between planting and harvesting a crop, the uncertainties of weather, and the particular phase of the life and the health cycle of the trees, introduce variables of such magnitude that no practical possibility exists of adjusting production to short-term surpluses or shortages in supplies. Farmers can adjust the acreage of annuals rather quickly, but the coffee-plantation manager needs several years to add to productive capacity, and he would no more think of destroying existing trees to reduce output over the near term than a manufacturer would consider scrapping machinery because supplies had temporarily outrun sales. The manufacturer, however, can stop production and let machinery lie idle, whereas the coffee grower continues operations even though his crop is picked only to be destroyed.

Although the planting record over many decades suggests easy and even careless expansion of the area under coffee, the spectacular increases in productive capacity should not be interpreted as a sign of comparatively riskless enterprise. During the four to six years of waiting for trees to come into commercial bearing, the grower must advance large sums of money for which he receives no immediate return.⁶ In the meantime, market conditions may have been radically altered. A satisfactory crop from a commercial standpoint may come sooner after planting if market prices are in a favorable relationship to production costs, or one or two years later if they are not. When many planters have the same ideas about planting, the indi-

⁵ Investigations in Hawaii have shown that variations in coffee yields are highly correlated with rainfall and that "rainfall occurring during the year in which new fruiting wood is being produced is significantly related to the succeeding year's yield of coffee. In other words, the rainfall that is related to the seasonal fluctuations in coffee yield does not occur in the year of blossoming, maturing, and harvesting of the cherries." L. A. Dean, "Relationships between Rainfall and Coffee Yields in the Kona District, Hawaii," *Journal of Agricultural Research*, Aug. 1, 1939, LIX, 220.

⁶ Sometimes, as in Brazil and Java, catch crops are planted between rows of coffee during the gestation period and even the bearing period. This helps in a small way to realize some return from land planted to coffee, but it is a practice tending to reduce the fertility of the soil for coffee and hence adversely affects yields. Each grower must weigh the returns thus derived against the disadvantageous effects on yields and unit production costs. It is estimated that, during the early years of the Great Depression, probably 80 per cent of the total area under coffee in Brazil was interplanted, with the result that yields may have been lowered by 10 to 20 per cent. Rowe, *Brazilian Coffee*, p. 75.

vidual grower is likely to find that when his trees are ready to bear the market is poor and prices unremunerative, because supplies have become excessive in relation to effective demand.

Such uncertainties make coffeegrowing a highly speculative venture under any circumstances. Normally, capital for investment flows most readily into enterprises where there is opportunity for a quick return. When it is necessary to wait for many years, the rate of profit expected is exceptionally high.⁷ In addition, when that anticipated return depends so largely upon conditions entirely beyond the control of the individual grower—principally market conditions which are notoriously unstable—the risk involved is tremendous.

The impulse to go into coffeegrowing, or to plant additional trees, arises largely from opportunities for profit apparent at a particular time. When prices are high in relation to production and marketing costs, those who profit most are growers who already possess bearing trees. Since capacity can be expanded but slowly, these growers are protected from additional competition for some years, and continue to make good profits as long as market conditions remain favorable. But when large increments to aggregate supplies finally materialize, all suffer alike from the effects of overproduction. Demands for relief and assistance then become general, and schemes of control are put forward as a means of benefiting producers.

A decision to expand productive capacity, while motivated primarily by current market conditions, is made on the assumption that profit possibilities will be present for some years to come. In other words, to justify the waiting period and all the risks involved, the grower must assume that demand will increase to such an extent that additional supplies can be readily absorbed and that essentially the same supply-demand relationship will prevail when his new trees begin to bear. Such long-range demand anticipation seems not to have been very important in the decisions of individual growers.⁸ If it had, the ex-

⁷ Most of the cost of production computations cited on pp. 97-100 figure interest on investment at between 10 and 15 per cent. Profits are considered to accrue beyond this.

⁸ A majority of producers of agricultural products tend to react in the same way to changes in conditions of demand and supply that affect the profitableness of operation. Growers themselves thus help to create cycles in production. Statistics of United States production of beef and dairy cattle, hogs, sheep, and other animals illustrate this.

pansion record of the coffee industry, especially in Brazil, would show fewer extremes, would have been more gradual, and would have extended over a period of time at about the rate of expansion in world coffee consumption.

SCALE OF OPERATIONS AND COSTS

Capital and labor requirements of coffee culture make the crop one well adapted to large-scale production. Throughout the world much coffee is grown on estates or plantations, many of them under corporate management. Yet the vast and well-publicized fazendas of São Paulo cannot be considered typical of the industry, and conditions of production vary so greatly from one part of the coffee world to another that generalizations about the optimum scale of operations or representative levels of costs are unreliable.

Costs of land and labor differ widely, while capital requirements are generally greater than for other typical plantation crops such as rubber, sugar, and cotton.⁹ Land values are highest in districts such as those in São Paulo with the famous red soil. The range in production costs is wide, being highest in districts where, through the stimulus of high coffee prices, cultivation has been extended farther from the ports and into places with less suitable soil and climatic conditions. For many decades differences in labor costs between different growing regions were less marked, but as the coffee-growing countries developed economically those with the most rapid development were confronted with rising labor costs and lost some of their competitive advantage. The Great Depression, however, tended to level out wage differentials among plantations within the same country.

The size of a coffee plantation is a relative matter. In São Paulo almost half of all the coffee trees in the state are found on estates having from 50,000 to 300,000 trees each, but over half of the estates have fewer than 10,000 trees and less than two dozen have a million trees or more. The world's largest coffee plantation, located in São Paulo, is said to have had, at its peak, over 4.5 million trees. In comparison with the mil-

⁹ This impression is supported only by generalizations and not by comparative studies of the financial requirements of various crops, information upon which is not at hand.

lion-tree *fazendas* of that state, the 100,000- to 300,000-tree plantations, which predominate, may be considered small; but in comparison with the plantations (*fincas*) of Colombia they are large. Some 87 per cent of all Colombian plantations, around 150,000 in number, have fewer than 5,000 trees and only .2 per cent have over 100,000 trees. Even the large estates of Colombia would appear quite small in Brazil.¹⁰

The plantation system of agriculture has reached its highest state of development in the European colonies of tropical southern and eastern Asia. Here the scientific management of land, the development of improved varieties, cultural practices, and processing techniques, together with recruiting, housing, and supervising labor, are handled in a manner comparable with the methods employed by large-scale industrial enterprises. Laboratories for testing and research have played an important part in product and process improvement. Although a few very large coffee plantations operate their own railroads, highways, warehouses, stores, and housing projects, management appears to have been neglectful of the type of scientific research that has contributed so much to the progress of some other plantation industries. This is best evidenced by the fact that "coffee growing has been influenced only very slightly by agricultural science and the yield per unit of area . . . has not been increased to any marked degree."¹¹ Only during the past decade have there been organized attempts to improve quality. These appeared mainly in Brazil, where the diminishing competitive advantages of Brazilian over mild coffees provided the incentive. True experiment stations devoted exclusively to coffee have been in existence only since 1933.¹²

The use of the term "plantation" in the modern sense of a

¹⁰ The differences in cultural practices implied are discussed elsewhere (pp. 38-44).

¹¹ International Institute of Agriculture, *Coffee in 1931 and 1932*, p. 12. Perhaps it is significant that hardly any coffee plantations are owned or operated by companies that roast and distribute the product. This is in marked contrast with sugar, rubber, and other tropical plantation crops where vertical integration has been more common. The prospects of improving coffee by scientific seed selection and hybridization, however, are said to be promising: "Investigation in India has shown that 60 to 70 per cent. of the crop is often borne by only 20 per cent. of the total number of trees in an average acre." Imperial Economic Committee, *Coffee*, p. 35.

¹² Bally, "Recent Efforts for the Improvement of Brazilian Coffee," *International Review of Agriculture*, January 1937, XXVIII, 16 T.

system of agriculture is misleading when applied to really typical coffee estates. Although coffee culture is well suited to the modern plantation system, a substantial part of the world's coffee is produced on small holdings comparable with the family-size farm found in the United States. Aside from inability to carry on desirable research and development work, the plantation that is too small is handicapped in other ways. For example, in Kenya and British East African possessions generally, proper preparation for market and grading to uniform standards is rendered difficult because of the small size of estates and the fact that they are scattered. The average estate is 150–200 acres. In Kenya there are a few over 500 acres, but these are small in comparison with estates even in Central America. For the benefit of the reputation of the coffee from a particular region or country so situated, factory methods of preparation and co-operative grading arrangements are recommended.¹³

For some years evidence has been accumulating that in the older coffee-producing lands the soil is being exhausted, and virgin lands are becoming scarcer and less accessible to transport, so that a more scientific and intensive form of culture must be practiced if production is to continue on a competitive basis. This has been recognized in Brazil by certain observers for some time. Writing in 1929, Muniz concluded:

Coffee cultivation in the state of Sao Paulo, with fully 600,000,000 trees frankly decaying, is already passing through the last phase of its extensive exploitation. The experience of other countries indicates the path we have to follow; to intensify cultivation by adopting the measures advised by experience and science or let the production of coffee decrease and weaken and completely disappear from our soil . . . little has been done in the way of preserving the fertility of the soil and obtain higher productivity. The use of fertilizers and the most modern agricultural methods is still in its primordial days. . . .¹⁴

In 1932, James predicted a shift toward more intensive cultivation because of soil depletion, the tax on new planting, and the spread of the coffee pest, *Stephanoderes coffeae* Hagerdorn, first discovered in São Paulo in 1924.¹⁵

¹³ Imperial Economic Committee, *Coffee*, pp. 25–26.

¹⁴ Dr. J. C. Muniz, in McCreery and Bynum, *The Coffee Industry in Brazil*, p. 75.

¹⁵ P. E. James, "The Coffee Lands of Southeastern Brazil," *Geographical Review*, April 1932, XXII, 244. This study contains useful maps picturing the spread of coffee culture, variation in yields, surface configuration, and climatic factors in southeastern Brazil, together with discussion.

Uncertainty of yields and their high variability from year to year tend to affect growers' profits in an exaggerated fashion. Poor yields raise unit costs of production, while high yields tend to lower them. Because fixed costs on almost all types of plantations average over 75 per cent of total costs, excluding interest charges, the proportion that varies with the size of the crop is relatively small. The largest single item in total costs is for wages for the care of the trees, whether they yield a large or a small crop and the largest item of variable costs is for wages of picking.

On this basis of 75 per cent. of the total costs fixed, it follows that if the aggregate costs of a normal crop are taken as 100, the aggregate costs of producing a crop *twice* as large as that normal crop will only be 125, while the aggregate costs of producing a crop *half* as large as the normal crop will be as much as 87½. Conversely, if the cost per bag of the normal be taken as 100, the cost per bag of the bumper crop twice as large will be 62½, while the cost per bag of the smaller crop will be 175.¹⁶

In view of varying conditions of production at any given time, not only between coffee-growing countries but within the different districts of each country and between estates of different size and with trees of different ages, estimates of average costs of production are bound to be of very little value. In 1928 the American Trade Commissioner to Brazil made estimates of the costs of producing coffee in São Paulo, delivered to the commissario's warehouse in Santos. On the basis of 1,000 trees with an average yield of 47 arrobas (705 kilos or 1,551 pounds), he put the various main items of total cost as follows in U.S. dollars:¹⁷

Interest on investment.....	\$ 90.00
Interest on working capital, inclusive of crop-carrying charges	9.65
Depreciation of trees	3.64
Cultivation	45.00
Picking	11.79
Transport	20.35
Machinery costs with depreciation on bags.....	{4.23
	{1.32
Administration	12.00
Taxes and commissario's commission.....	12.84
Total	\$210.82

¹⁶ Rowe, *Brazilian Coffee*, p. 41.

¹⁷ McCreery and Bynum, *op. cit.*, p. 68.

This calculation works out at 13.6 cents a pound. Another estimate made by Renato Caldeira, on a similar basis of yield, was given by McCreery at 14.06 cents a pound.¹⁸

The limitations of such average figures are suggested by still another compilation. In his 1928 cost investigation for the São Paulo Institute, Muniz¹⁹ studied typical fazendas in three different kinds of zones within the state:

Zone	Age of trees (years)	Yield per 1,000 trees (arobas)
Old	30-60	37
Intermediary	30-40	55
New	4-20	70

Since the so-called normal yield of different estates varies from 25 to 200 arrobas per 1,000 trees, calculations based on these different types are more revealing than those given above based on a yield of 47 arrobas. Still, the lack of data on the number of trees classifiable according to yield makes it impossible to arrive at average figures that can be accepted with any confidence.²⁰

Muniz's figures were accepted and used by government officials and growers for the purpose of justifying the level of prices in 1928 and 1929, and are probably too high.²¹ They showed total production costs (including interest) ranging between 11.8 cents per pound for the New Zone to 15.5 cents for the Old, the figure for the Intermediary Zone being 13 cents a pound. The various factors responsible for these differences need not be discussed here; certain important cost items, especially for labor, have changed so greatly that the data have limited value in reflecting today's conditions. Information on production costs is very scanty for most countries and at best is of doubtful value for comparative purposes.²²

¹⁸ McCreery and Bynum, *op. cit.*, p. 69.

¹⁹ *Ibid.*, pp. 69-75.

²⁰ Not even the total number of trees in Brazil is known with any degree of accuracy, and estimates vary by hundreds of millions. See International Institute of Agriculture, *Coffee in 1931 and 1932*, p. 24.

²¹ Rowe, *Brazilian Coffee*, p. 41.

²² The basic limitations of cost data are by no means confined to coffee, but apply generally to agricultural products, even in the United States. "Statistics of money costs of production are inherently untrustworthy . . . practically no farm cost study can be found to which reasonable objections cannot be raised regarding the accuracy of the data; . . . few investigations are properly comparable with one another . . . Variety, not uniformity, is characteristic of farm costs of production. Consequently average costs are not to be accepted as representative . . ." M. K. Bennett, *Farm Cost Studies in the United States* (Food Research Institute, Miscellaneous Publications 4, Stanford University, Calif., 1928), pp. 260-61.

Brazil has always been considered the low-cost coffee producer of the world, though admittedly its advantage has become less pronounced since the 1920's. The cost figures cited above seem to center around 13 or 14 cents a pound for the late 1920's when expenses and selling prices were both high. It must be borne in mind, however, that at this time there may have been some bias in the figures in order to justify price-supporting measures that kept Brazilian coffee prices at an unquestionably high level on the world market. For approximately the same period, general estimates of total production costs in Central American coffee-growing countries seem to center around 11 to 13 cents a pound. The discrepancies are not worth attempting to reconcile at this time.²³

A recent study by Piza points to the rising costs of coffee production in Brazil during the 1930's; yet he shows them to be lower in the aggregate than Muniz's figures of a decade earlier.²⁴ After citing the decline in yields, the difficulties with labor, the increased tax burden, currency inflation, and the greater incidence of pests, Piza's figures show that at the time the estimates were made (presumably in 1939 and 1940, when Santos 4's were selling in New York at not much over 7 cents a pound) growers were generally losing money. His classification of representative estates was somewhat different from Muniz's, as were the items of expense included. Nevertheless, the range in costs (delivered at Santos) between old and new plantations may very roughly be compared with data for the earlier period compiled by Muniz.

In 1928 coffee-production costs, on the average, in São Paulo apparently ranged between 130\$620 and 171\$060 per bag of 60 kilograms, equivalent in U.S. currency to 11.8 to 15.5 cents a pound. In 1939 or 1940 the range between New and Old Zone

²³ Production-cost estimates for Central American countries are based upon figures supplied "by various consuls and by numerous coffee growers" and quoted in Hearst, "Coffee Industry of Central America," *Economic Geography*, January 1932, VIII, 61-62. Reduction of interest rates (presumably in the early years of the depression) "reduced production costs about one and one-half cents per pound," making total costs in the early 1930's about 10 to 12 cents a pound. This total is broken down as follows: average cost of growing, picking, curing, and cleaning, 5 to 6 cents; freighting, export duty, transportation to nearest market, about 2½ cents; interest on investment, planter's salary, depreciation of trees and equipment, 2 or 3 cents a pound.

²⁴ Marcello Piza, "Cost of Coffee Production," *Brazil* (American-Brazilian Association, New York), August 1940, Year 12, No. 141, pp. 10-16 (translated by F. Kreutzenstein).

estates (defined somewhat differently) was said to be 117\$600 to 148\$800 per bag, or roughly 4.5 to 5.7 cents a pound, converted on the basis that 1 milreis was equivalent to approximately 5 U.S. cents at that time. Allowing for currency changes, the more or less comparable figures of 9 to 11.4 cents (pre-1933 U.S. dollars) are obtained as against 11.8 to 15.5 cents for the late 1920's. If Brazilian coffee production costs of recent prewar years were actually higher than in 1928, the calculations made then must have been inflated. Lack of data taking into account the many internal changes in Brazil since the onset of the Great Depression make it practically impossible to compare production costs over a period of years. Moreover, production costs in due time tend to be adjusted to the coffee price level, just as prices are in part established by prevailing production costs.

It seems more reasonable to accept cost data of the late 1930's as indicating a decline in over-all production costs from the level of the late 1920's. Despite the high proportion of fixed costs in coffee production, over a period of years over-all costs tend to become adjusted to the level of green coffee prices. Lower green coffee prices bring lower costs just as a high price level encourages higher costs, because more is spent on improvements that step up yields in order to bring more profit from higher prices. This tendency for the price level to influence production costs ordinarily receives far less attention than the part that production costs play in establishing the longer-term price level. Growers commonly think of green coffee prices in terms of current production costs and the profits that are possible at the current or a higher level of prices.

Practically all available evidence indicates that during the 1930's coffee production costs were appreciably lowered in Latin American producing countries, but especially in Brazil. Adjustments tend at first naturally to be made in the category of variable costs, such as wages for labor. With a protracted period of lower coffee prices following a similar period of high prices, however, means are found for paring overhead and even capital costs. Some of the initial effects of such readjustments are socially undesirable, but in the long run the industry tends to become more efficient and socially useful. This tendency oper-

ates even though the inefficient grower may remain in business for a considerable time in the hope that a restoration of higher prices will again permit profitable operations.

COSTS BETWEEN PLANTATION AND RETAILER

The relationship between prices received by producers and those paid by ultimate consumers invariably comes in for scrutiny when governments are obliged to intervene in the affairs of an industry. Even without some essential information it is possible to shed light on this question as it concerns coffee. Late in 1941 coffee prices were frozen in the United States, Santos 4's (ex-dock, New York) at 13³/₈ cents per pound, and Manizales at 15⁷/₈. Assuming these grades to be representative of Brazilian and mild coffees, and weighted accordingly, a green coffee price of 14 cents a pound may be taken as a basis for a few computations.

This 14 cents is the price at the dock. The buyer incurs unavoidable expenses in removing the cargo, transporting, and storing it until ready for forwarding to roasting plants. At the time of roasting an unavoidable shrinkage occurs—some 12–20 per cent, according to kind of coffee, age, method of roasting, and so on. The War Production Board's instructions to roasters allow 19 per cent shrinkage in the calculation of inventories. Thus green coffee costing 14 cents at the pier would cost 17.3 cents per pound roasted even if it could be roasted on the spot. The cost of roasting would be around ³/₄ cents a pound, and some kind of packaging from 1 to 5 cents, depending upon type. Without figuring any profit for the roaster, any freight, taxes, overhead, advertising, other operating expenses, or profits for wholesaler or retailer, the 14-cent coffee must carry a price from 19 to 23 cents. Actually, when distribution costs and profits are included, the retail roasted price for 14-cent green coffee will be around 22 to 31 cents a pound in competitive markets where coffee is commonly used as a leader and dealers' margins are extremely narrow.²⁵

²⁵ "It is hard to get facts on price spreads because manufacturers, wholesalers, and retailers—even if they have figures—are reluctant to give them out. This secrecy is largely due to the public's habit of looking upon large mark-ups in themselves as evidence of large profits, even though the distributor may be making only a reasonable profit, or even showing a loss on

To work in the opposite direction toward the coffee plantation, various unavoidable expenses such as ocean freight, marine insurance, and handling charges are incurred in moving coffee from the port of shipment in Latin America to the dock in New York. Freight and insurance have increased substantially since the onset of war in Europe, but in mid-1941 charges between Santos and New York amounted to about 1.2 cents a pound.²⁶ This cost is somewhat lower for countries nearer the United States, but even in normal times freight, insurance, etc., amounts on the average to .5 to .6 cents a pound.

Coffee worth 14 cents ex-dock New York has a value of about 13 cents at the Latin American port of shipment. From this 13 cents must be deducted various export duties, taxes, assessments, port costs, etc., varying from country to country and from time to time, but usually amounting to several cents a pound during recent years.²⁷ Then to arrive at a price for coffee on the plantation, various taxes, transportation, storage, and handling expenses must be deducted from the f.o.b. price at the port of shipment. In regions where coffee plantations are located well inland in mountainous country, and where transportation is difficult and expensive, the total of such costs may run quite high. Even in São Paulo, coffee is generally considered to be worth roughly 25 per cent less in the interior than in Santos.²⁸ Piza's cost-of-production estimates for São Paulo (1939 or 1940)

his operations as a whole." The Twentieth Century Fund, *Does Distribution Cost Too Much* (New York, 1939), p. 25.

Some years ago, at the time of the NRA codes, estimates of costs were presented by code authorities showing \$17.57 per 100 pounds as the cost of Santos coffee sold in 1-pound lithographed bags at Chicago when the green coffee cost was \$11.25; and \$28.02 to \$29.02 as the cost of a brand comparable with that of Standard Brands Inc., when green coffee at replacement cost \$13 per 100 pounds. Kantor, *Price Control in the Coffee Industry*, p. 14. Materials and labor costs have both risen since 1933, but assuming that they have not and that only shrinkage cost (which varies with green coffee cost) is changed, 14-cent coffee would under these schedules of costs imply a total cost of roughly 22 to 30 cents a pound.

²⁶ Similar charges were incurred in moving coffee from Salvador to New York. See J. Hill, "Why the Growing of Coffee Is Not a Paying Business," *Tea and Coffee Trade Journal*, September 1941, LXXXI, 39. In July 1941 the Brazilian fixed price for Santos 4's f.o.b. dock was 10.5 cents, and the ex-dock New York price 11.7 cents a pound.

²⁷ Before the export duty was greatly reduced in late 1937, every pound of coffee exported from Santos bore a charge of 3.74 cents for various Brazilian taxes (Ukers, *All about Coffee*, p. 334). Since the war closed the European market, growers in most countries have been taxed to pay the expenses involved in the storage and disposition of surplus production.

²⁸ McCreery and Bynum, *op. cit.*, p. 42. Sometimes the difference has been as much as 100 per cent or more. Upon rare occasions, under Brazilian control operations, interior prices were higher than Santos prices.

showed the expenses from Old Zone plantations to Santos at 35\$100 a 60-kilogram bag and from New Zone at 48\$000.²⁹ These were equivalent roughly to 1.3 to 1.8 U.S. cents a pound at a time when coffee was selling for not much more than 6 cents a pound at Santos. With rising prices many of the expenses between plantation and port of shipment increase, as certain taxes, carrying charges, and commissions are based on value rather than on the quantity of coffee involved.

Although it is impossible to assess charges to coffee in the hypothetical case here considered, it is probably conservative to assume that, from the 13 cents at the port, a charge of about 5 cents should be subtracted to cover all taxes, duties, transportation, storage, and handling charges. This would probably give a representative coffee price on the plantation. For Salvador, washed coffee selling at 15 cents in New York, port costs and the quota-sacrifice levy are said to amount to about 6.1 cents, and milling and export expenses to another 2.4 cents.³⁰ For Santos coffee also, expenses incurred between the fazenda and New York undoubtedly exceed 5 cents a pound. It is quite probable, therefore, that green coffee selling in New York at 14 cents nets 8 cents or less on the representative plantation.

If 8 cents a pound is assumed to be the price received by a grower on a Latin American plantation for his efforts, then by a common generalization that the grower's return is usually only one-third of the consumer's price,³¹ the consumer in the United States would pay for the same coffee about 24 cents a pound. Without inclusion of any distribution costs or profits, it has already been shown that the same coffee must carry a price of 19 to 23 cents in the United States. Except for minor charges and profits for various services from the plantation to the dock in New York (which never seem to come under the same scrutiny

²⁹ Piza, *op. cit.*, pp. 13, 15. Included in this figure are various taxes, freight, storage (warehousing), commissario's commission, and carrying charges.

³⁰ Hill, *op. cit.*, p. 39.

³¹ It is frequently asserted that "only 33⅓ per cent of the price paid by the consumer passes to the producer, the remaining 66⅔ per cent being absorbed in the profits of coffee merchants and roasters." International Institute of Agriculture, *Coffee in 1931 and 1932*, p. 33. This is the type of loose statement commonly made about most agricultural products when the purpose is to point to the sad lot of the producer. Profits of merchants and roasters do not by any means explain the wide gap. There is nothing unusual or inherently abnormal about such a relationship between retail prices of roasted coffee in the United States and producers' prices of green coffee at the port of shipment in some foreign coffee-growing country.

as the foreign buyer or the distribution system in the country of consumption), no allowance has been made for costs of selling the finished product, roasted and packaged coffee.

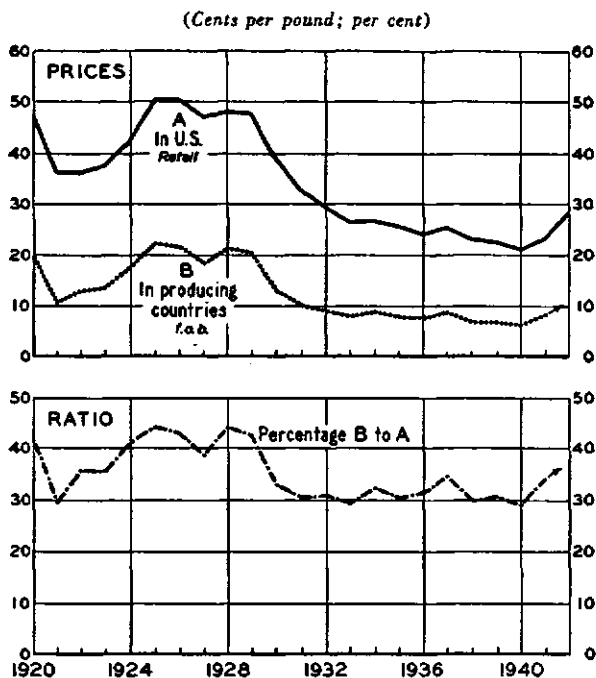
Whether selling costs are too high or not, some expense of distribution is unavoidable. Furthermore, in Europe, the retail price of coffee has been much higher than in the United States. Coffee in most other markets must bear import duties and taxes that run from a few cents a pound to more than the value of the coffee at the point of importation. In such cases the consumer's price is many times, and not just three times, the producer's price, without any consideration of the efficiency or costs of the marketing system involved. This is not to say that opportunities are absent for reducing marketing costs in ways that would tend to increase the producer's share of the consumer's dollar. The development of communications, for example, through improved roads and other transportation facilities, would be an important cost-reducing factor, as well as a stimulus to an improved plane of living in most Latin American countries.

The curve labeled B in Chart 4 is a producer's price only in the broad sense, as a country rather than an individual may be termed the producer. In other words, it represents average annual green coffee prices at the point of shipment in the producing country. The producer's price on the plantation in the sense used above would be lower. The ratio of f.o.b. green coffee export prices to retail roasted prices in the United States (Curve A) has itself fluctuated between 30 and 35 per cent for the past decade, indicating that the spread between prices received by the grower on the plantation and those paid by the ultimate consumer has been considerably wider. On the basis of the relationship between export and consumer's prices that has existed over the past decade, however, an export price of approximately 13 cents a pound (the figure used in the illustration above) would suggest an average retail price in the United States of about 39 cents. Even after the 1940-41 rise in green coffee prices, the average retail coffee price in the United States did not even approach 39 cents.³² This is indicative of one thing, and that is that the coffee

³² According to OPA officials the average retail price of "good quality" coffee in late 1942 was between 32 and 35 cents a pound. "Average" quality, as considered in the illustration above, would sell for several cents less.

grower is again receiving a greater share of the U.S. coffee dollar, as he did in the 1920's.

CHART 4.—AVERAGE COFFEE PRICES AT RETAIL IN THE UNITED STATES, AND AT PORTS OF SHIPMENT IN PRODUCING COUNTRIES, 1920-42*



* *Statistical Abstract of the United States*, 1926, pp. 324, 326; *ibid.*, 1941, pp. 364, 366. The A curve represents average annual retail prices of roasted coffee in 51 large cities of the United States. The B curve represents average annual green coffee prices in foreign countries at point of shipment, excluding ocean freight, insurance, etc., calculated by dividing the total value of imports by the total quantity.

Although the coffee producer receives relatively more and the distributor relatively less of the consumer's dollar, the grower is not necessarily in a better position financially.³³ That depends upon how much of his crop he is able to market at the higher prices and profits. It is apparent, however, that as the result of the Inter-American Coffee Agreement, most growers are again finding coffee production profitable and the coffee-

³³ It is to be expected that the producer's share of the consumer's dollar will be larger in periods of high prices when the cost of the raw material represents a greater proportion of the total cost that must be reflected in the retail price paid by the consumer.

growing countries of Latin America are benefiting greatly. For example, in 1941, Brazil exported only 72 per cent of the volume of coffee shipped in 1930, yet received a 10 per cent greater financial return.³⁴ Coffee exports to the United States alone increased by 10 per cent over 1940 in volume, and almost 54 per cent in value.³⁵ Colombian coffee exports, on the other hand, declined by one-third in quantity from 1940 to 1941 but rose 13 per cent in value.

Furthermore, an increase in the producer's share of the consumer's coffee dollar at a moderate level of retail prices suggests a sounder condition than when the level of retail prices is high, as it was in the 1920's. The retarding effects upon consumption are far less marked, and the profits that accrue to producers are ordinarily not upon a scale sufficient to generate a new planting boom.

POTENTIALITIES FOR EXPANSION

One of the great advantages long possessed by Brazil in addition to climatic conditions was the abundance of land available and well suited to coffee culture. Despite rising land and labor costs, even in the late 1920's Brazilians were unwilling to admit serious competition from other producing countries.³⁶ But as cultivation was extended farther from railroads, highways, and seaports, production costs tended to rise except for the former *colonos*,³⁷ whose subsistence standards and accounting methods cannot be considered typical. High prices tend to push the margins of extensive cultivation into areas of less suitable soil and climatic conditions, and thereby to increase the risks. This has happened in Brazil. Yet today, if there were need for an expansion of output, ample land would be available for cof-

³⁴ Guedes, *Brazil Coffee in 1941*, p. 39.

³⁵ The shipping shortage that developed in 1942-43 reduced exports considerably, but the United States undertook to purchase and store in Brazil coffee that might otherwise have been shipped under the quota arrangement (p. 189).

³⁶ The official publication of the São Paulo Institute stated in 1928 "taking into consideration the development of coffee cultivation in all producing countries, one comes to the conclusion that no other country can compete with Brazil." Quoted by J. F. Normano, *Brazil: A Study of Economic Types* (Chapel Hill, North Carolina, 1935), p. 45.

³⁷ Laborers living on coffee estates with their families who are provided with year-round employment, housing, facilities for raising their own food, etc.

fee in the leading producing country as well as in Colombia and many other less well-developed parts of the world.³⁸

There is abundant scope for expanding the area under coffee, both in or near the regions where it is now grown and in parts of the world where at present there is no cultivation. When prices are especially remunerative to growers, whatever the cause, plantings are stimulated in old and new areas. During the years of world oversupply and depressed prices, however, there was less incentive for any large-scale expansion of coffee lands, though outside of Brazil new planting seems to have continued, if at a reduced rate (pp. 117-19). If some of the barriers to expansion of consumption should be surmounted in future years, there would be no difficulty in augmenting the world's coffee supply to meet a greater effective demand.

Potentialities for the expansion of coffee acreage appear, in fact, to be enormous. About a decade ago, Jonasson, after making a detailed study of the question, reached the conclusion that some 93 million hectares (231 million acres) of land were potentially available for coffee production in the world, in contrast with some 5.2 million hectares then planted. About 43 per cent of the potential area was found in Brazil and about 20 per cent in Africa.

If it be assumed that the potential producing area for coffee should some time in the future be cultivated, then it could be safely estimated that about one-fifth, or 20 per cent, would be planted to coffee (for comparison, about 50 per cent of the total cultivated area in Sao Paulo is devoted to coffee, about 25 per cent in Minas Geraes, about 20 per cent in Costa Rica, and 1 per cent in Java). This would imply a quadrupling of the area at present planted to coffee in the whole world. Since the estimates and results herewith presented have been most carefully derived, this figure may be accepted as the minimum for possible coffee production. . . .³⁹

Statistics on the area under coffee in the various producing countries are notably incomplete and unreliable, and provide

³⁸ In Colombia, for example, it has been estimated that although just under a million acres are devoted to coffee, "at least 10 million acres are suitable for growing fine coffee." Kathryn H. Wylie, "The Agricultural Economy of Colombia," *Foreign Agriculture*, December 1941, V, 502.

³⁹ Jonasson, "Natural Conditions for Coffee Culture," *Economic Geography*, October 1933, IX, 364-65. In this summary of his more exhaustive work *Kaffet och Kaffeländerna* (Stockholm, 1932) the author considers the requirements of the coffee plant and makes estimates of the amount of land in each country (table, pp. 366-67) suitable for coffeegrowing, and also the cultivation of other commercial crops such as cotton.

only the most general idea of the distribution of world coffee lands.⁴⁰ Production or export figures are superior for most purposes in the present study, and these indicate that the potentialities for expanding the world's supply of coffee, if and when needed, are so great that no further consideration need be given to any long-term prospect of shortage. Other aspects of supply are infinitely more important at this time.

⁴⁰ The International Institute of Agriculture and other agencies compiling such information do not attempt to give world totals, since the data are too incomplete or are reported in terms that are not comparable. Jonasson ("Natural Conditions," pp. 366-67), however, offers some estimates for 1926-29. These show a little over 71 per cent of all coffee area to be in South America, about 16 per cent in North and Central America, 7.5 per cent in all Asia, and about 5 per cent in Africa. The rapidity with which the area under coffee can be increased is illustrated by official data on the Ivory Coast in Africa. In 1927-28 only 5,000 hectares were reported as devoted to coffee cultivation, but by 1936-37 this figure had increased to 104,000 hectares.

VARIABILITY OF THE COFFEE SUPPLY

Unquestionably the characteristic of greatest importance and significance throughout the modern economic history of coffee has been the variability of supply. Broadly speaking, this variability has two aspects: (1) year-to-year fluctuations in the size of crops owing to marked differences in yields of the coffee trees, and (2) periodic variations in aggregate supplies arising from annual yield fluctuations plus new planting. All the various attempts at valorization and control have been the outgrowth of conditions created by these variations.

Throughout the nineteenth century we can trace the history of this anarchic succession of over-production and under-production of coffee. Delight in a year when prices have been high is translated into an undue extension of planting, which, four years later, leads to the recurrence of rock-bottom prices. Then there is a panic. In the seventh year, the pendulum swings back once more towards the side of extended planting.¹

The above statement somewhat oversimplifies matters, but a substantial record of such experience existed before Brazil first resorted to serious measures of valorization early in the present century. Since then, control measures themselves have influenced the sequence of events leading to oversupply. But until the late 1920's, when the period of chronic surplus began, the supply that became available as the result of each season's harvest remained the strongest influence on prices.

RANGE IN SIZE OF CROPS

Since 1924-25 the Brazilian coffee crop has ranged in size from 13.6 to 29.6 million bags. Such a range is not unusual, as is apparent from an examination of the statistical record of production over a 50-year period. Table 6 gives a summary of what might arbitrarily be called "large" and "small" crops for equally arbitrary 10-year periods, together with an indication of above and below "average" crops for the same periods.

¹ H. E. Jacob, *Coffee, the Epic of a Commodity* (New York, 1935), p. 210.

The so-called "large" crops predominate, because the trend in production over the 50-year period has been upward, output in the 1930's averaging three times that of the 1890's. On the basis of averages, "below-average" crops outnumber "above-average" crops six to four, except for the decade including World War I;² but bumper crops add much more to world supplies than crop failures subtract from them. Such a tendency has the utmost significance for the problems of production control and price stabilization.

TABLE 6.—RANGE IN SIZE OF THE BRAZILIAN COFFEE CROP BY DECADES SINCE THE 1890'S*

Decade	Average crop		Number of crops		"Large" crops		"Small" crops	
	Million bags	Index number	Above average	Below average	Number	Range (million bags)	Number	Range (million bags)
1890's	7.2	100	4	6	6	6.5-11.2	4	4.4-6.0
1900's	12.6	175	4	6	4	12.9-20.2	6	9.4-11.3
1910's	13.3	185	5	5	6	13.0-16.0	4	9.7-12.7
1920's	14.7	204	4	6	6	14.5-27.1	4	7.5-13.6
1930's	23.5	326	4	6	7	20.9-29.6	3	16.6-19.8

* Based on data in Appendix Tables I and VI.

CAUSES OF ANNUAL VARIABILITY

The size of the world's coffee crop depends upon many factors in many parts of the world—local weather conditions, the yield of each tree for the last few years, the age of the trees, the locality, yielding characteristics of the variety planted, the prevalence of diseases and pests, and so on. Sharp fluctuations in year-to-year yields of the coffee tree are evident in all coffee-growing countries. They seem to be especially marked in regions near or in the Temperate Zones, which are subject to more erratic weather than prevails in strictly tropical climates. Parts of southern Brazil, and other coffee-growing countries similarly located, may be expected to show the greatest variations in crop

² Production figures for this period and earlier years represent exportable crops. Except for a few years, especially 1916-19, they provide a sufficiently satisfactory measure of production.

yields, owing to the dual influence of the coffee tree's cycle of yielding power and of less stable climatic conditions. There is, however, no satisfactory evidence on this point.³

The coffee crop is subject to erratic influences everywhere. Cold winds and frost are enemies always to be feared in Brazil. Cold winds cause more damage during the flowering period than frost during the winter months when trees are in a dormant state. Occasionally, as in 1902 and 1918, their effects have been so devastating that a radical reduction of yield has occurred at a time when a large or moderate one might otherwise reasonably have been expected. The great frost in 1918 destroyed many trees in São Paulo and reduced the 1919-20 crop by over 60 per cent. Even if frost does not kill the trees, it may stunt their growth and lower their yielding power for several years. Drought or unfavorable distribution of rainfall may also affect both the quantity and quality of a season's output, especially in growing regions located along the outer fringes of the tropical belt. The prolonged 1940-41 drought in the State of São Paulo was described as "one of the most calamitous of any in the memory of man in that region," reducing the São Paulo crop to only 4 million bags against an average of the three preceding years of 14.5 million bags.⁴ In other parts of the world, erratic influences such as typhoons or pests may be more important than frosts or droughts. Because of these and other factors, and the rate of development of trees, neither Brazil's output nor the annual world coffee output is predictable with any approach to assurance.

Wherever coffee is grown, large yields tend to be followed by lower yields, and low yields to be followed by higher yields. Frequently, though by no means invariably, large yields alter-

³ Computed differences in yield variability for the few countries for which data are available for a decade or two are not great enough to be significant. Many difficulties are present, because data are not only inadequate but also are lacking in comparability between countries and between years. Yields appear to be more variable in São Paulo than in the Netherlands Indies, for example, and more variable in Madagascar than in Kenya or the Belgian Congo. Yields in El Salvador, Guatemala, and Mexico seem more stable than in São Paulo, but yields in northern Brazil appear just as variable as in São Paulo. The states of Paraná and Santa Catharina south of São Paulo and in the Temperate Zone, however, show a greater variability in yields over the past two decades. The statistical record in all cases is too sketchy to justify more than suggestions.

⁴ Guedes, *Brazil Coffee in 1941*, p. 45.

nate with low yields.⁵ This alternation is attributed mainly to the fact that a heavy yield so depletes the yielding power of the tree, as in the case of many fruit crops, that even very favorable weather conditions fail to offset this, until a light crop has enabled the tree to replenish its reserves. When weather conditions are not as favorable but tend to vary considerably, as in southern Brazil, extreme variations are the more readily explained. It does not necessarily follow, however, that yields in the strictly tropical producing countries are less variable. Factors other than weather, such as the incidence of diseases and pests, may be greater. Reliable information upon this subject is not available, nor are data on yields for more than half a dozen of the more important coffee-producing countries.

Marked variations in the yield of individual trees or plantations in itself would not necessarily cause sharp fluctuations in world average yields. These are largely due to the limited extent of compensatory action. Brazil produces so large a fraction of the world output that this alone would lead to considerable fluctuation in the world crop even if yields of other countries were inversely correlated with Brazil's. High concentration of production in limited areas of Brazil restricts the influence of compensation within that country. The compensatory possibilities are further limited because types of coffee grown in the different countries are not interchangeable.

During recent years Brazil has produced about 60 per cent of the world's coffee, but the state of São Paulo alone accounts for 40 per cent—practically as much as all of the other coffee-growing countries combined. Since 1919–20, except for the 5-year period 1929–30 to 1933–34, aggregate production and trend in production of São Paulo and all other countries happen to have been almost identical.⁶ A fair basis of comparison is provided, therefore, between the variability of the 40 per cent of

⁵ Brazilian output, especially from 1927–28 to 1934–35 (Chart 5, p. 113), apparently upset "the theory that two or more years must elapse between bumper crops." "Such large harvests, coming every other year, or, according to other estimates . . . for several years in succession, had never before been known." Bacon and Schloemer, *World Trade in Agricultural Products*, p. 347.

⁶ The 1929–30 São Paulo crop of 19.5 million bags was a record, surpassing the 18.0 million bag crop of 1927–28. The 1931–32 crop of 18.7 million bags was the second largest ever produced in the state. The 1933–34 crop of 21.8 million bags established a new high, which has not since been exceeded.

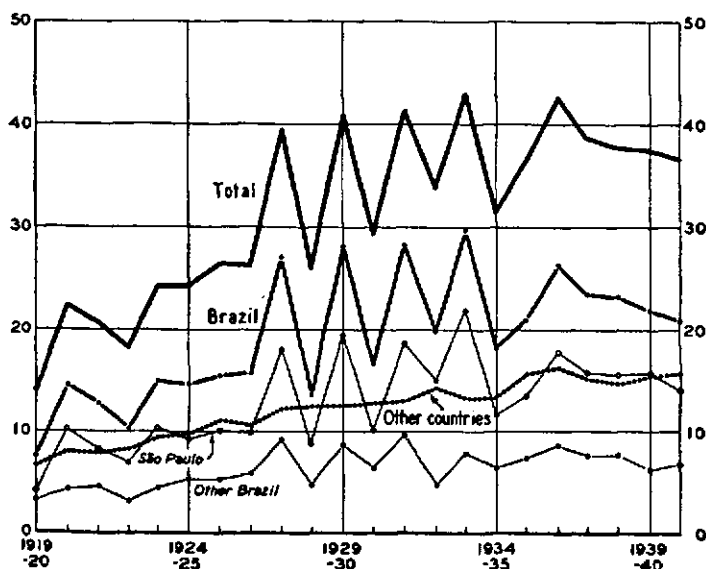
world production concentrated in São Paulo and the 40 per cent dispersed over Latin America ex-Brazil, Asia, and Africa. Aggregate production, in million bags, by 5-year periods, for São Paulo and all coffee-producing countries outside Brazil, was as follows:

Period	São Paulo	Other countries
(1) 1919-20 to 1923-24	40.0	39.6
(2) 1924-25 to 1928-29	56.0	56.2
(3) 1929-30 to 1933-34	85.1	65.9
(4) 1934-35 to 1938-39	74.5	74.9
Total, periods (1), (2), (4) ..	170.5	170.6

Chart 5 shows how much sharper yearly fluctuations in output are in São Paulo than in the other coffee-producing countries, states, or colonies as a group. Average deviation from trend over 15 years (omitting the period 1929-30 to 1933-34) was 1.8 million bags for São Paulo and only .5 million bags for other countries. In other words, coffee production in São Paulo

CHART 5.—AGGREGATE COFFEE PRODUCTION IN SÃO PAULO, OTHER BRAZIL, AND ALL OTHER COUNTRIES, 1919-20 TO 1940-41*

(Million bags of 60 kg.)



* Data in Appendix Table VI.

is three to four times as variable as production of the "other countries" as a group. If the 1927-28 record crop of São Paulo is omitted from the calculations, the result still shows output of the Brazilian state to fluctuate three times as much as the output of other producing countries as a group. Differences are to be expected owing to compensatory influences within the group of scattered countries. How much of the difference may be attributed to variations in yield characteristics among the producing countries is not known.

Chart 5 indicates that, despite the relative stability of annual output of the "other countries" as a group, the variability of São Paulo plus "other Brazil" gives a weighting to Brazilian production that is reflected in the irregular curve for "world total." If and when world coffee production becomes further dispersed geographically, one may reasonably expect annual fluctuations in aggregate output to diminish. As the sources of world supply continue to shift, the difficulties of international control increase or decrease according to the supply conditions characteristic of the major producing regions.⁷

One may also expect that as long as a large proportion of the world output is concentrated in one country, periods of extreme variability (as between the late 1920's and early 1930's) will be preceded and followed by a number of years of considerably smaller variability. Over the past half-century or more, successive decades have been characterized by such cycles, reflecting partly weather influences and partly new planting and in-

⁷ Similar but less acute problems of variability in yields and outputs occur for nontree crops. With wheat, for example, much more is known about regional differences and changes over rather extended time periods. Such a background of knowledge is essential to successful administration of an international control scheme. For example, the great differences between the variability of total wheat outputs in Australia, Canada, and Argentina, on the one hand, and the United States, on the other, will introduce complications if export quotas for participating countries under the new international wheat agreement are fixed and nontransferable. Furthermore, these differences create difficulties in fixing appropriate price differentials for various kinds of wheat for an entire crop early in the season, for wheats of different origins, like coffees, are far from completely interchangeable. See V. P. Timoshenko, "Variability in Wheat Yields and Outputs," *Wheat Studies of the Food Research Institute* [hereafter referred to as *Wheat Studies*], March 1943, XIX, 195-96. With rice also, something is known about yield and supply variability in the principal producing countries. These influences, together with the lack of complete interchangeability of different rices because of strongly developed consumer preferences, were partly responsible for government intervention and the establishment of national rice control schemes in Japan and in the Philippine Islands. See V. D. Wickizer and M. K. Bennett, *The Rice Economy of Monsoon Asia* (Food Research Institute, Grain Economics Series 3, Stanford University, Calif., 1941), pp. 144-48, 170-84.

tensiveness of cultivation. Chart 5 suggests an apparent smoothing of the production curve in Brazil during the late 1930's as the size of the crops diminished. However, the short Brazilian crop of 1941-42 (not shown on the chart) gave practical assurance that no important new influences were operating to alter significantly the characteristic behavior of yields.

SUPPLY SOURCES, YIELDS, AND NEW PLANTING

Since Brazilian coffee production over the past two decades has kept pace with the growth in world output, there has been no noticeable tendency toward reduction in variability of supply due to dispersion of production. In exports and consumption Brazilian coffee has become less important as the world surplus has accumulated in the one part of the world where production is most highly concentrated. Excessive producing capacity in Brazil is gradually being reduced, and the influence of Brazilian production on world variability of supply is tending to diminish. Future characteristics of the world coffee supply will depend on the extent to which this trend continues. Should there be, as seems likely, a further shift to mild coffees and a still greater geographic dispersion of world production, not only the variability but also the level of yields will assume greater significance. If yields should be higher in the newer producing regions, the tendency toward dispersion of world production will be accentuated.

Table 7 brings together such pertinent information as is available upon average yields and the range of yields for representative coffee-producing countries and states. Although no official or semiofficial estimates have been made, the world average yield is probably in the neighborhood of 4 quintals per hectare (357 pounds per acre).⁶ If the seven non-Brazilian countries listed in Table 7 are considered a representative sample, the unweighted average for the 15-year period 1924-38 works out at 4.0 quintals—the figure given for Brazil. Hence, in terms of area there is apparently little difference between

⁶ Private estimates by Jonasson ("Natural Conditions for Coffee Culture," *Economic Geography*, October 1933, IX, 367) of the world aggregate area under coffee during 1926-29 permit a computation of yield that works out to 3.8 quintals per hectare.

yields in Brazil and other coffee-growing countries as a group; in terms of trees, however, the differences are greater, if the data available on the number of trees in the world can be considered at all reliable.

TABLE 7.—AVERAGE COFFEE YIELDS AND RANGE IN YIELDS OVER A 15-YEAR PERIOD FOR SPECIFIED COUNTRIES AND GROUPS OF STATES*
(Quintals per hectare)

Area	1924-38 average	Range		Range as per cent of average
		Low	High	
Brazil.....	4.0	3.0	5.5	75-138
São Paulo	4.6	2.9	6.4	63-139
Minas Geraes, Espirito Santo, Rio de Janeiro.....	3.2	1.7	4.2	53-131
Paraná, Santa Catharina.....	3.9	1.0	6.3	23-161
Pernambuco, Bahia.....	2.8	1.3	4.1	46-146
Central America and Mexico				
Mexico.....	4.5	3.3	5.3	73-118
Guatemala.....	5.1	3.5	8.5	69-166
Salvador*.....	6.1	4.7	8.0	77-131
Netherlands East Indies.....	4.5	3.1	5.8	69-129
Africa				
Kenya.....	3.4	2.2	5.4	65-159
Belgian Congo.....	2.5	.9	3.4	36-135
Madagascar.....	2.0	.5	3.0	25-150

* Yields for Brazil and Brazilian states computed from data in Departamento Nacional do Café, *Anuário Estatístico do Café 1939/40*, pp. 38-39, 41-42; for other countries data from successive issues of International Institute of Agriculture, *International Yearbook of Agricultural Statistics*.

* Average and range during the 10-year period 1929-38.

According to data published by the National Coffee Department of Brazil (Table 8), there were an estimated 4,988 million coffee trees in the world in 1939, of which roughly half (2,500 million) were in Brazil. This means that, since Brazil accounts for 60 per cent of world output, yield per 1,000 trees is probably higher than elsewhere, though in terms of area units it is about the same or possibly a little lower. Furthermore, São Paulo yields must be higher than those for Brazil as a whole, for with an estimated 1,280 million trees (slightly over a quarter of the world total), São Paulo accounts for 40 per cent of

the world output.⁹ Any future shift in sources of supply to areas outside Brazil presumably would involve no greater increase in land use than if expansion occurred principally in Brazil, but it would involve the cultivation of relatively more coffee trees.

TABLE 8.—ESTIMATED NUMBER OF COFFEE TREES IN THE PRINCIPAL PRODUCING REGIONS OF THE WORLD, 1926, 1933, AND 1939*

(Million trees)

Regions	1926	1933	1939	1939 per cent of total
World total	3,209	5,014	4,988	100.0
Brazil.....	2,100	2,978	2,500	50.1
São Paulo	966	1,475	1,281	25.7
Minas Geraes.....	574	745	554	11.1
Rio de Janeiro.....	165	279	245	4.9
Espírito Santo.....	195	237	154	3.1
Other Brazil.....	200	242	266	5.3
Colombia.....	300	531	587	11.8
Venezuela.....	133	202	556	11.1
Mexico.....	80	120	134	2.7
Guatemala.....	75	100	90	1.8
Salvador.....	72	85	140	2.8
Netherlands Indies.....	129	280	284	5.7
British colonies.....	62	121	125	2.5
All other countries.....	258	597	572	11.5

* Data for 1926 and 1933 from Brazil, Ministerio da Agricultura, *O Café na Economia Mundial* (1935), p. 216; for 1939 from Brazil, Departamento Nacional do Café, *Anuário Estatístico do Café, 1939/40*, p. 4.

According to official Brazilian statistics, yields varied between 60 and 1,215 kilograms per 1,000 trees among the various coffee-producing states over the period 1920-33, while average yields for Brazil as a whole varied between 390 and 705 kilograms per 1,000 trees.¹⁰ This is equivalent to a range of .13 to

⁹ Official Brazilian statistics show that, except for the short crop of 1919-20, average yields in São Paulo were higher than in Brazil as a whole throughout the interwar period.

¹⁰ Brazil, Ministerio da Agricultura, *O Café na Economia Mundial* (1935), p. 231. The low was recorded in Parahyba in 1932 and the high in Paraná in 1928.

2.68 pounds per tree between states, and .86 and 1.55 pounds per tree for Brazil as a whole. For the 15-year period 1920-34, the average yield per tree in Brazil was 1.23 pounds.

Except for isolated years, information on yields per tree is not available for most of the important coffee-growing countries. Such data as are available suggest that average yields per tree in Colombia must range between .75 and 1.24 pounds, and probably have averaged around .9 to 1.0 pound since 1925.¹¹

Some of the differences in average yields from one coffee-growing region of the world to another may be attributed to soil and climatic differences, others to cultural practices and species, still others to the age distribution of the trees—upon which very little information is available. The greater the proportion of relatively young, vigorous trees, the more likely average yields are to be maintained at recent levels. New planting has always been stimulated during periods of high coffee prices. Changes in the age distribution of trees resulting from new planting affects the level of yields, and the location of new planting affects the variability of world coffee supplies. Although no statistics are available on the age of trees, the Colombian Coffee Federation estimated that in 1938 some 90 per cent of Colombian trees were less than 5 years old and only a few were over 15 years old.¹² This proportion of young trees is undoubtedly much higher than would be found in Brazil, a fact that also has considerable significance in future competitive relationships of producing countries.¹³

Table 8 shows that although the number of producing trees in Brazil declined by some 16 per cent between 1933 and 1939, while embarrassing surpluses persisted in that country, new planting elsewhere caused the aggregate world coffee-tree count to remain practically unchanged. Although in 1939 Brazilian

¹¹ It became possible to estimate Colombian production with greater accuracy from 1925 on, owing to the publication of statistics on the coffee movement from interior points to the seaports.

¹² Kathryn H. Wylie, *The Agriculture of Colombia* (U.S. Dept. Agr., Foreign Agr. Bull. 1, October 1942), p. 47. The National Federation of Coffee Growers of Colombia, organized in 1927, is a government-supported co-operative embracing all the various coffee interests of the country, and having as its broad purpose general promotion of the Colombian coffee industry. See Mario Carmargo, "What is the Colombian Coffee Federation?" in Commodity Research Bureau, *Coffee Annual 1942*, pp. 34-36.

¹³ See pp. 211, 219, 227.

trees still constituted half the world total, new planting in Latin America ex-Brazil, Asia, and Africa increased the number of trees outside Brazil by more than one-fifth in the short span of 6 years. This was despite the facts that the world coffee supply situation had been unhealthy for nearly a decade, and that new planting inspired by the high prices of the middle and late 1920's had already added substantially to world output. If these data are at all reliable, the increase in the number of trees outside Brazil between 1933 and 1939 is somewhat surprising after the phenomenal increase between 1926 and 1933.

The explanation seems to lie in the fact that the overproduction problem was peculiarly localized in Brazil. By comparison, the demand for mild coffees was well sustained, and, even during the worst years of depression, prices of mild coffees declined less than those of Brazil.¹⁴ This undoubtedly permitted growers some profit, or at least sufficiently small losses to warrant the expectation that recovery would justify the continuance of new planting.

Thus, it is quite reasonable to expect that, as or if new planting is discouraged in Brazil but continues elsewhere, the world coffee supply will gradually take on characteristics of greater year-to-year stability and thus simplify the problem of

¹⁴ The British Imperial Economic Committee (*Coffee*, pp. 8-9) observed that "the fall in prices of the best grades of coffee, such as Costa Rica and Empire-grown coffees, have been relatively less severe—thereby affording a clear illustration of the well-known trade experience that, where there exists a marked difference of quality in the grades of a primary product, the higher grades suffer less in times of trade depression than do the lower grades." The percentage decreases in average annual wholesale prices in London of coffees of various origin for the years 1925-30 were as follows (*ibid.*, p. 16):

Source	1930 on 1925	1930 on 1929
Better class mild coffees		
Costa Rica	28	17
India	38	32
Tanganyika	37	34
Kenya	41	33
Uganda, Arabica	43	36
Cheaper coffees		
Brazil		
Santos Superior	48	42
Rio No. 7	43	45
Uganda Estate		
Robusta	44	55
Bukoba (native)	67	53

Coffees which enjoyed the highest premium over Brazils were the least affected by the price decline.

supply adjustment caused by variability alone. Yields in the non-Brazilian countries should tend to increase because of the greater number of younger trees and perhaps also because of improved cultural methods. Higher yields will shift a proportionally larger share of world output to scattered growing areas where irregularities in season-to-season yields will tend to be compensatory. Finally, if yields are inherently less variable in the tropical zones, an additional influence for stability will be felt as the center of world production tends to shift away from São Paulo.

CREATION OF OVERCAPACITY AND SURPLUSES

If it were not for the effect on prices and the consequent influence on new planting, the inherent annual variability of world coffee output would not necessarily lead to overcapacity and overproduction. And if it were not for the control measures employed to deal with the problem, world coffee surpluses would certainly have been less embarrassing, especially during the recent period. Uninfluenced by additions to producing capacity, characteristic fluctuations in annual coffee yields alone should not lead to more than a temporary surplus problem. A series of moderate or small-sized crops in Brazil, as between 1921-22 and 1926-27, facilitates the disposition of surpluses. But three record crops within five years, as between 1929-30 and 1933-34, create exceptional problems of disposition. These record crops, however, were less the result of favorable growing and harvesting conditions than of the large increase in productive capacity resulting from the high prices of coffee under control between 1924 and 1929.

Table 9 illustrates how a highly variable world supply, a relatively stable but growing demand, and the level of coffee prices interacted to create an overproduced condition requiring years for adjustment. The data here presented should be regarded as merely approximating the sequence of developments and the magnitude of changes. The cumulative excess of production over exports is indicated as 145 million bags at the end of the 20-year period. It may be assumed that at the end of the first 5-year period (1919-20 to 1923-24) the world supply-

demand relationship was one of approximate balance, but at the close of the 1920's production was outstripping consumption. According to Brazilian figures, domestic consumption amounted to approximately 67 million bags for the 15 years 1924-38, and destruction between 1931 and 1938 amounted to 65 million bags. Subtracting these totals from the cumulative excess of 145 million bags leaves 13 million bags. At the close of 1938, Brazilian stocks were officially reported to have been reduced to something over 4 million bags, and world visible supplies were under 8 million. Roughly a million bags could easily have been consumed in other producing countries.¹⁵

TABLE 9.—WORLD COFFEE PRODUCTION, EXPORTS, AND PRICES, BY FIVE-YEAR AVERAGES, 1919-39*

(Million bags of 60 kg.; cents per pound)

Marketing period	Production	Export years	Exports	Average annual excess of production over exports	Cumulative excess	Price of Santos #1 (New York)
1919-20 to 1923-24..	20.4	1919-23 ..	20.6	-.2	-1.0	16.7
1924-25 to 1928-29..	28.6	1924-28 ..	22.9	5.7	27.5	22.0
1929-30 to 1933-34..	37.9	1929-33 ..	25.3	12.6	90.5	12.8
1934-35 to 1938-39..	37.9	1934-38 ..	27.0	10.9	145.0	9.7

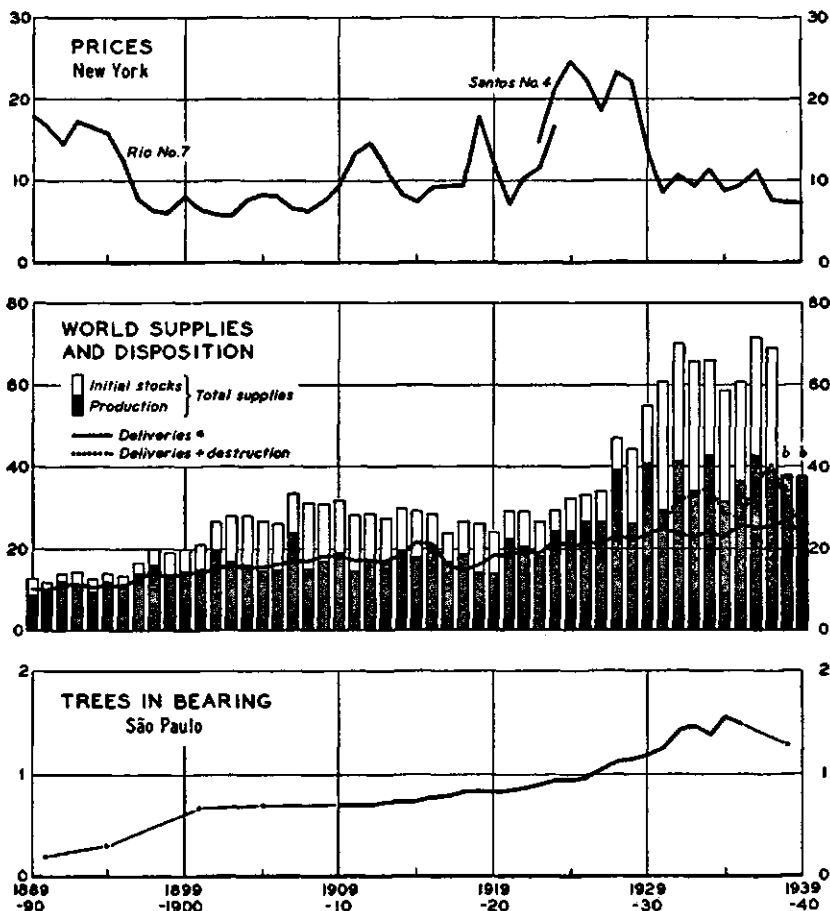
* Data from Appendix Tables II, III, and VI.

Chart 6 shows the rough relationship between coffee supplies, demand, and prices over a long period of years. At no previous time in the half century covered by the graph was coffee production so consistently in excess of consumption (as measured by deliveries) as during the period beginning in the late 1920's. The curve representing prices of Brazilian coffee in the New York market averaged higher from mid-1924 to late 1929 than during any other comparable period during the 50

¹⁵ Consumption in coffee-growing countries was undoubtedly far larger over the period; but since production figures for most of them are actually exports, no account need to be taken of domestic consumption in the above very approximate calculations. No reliable information is available on coffee consumption in most of the producing countries. Brazilian consumption in 1939 was officially estimated at around 6½ million bags. Colombian consumption has been estimated unofficially by the Pan-American Coffee Bureau at 450,000 to 500,000 bags, Mexican consumption at 500,000, and all other Latin American countries combined at roughly the same figure. This would make current total absorption of producing countries somewhat over 8 million bags annually.

CHART 6.—COFFEE PRICES, WORLD SUPPLIES AND DISPOSITION, AND TREND IN PRODUCTIVE CAPACITY, 1889-90 TO 1939-40*

(Cents per pound; million bags of 60 kg.; billion trees)



* Data from sources indicated in footnotes to Charts 8 and 9.

* Deliveries in importing countries are a measure of consumption or, more accurately, of "absorption."

* Data on total stocks not available.

years. Although data on world new plantings are largely lacking, the expansion in the number of producing coffee trees in the state of São Paulo may be taken to indicate the consequences of grower optimism attributable to abnormally high prices. The space between the dotted line on the chart (from 1931 on) and

the full line indicates the amount of adjustment in the world supply situation that was effected by the coffee-destruction program in Brazil.

Prior to the experience of the past two decades, there were years of over- and underproduction due both to yield variability and to the influence of expansion in productive capacity. Storage-valorization schemes, sponsored by Brazilian growers, were employed successfully to bring about adjustments without seriously or permanently retarding the longer-term progress of the industry. Since control schemes for coffee will be given special attention in chapters x and xi, it is advisable at this point to elaborate somewhat upon coffee-storage problems in the light of past experiences.

COFFEE STORAGE AND STOCKS

To cope with sharp fluctuations in annual output of coffee, some approach to market stabilization is theoretically possible through storage of the surpluses from large crops to be drawn upon in years of short crops. Indeed, this theory was the foundation of the several Brazilian valorization schemes discussed in chapter x.

Stocks may be stored (1) in warehouses in the coffee-importing countries; (2) at Santos and other export ports; (3) in interior warehouses in producing countries; (4) at the point of production. These are listed in the order of increasing magnitude of storage space, actual or potential; but the same order applies in reverse to safety of storage and costs of storage.

COFFEE CHARACTERISTICS AND STORAGE

Just how long coffee can be held in a satisfactory marketable condition is not altogether clear. Until the early 1930's there seems never to have been occasion to hold stocks for more than a few years. Since then, the huge supplies held in Brazil have apparently been so managed that the oldest coffee has never reached the market but has been included with inferior grades and some good coffee in the coffee-destruction program.¹

Statements that green coffee can be stored indefinitely are frequently made,² and old-season coffee seems not to sell at an

¹ Rogerio de Camargo, *Cultura Cafeeira: Visando a Qualidade* (Brazil, 1936). As late as 1941, however, some old coffee was on hand. Note the statement by the president of the DNC: "In 1941 there were incinerated the coffees which, because of its long period of storage, were already in bad condition, and also the coffees stored in warehouses which had to be cleared to receive the coffees of the 1941/42 crop." Guedes, *Brazil Coffee in 1941*, p. 69.

² McCreery and Bynum state (*The Coffee Industry in Brazil*, p. 48): "Few of the uninitiated realize the coffee will 'keep' in the green state indefinitely. In fact, it improves with age up to a certain point, becoming mellower and having a better appearance when roasted. This aging can be overdone, however. After about four years the coffee begins to lose its strength to an appreciable degree, although it never spoils if properly stored." The idea that aging improves green coffee seems to be widely accepted. It originated in the old days when coffees from the Far East were "sweated" in the course of their long voyage to the United States, and brought premium prices. The exact conditions favoring the maximum development of coffee attributes are not known, nor are the reasons for improvement upon aging. See C. W. Trigg, "The Chemistry of the Coffee Bean," in Ukers, *All about Coffee* (1st ed., New York, 1922), pp. 156-57. It is generally recognized, however, that storage conditions, wherever the green coffee may be, have an important bearing upon final quality.

appreciable discount; yet there are coffee buyers in the United States who consider that beans held through the tropical rainy season deteriorate in quality. Although some will not buy coffee held over from previous seasons, there are apparently many markets glad to import such coffee at a small price concession. Generalizations are undoubtedly dangerous inasmuch as conditions of storage vary appreciably, and much also depends upon the manner in which the coffee has been prepared for market.³ Washed coffees, for example, "cannot be kept in the Brazilian climate for more than a few months without loss of the colour which is so highly prized by buyers."⁴ Yet in Brazil's attempts to improve quality in order to compete more favorably with the mild-producing countries, resort to the wet method of preparation, common in other areas, has been vigorously encouraged. Brazilian coffees, however, are still predominantly unwashed.

A distinction should be made between old-crop coffee and aged coffee. Old-crop coffee may be marketable at little or no discount if it has been held under favorable conditions of storage, but it may carry a substantial discount if its quality has deteriorated noticeably. The same old-crop coffee, however, may enter special storage for the specific purpose of aging in order to add to, or develop, its attributes.⁵ Such coffee often brings a premium, because it is in fact superior to comparable new-crop coffees. Much confusion arises from the fact that all aged coffee is necessarily old-crop, but not all old-crop coffee

³ The same question arises with other surplus commodities. "The question is frequently asked: How long will wheat keep? The scientific answers are numerous and complex, but the practical answer is fairly simple. If in suitable condition when put in store, if kept in proper storage, and if handled with due care to prevent damage by heating, vermin, weevils, etc., wheat will deteriorate very gradually and slightly. If these conditions are ignored or violated, more or less considerable losses will occur, but their extent is commonly exaggerated even in trade circles. Depreciation in value may be greater than effective deterioration in quality, because millers and feeders take heavier risks of deterioration in buying long-stored wheat. It is therefore sound commercial practice not to hold identical wheat much more than a year, replacing older stocks by newer if large quantities are carried forward." J. S. Davis, "World Wheat Survey and Outlook, September 1942," *Wheat Studies*, September 1942, XIX, 20. These comments seem equally applicable to coffee. It is doubtful that the significance of the "death" of the wheat kernel, which affects the baking quality of flour milled from it, has its counterpart in coffee.

⁴ Rowe, *Brazilian Coffee*, p. 35.

⁵ "Ageing improves the value of coffee if done correctly in damp warehouses, though care must be taken that it is not too damp. Thus, existence of a surplus production is not necessarily a bad condition provided proper storage facilities are available." *Foreign Commerce Weekly* (U.S. Dept. Comm.), Nov. 21, 1942, p. 23.

has been aged in a manner designed to add to its value.⁶ A small proportion of the Colombian crop is aged, but most of the Brazilian coffee held over from a previous season is merely old-crop and sells at a discount.⁷

Whatever benefits may accrue from the aging of coffee, it seems that they apply to sharp (Brazilian) coffees more than to milds. The mellowing process tends to make mild coffees insipid. Many attempts have been made in the past to develop processes for artificial aging, but this quest seems less vigorously pursued today.⁸ In fact, aging of coffee seems to have been a vogue, and there are many coffee buyers today who are unwilling to concede that age adds anything to the desirability of most growths.

Coffee characteristics differ so widely among growing regions and from season to season, and conditions of storage vary to such an extent that it is probably impossible to define an optimum period of storage. Coffee quality, as pointed out earlier, depends upon many factors, and improvements in one direction may necessitate compromises in another. There is always the question of balancing or weighing one set of advantages or disadvantages against another. The question of storage and its relationship to coffee quality assumed a new importance to the industry when World War II forced the closing of the European market and, for the first time, the carrying of stocks in some of the mild-producing countries as well as in Brazil.

From a practical standpoint, unless the war is very prolonged, it will probably be possible for the mild producers to dispose of accumulated surpluses even though quality may have

⁶ Under OPA regulations in the United States old-season coffee may, under certain circumstances, be sold at prices above established ceilings, apparently on the ground that age has added to its value. This seems to be a doubtful contention, confusing old-season coffee with aged coffee.

⁷ Old-crop Brazilian coffee ordinarily finds no market on the Pacific Coast of the United States and only a limited one on the Atlantic Coast. Formerly the middle western states took this coffee at a discount, but after the introduction of brands consisting more largely of mild coffees the demand for old-crop coffee gradually disappeared.

⁸ Before the Suez Canal was opened the 6-month voyage in damp holds from India to Europe caused coffee to turn white, but imparted to it a certain flavor preferred by many in Norway, France, and Switzerland. Now special methods of curing Indian coffee by allowing the monsoon winds to blow continuously on each bag and repacking every week for about 6 weeks produces a silvery white bean, known as "monsooned coffee." "The Story of Indian Coffee," *Indian Information* (New Delhi), Sept. 15, 1941, IX, 304.

suffered during the holding period. However, upon the termination of hostilities, much as the coffee growers of the world would welcome the opportunity to supply a war-torn Europe long deprived of decent coffee, they will be adopting a very shortsighted policy if they dump coffee of uncertain quality on these markets when the demand is temporarily none too discriminating.

What the cupping qualities of coffees now stored in Latin America will be at the end of the war is anyone's guess. Although aging may enhance the value of coffee under certain conditions, it is doubtful that storage facilities in Latin America are adequate even for short-time holding of very substantial surpluses. Fortunately for most of the mild-producing countries, at the opening of 1943 surpluses apparently had not accumulated to the extent anticipated earlier. Owing to war developments that made shipping so scarce that the United States was forced to draw on the nearest sources of supply, most of the mild producers shipped far in excess of the quotas established earlier under the Inter-American Coffee Agreement. At the same time, Brazil was not able to ship her quota, but arrangements were made for storage there, where facilities are far more adequate (pp. 189, 210-13).

STORAGE IN THE COUNTRY OF PRODUCTION

Although coffee may be stored at the place of harvest, in interior warehouses, or at the shipping ports, wherever it is stored within producing countries it is subject to some deterioration. Tropical and subtropical areas are in general inferior to temperate regions as places of storage. Most tropical food crops must be moved out before the rains begin, in order to avoid various hazards all of which have an adverse effect upon quality. Coffee held over for one or more seasons must generally seek less discriminating and less profitable consumption channels.

In Brazil the general practice has varied. Sometimes it has been to ship out the most recent arrivals at the ports, or the current crop from interior warehouses, rather than the carryover from previous seasons. At other times old stock has been moved

along with the new.⁹ In coffee circles it seems generally agreed that Brazil's policy of holding stocks over several seasons was at the expense of general quality. Although the poorer grades have been destroyed in recent years, it has been necessary to move the best of the harvest first in order to compete at all successfully.

In his study of the Brazilian control schemes, Rowe mentions that one of the mistakes the Brazilians made in their early efforts at valorization was to store surplus supplies in the chief consuming centers. Stocks overhanging the market were believed to depress prices more than if they were held in the producing country.

Brazil . . . did learn a good deal about the practical economics of stock-holding. More particularly she learnt that the holding of large stocks for long periods at the chief centres of consumption is not only extremely costly, but that these stocks hang over the particular market concerned and weigh down upon the price in that market, since buyers know that the stocks can be had at a moment's notice, and that therefore there is no need to buy ahead, as would be the case if supplies could only be obtained by shipment from Brazil: equally buyers know that such stocks will not be readily transferred to other centres, since this involves considerable additional expense. If these stocks had been held up-country in Brazil, or even at Brazilian ports, the actual cost of storage would have been much smaller, while the depressing effects on the price in particular consuming markets would have been avoided. These were important lessons, and they were to be demonstrated positively, and not merely negatively, on the occasion of the next valorization, when owing to the War, shipment abroad was impossible and the stocks had perforce to be accumulated within Brazil.¹⁰

These observations seem applicable only to the period of the first valorization, when Brazilian coffees more or less monopolized the market and before the great growth in competition from mild coffees. The "lesson" learned by Brazilians would seem to apply more to the costs of storage than to the effect on prices, at least under conditions that have prevailed during the past two decades. The known existence of world surplus stocks, wherever held, seems to have a more pronounced effect on prices in a

⁹ At one time during Brazil's coffee-defense program, four harvests were being moved through Santos simultaneously, but in later years the movement was limited to the current crop and that of the preceding year. Brazil, Ministry of Foreign Affairs, *Brazil 1939/40: An Economic, Social, and Geographic Survey* (Rio de Janeiro), p. 99.

¹⁰ Rowe, *Brazilian Coffee*, p. 9. This is a very competent study of Brazilian control schemes during the 1920's. Much of the value inherent in its wealth of interesting detail is unfortunately lost through disregard for the mechanics of presentation.

particular country than the size of its domestic stocks.¹¹ If coffee held in the country of production is held long enough, or really deteriorates appreciably in quality, then such stocks might be a less depressing influence on prices than stocks held in consuming centers, only because there would be a good chance that such coffee in time would more or less eliminate itself from the total supply, or at least from the supply eligible for consumption in the principal markets of the world.

On the general question of the precise influence of stocks on prices, there seem to be many opinions and beliefs but few established facts. Visible supplies have long been a market factor for a number of commodities in international trade, but actions based upon changes indicated by visible-supply statistics have proved ill-advised upon important occasions. The trouble lay in the fact that visibles were not an accurate reflection of total stocks or changes in aggregate supplies. Yet in the absence of more complete information, traders necessarily were forced to base decisions upon such, sometimes faulty or misleading, evidence. The mere fact that a large number of the trade employed an imperfect barometer to help them anticipate changes was often enough to affect price behavior, at least temporarily.

Reliance upon certain market barometers on the part of traders over a long period of years has given rise to a number of firmly held beliefs having some foundation in fact but not enough to justify dogmatic generalizations.¹² Even after market information has been improved, considerable time elapses before many take advantage of it, so strong is the prevalence of certain notions and the habitual dependence upon more familiar criteria of market evaluation. At the time when the cotton and grain stabilization corporations were actively operating with the

¹¹ This is generally true for the principal raw commodities of importance in international relations. "Further, in the absence of special national controls, it is the world supply on hand rather than the domestic stocks that have determined the course of prices in individual countries." See the National Industrial Conference Board study by R. F. Martin, *International Raw Commodity Price Control* (New York, 1937), p. 5.

¹² Intensive studies by the Food Research Institute on wheat have revealed a number of almost wholly false suppositions commonly held by that trade with regard to such matters as the price relationship between futures as indicating the market's appraisal of expected price change, the effect of changes in crop prospects on certain futures prices, the relation of wheat supplies and specific stocks to price spreads, and so on. See, for example, Sidney Hoos and Holbrook Working, "Price Relations of Liverpool Wheat Futures with Special Reference to the December-March Spread." *Wheat Studies*, November 1940, XVII, 102-26.

support and guidance of the Federal Farm Board in 1930 and 1931, these agencies were charged with accentuating basic weaknesses in wheat and cotton prices by forcing supplies into visible positions—"the show windows." Since the trade was so accustomed to watch and respond to changes in visible-supply statistics, there was no doubt some basis for this contention. With improvement in information on wheat stocks, whether visible in the old sense or not, the trade has come to place less dependence upon reports of visible supplies. Coffee traders were forced to do likewise after stockholding in interior Brazil became too important to be disregarded (p. 142 ff.).

Rowe's ideas about the effects on the market of the place of coffee storage undoubtedly have some basis in fact; yet they seem partly to belong to the category of untenable beliefs held by traders. That stocks overhanging a particular market weigh down the price in that market can be true only to a limited extent, and the statement that "the depressing effects on the price in particular consuming markets would have been avoided" had stocks been held in Brazil is unquestionably an exaggeration. Certainly for many commodities, the past is not a solid basis for appraising future behavior. Too many new factors are involved: for example, the increasingly familiar phenomena of mounting stocks accompanied by rising prices, explained by government injection of artificial factors into market situations.

DISTRIBUTION AND DISPOSITION OF WORLD STOCKS

The world visible supply of coffee includes stocks in warehouses in the important receiving ports of the United States and Europe and afloat from shipping points in the producing countries. The data have never been all-inclusive. Since 1924, stocks held in interior Brazil have been an important factor in aggregate supplies,¹³ and fluctuations in that portion of supplies

¹³ In recent years the monthly figures published by the New York Coffee and Sugar Exchange, Inc., have included stocks as follows: (1) United States: Brazilian coffee stored in New York and New Orleans, other kinds in the United States, coffee afloat from Brazil and from Java and the East; (2) Europe: Brazilian and other kinds of coffee in European ports, coffee afloat from Brazil and from Java and the East; (3) Brazilian port stocks: in Rio, Santos, Victoria, Bahia, Paranaguá, Pernambuco, Angra dos Reis; (4) total, excluding Brazilian "interior" and "restricted" stocks; (5) total, including National Coffee Department stocks, stocks pledged against the 1930-40 coffee loan, privately-owned coffee in interior warehouses (Brazilian "interior" and "restricted" stocks). The balance of stocks pledged against the

termed "visible" have had a somewhat restricted meaning. Before 1924, stocks were accumulated at Brazilian ports in sufficient volume to meet the varied grade and quality demands of buyers. When control was instituted over the movement from the interior to shipping ports, port stocks were reduced by more than half, and buyers became dependent upon actions of the coffee-defense administration in releasing interior stocks. The manner in which supplies were allowed to reach the market had effects upon prices which are discussed elsewhere (p. 142 ff.).

Changes in world coffee stocks from month to month or year to year are mostly of historical interest in helping to explain price movements. In general, there is an inverse relationship between stocks and prices of foodstuffs and raw materials of world importance, and the same tendency is shown for coffee (Chart 7). However, the exceptions are numerous in the history of commodities subject to control. This is especially so with coffee, and detailed analysis is not warranted except to explain developments during periods of special interest.¹⁴ The record of world coffee stocks and the disposition of Brazilian supplies in 1920-39 is set forth in Table 10 for reference.

World visible coffee stocks were relatively low in 1923. That year may be considered the beginning of the period of significance for purposes of the present study. For the five previous years, stored supplies averaged about 40 per cent of annual consumption requirements, compared with approximately 67 per cent for the period 1909-13. Thereafter stocks began to increase from about 5-months' consumption requirements until they reached peak proportions during the 1930's, when they averaged about 15-months' requirements. So-called visible supplies remained at low levels, but aggregate supplies began to get large with the record 1927-28 Brazilian crop of 27.1 mil-

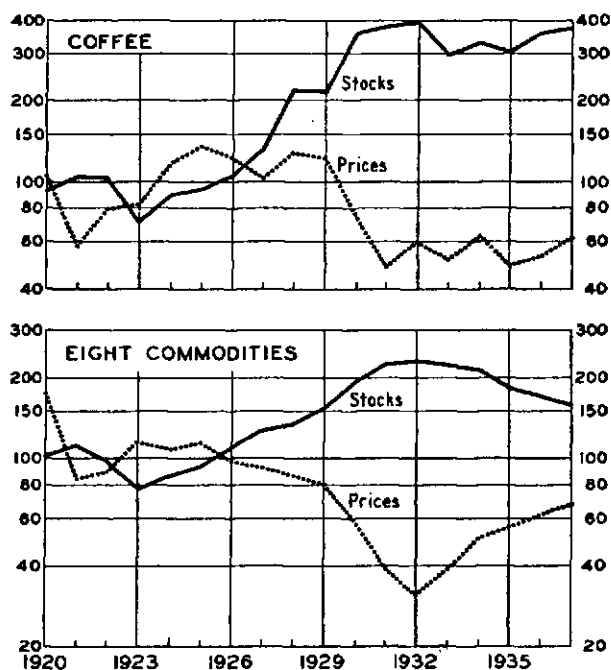
1930-40 São Paulo coffee loan (p. 147) to cover bonds outstanding to the extent of £5,611,700 and \$14,646,000, amounted in June 1942 to approximately 7.3 million bags. The contract covering this loan called for the exportation of a monthly quota to be applied as interest and amortization of the loan. In recent years the DNC has been paying the bankers the equivalent in currency in order not to disturb the market, and destroying the coffee. The DNC says: "For all practical purposes, therefore, this pledged stock is definitely out of the market." For further details on the status of the £20 million Coffee Realization bonds, which were due Oct. 1, 1940 and have been in default since 1938, see *Moody's Manual of Investments—Governments and Municipals, 1943*, pp. 1712-13.

¹⁴ See chapter x for a discussion of the operations of various Brazilian control schemes.

lion bags. A succession of record-breaking crops in 1929-30, 1931-32, and 1933-34 created an unparalleled situation. Recognition of this came in 1931 with the beginning of the coffee-destruction program in Brazil.

CHART 7.—INDEXES OF WORLD STOCKS AND PRICES OF COFFEE AND OF OTHER IMPORTANT FOODSTUFFS AND RAW MATERIALS, 1920-37*

(Monthly average 1921-27 = 100)



* Based on data in U.S. Dept. Comm., *Survey of Current Business, 1938 Supplement*, pp. 10, 15. Eight commodities (coffee, cotton, rubber, silk, sugar, tea, tin, and wheat) are included in the composite indexes. Data here adjusted to 1921-27 basis.

The data in Table 10 tell their own story and show the critical situation that had developed by 1937. That year marked the end of one period and the beginning of another significant epoch in the modern economic history of coffee. It saw the destruction of 17.2 million bags of coffee, the failure of an attempt at agreement among coffee-producing countries looking toward correcting a maladjusted world coffee situation, the abandonment of price control in Brazil and the announcement of a new policy of free competition in trade, and the fall in Bra-

zilian coffee prices by one-third. Thereafter, with the employment of drastic measures, the supply situation took a turn for the better, exports were expanded as prices were stabilized at the lower levels, and the effects of neglect and the abandonment of trees began to show in coffee yields.

TABLE 10.—WORLD STOCKS OF COFFEE, ANNUAL AVERAGES, 1920-39 AND BRAZILIAN STATISTICS ON SUPPLIES AND THEIR DISPOSITION FOR THE SAME PERIOD*

(Million bags of 60 kg.)

Calendar year	World stocks			Brazilian supplies			
	Visible supply	Interior Brazil	Total	Destruction in Brazil	Supplies ^a	Disposition ^b	Year-end carryover ^c
1920.....	7.9	...	7.9	...	16.3	12.4	3.8
1921.....	8.9	...	8.9	...	20.9	13.6	7.3
1922.....	8.7	...	8.7	...	21.6	14.3	7.3
1923.....	5.9	...	5.9	...	21.6	16.4	5.2
1924.....	4.9	2.8	7.7	...	21.1	16.5	4.6
1925.....	5.1	2.8	7.9	...	19.4	16.0	3.4
1926.....	4.6	4.5	9.1	...	19.4	16.6	2.8
1927.....	4.6	6.8	11.4	...	21.2	18.3	2.9
1928.....	5.2	13.5	18.7	...	30.7	17.4	13.4
1929.....	5.2	13.4	18.6	...	39.6	18.1	21.6
1930.....	5.3	25.0	30.3	...	48.8	19.4	29.4
1931.....	6.3	26.2	32.5	2.8	51.1	25.1	26.0
1932.....	5.5	28.0	33.5	9.3	51.6	26.0	25.6
1933.....	6.3	19.0	25.3	13.9	55.2	34.5	20.7
1934.....	7.9	18.3	26.2	8.2	48.2	27.9	20.3
1935.....	7.4	18.5	25.9	1.7	39.3	22.9	16.4
1936.....	7.9	21.3	29.2	3.7	42.7	24.1	18.6
1937.....	7.7	24.0	31.7	17.2	41.0	35.9	5.1
1938.....	7.4	....	....	8.0	27.2	31.6	4.4
1939.....	8.0	....	....	3.5	25.2	26.7	...

* Data on world stocks (annual averages of monthly figures) from U.S. Dept. Comm., *Survey of Current Business, 1938 Supplement*, p. 113; *ibid.*, 1940 Supplement, p. 112. For composition of the visible supply, see footnote 13, p. 130. Stocks in interior Brazil were not reported prior to October 1923 and reported only at irregular intervals after March 1937. Averages for 1934, 1936, and 1937 are for various months (usually six in all) when data were reported. Data on Brazilian supplies are the official figures of the Department of Production Statistics of Brazil (*International Yearbook of Agricultural Statistics 1939-40*, p. 1077). Information on aggregate supplies does not agree with that from other sources owing to differences in reported production. See comment on Brazilian production statistics, pp. 88-90.

^a Stocks at beginning of year plus production.

^b Exports plus domestic consumption plus destruction.

^c Stocks at ports and held in the interior.

But the failure on the part of Brazil to take essential corrective action earlier in the decade had permitted the mild-producing countries to strengthen their position. World stocks were approaching more normal levels, and the world statistical position had greatly improved when World War II broke out. Then, for the first time, other producing countries faced problems of storing and disposing of surplus supplies.

In addition to stocks classed as "visible," the existence of which is a matter of record and common knowledge, there are also supplies classed as "invisible," which are known to exist though their magnitude is usually unknown. Such supplies are primarily in importers', roasters', and distributors' warehouses, and secondarily in retailers' and consumers' hands. Their size has a significance in reflecting trade appraisals of future market trends as well as current rates of consumption. Important distinctions are to be made between the flow of coffee into consuming centers in reflection of a changed consumer demand for immediate consumption, and the flow which reflects only the actions of trade factors in building up or reducing stocks in anticipation of price changes or prospective changes in consumer demand.

Although knowledge about invisible supplies within particular consuming countries is always of interest to the trade in those countries, at times market situations develop when accurate information is needed for broader purposes. Such was the case in the United States in 1941, when the first comprehensive survey of green coffee stocks and consumption was undertaken by the Department of Commerce.¹⁵ Stocks in the United States increased rapidly following the stimulation of imports upon signing of the Inter-American Coffee Agreement late in 1940. It was important for establishment of administrative policy in connection with this agreement to know the extent to which stocks had increased as the result of speculative influences, and the extent to which they represented a legitimate growth based upon increasing coffee consumption.¹⁶

¹⁵ U.S. Dept. Comm., Bureau of Census release, Nov. 17, 1941.

¹⁶ Increased mass purchasing power plus large numbers of men in the army with a coffee ration said to have been 45 pounds a year were two influences responsible for an apparent increase in coffee consumption to all-time peak levels in the United States late in 1941, equiva-

The Department of Commerce survey of green coffee stocks and consumption, based upon roasting volume of roasters, chains, and delivery routes, indicated that the United States had on hand at the opening of 1942 about 4.2 million bags of green coffee, equal to about 3-months' consumption requirements at the rate indicated by roasting volume for the last quarter of 1941. This, apparently, was a "normal" situation, and corresponded with the volume importers and roasters were permitted to carry during the control period of World War I.¹⁷ But stocks were depleted during 1942 as imports were unavoidably curtailed because of the shortage of shipping. By November they had fallen to under 1.4 million bags. Restrictions on deliveries to the trade were first imposed, and finally rationing was necessary. Stocks held by ultimate consumers are ordinarily not a factor of importance, amounting to less than two weeks' supply. However, in anticipation of rationing, which was instituted late in November 1942, there was a tendency for consumers to stock up beginning in the second quarter of that year.

lent to roughly 17 pounds per capita. Later, in 1942, as a coffee shortage developed in the United States and rationing became necessary, the army allowance was reduced to roughly 12 pounds a year and the civilian ration was reduced from about 20 to 10 pounds annually per coffee drinker.

¹⁷ See Irving Bernstein, *Control of Coffee in World War I* (U.S. Dept. Labor, Bur. Labor Statistics, September 1941, mimeographed), p. 8.

BRAZILIAN COFFEE CONTROL SCHEMES

Coffee has been subject to artificial controls for a longer period than any other commodity of world importance. Until the Inter-American Coffee Agreement of 1940, such control was primarily a Brazilian affair, although several unsuccessful attempts were made to extend it to other coffee-producing countries, most recently in 1936 and 1937. The effects of Brazilian activities, extending over almost four decades, were inevitably international in character. In several instances the control measures seemed successful, though in retrospect certain of the successes appear largely adventitious. The more ambitious later control measures were disastrous failures. The whole experience merits examination for the light it throws on the coffee industry and trade, on the background of the wartime coffee situation, and on the problems that any coffee-control scheme must face.

Marked variations in Brazilian production and the attendant repercussions on coffee prices, financial returns to growers, and the country's economic well-being led to early advocacy of some form of market control. By withholding from the market supplies in excess of normal requirements when crops were large, and then releasing stocks during years of relative scarcity, it was hoped to influence coffee prices and incomes of growers favorably. Such control, it was felt, would also obtain for the coffee grower the speculative gains ordinarily accruing to middlemen and merchants.

The early experiments in Brazil, known as "valorization" schemes, sought to raise coffee prices above a subnormal level.¹ These were regarded as temporary measures to meet abnormal

¹ "The term valorization was introduced into English speaking countries about 1906 from Brazil where it (*valorizaçao*) had been applied to measures regulating the marketing of coffee. In its original meaning it signified the act or process of raising the price of a commodity by governmental interference above a level regarded as uneconomically low but not above the price that would in the long run be set by free competition. Valorization is presumably temporary in character, and it is significant that when Brazil inaugurated a permanent plan for the control of coffee in 1922, this was described as 'defense' of coffee and not as valorization.

"Since the World War the meaning of the term has been extended so widely as seriously to impair its usefulness . . ." C. R. Whittlesey in *Encyclopedia of Social Sciences*, XV, 210.

conditions. Not until the general postwar collapse of 1920 and the relatively large crop of 1920-21 did conditions arise that led to a plan of continuous control. Brazilians referred to this system as "coffee defense."

By coffee defence, Brazilians mean the neutralisation of the influence of crop variations on the short-period prices received by the producer: there has never been any intention of trying to raise the long-period equilibrium price paid by the consumer Brazil did, in fact, blunder into a policy which temporarily raised the consumer's price far above what it ought to have been; in doing so, Brazil stepped into the shoes of monopoly quite unconsciously, and was therefore most surprised when retribution swiftly followed.²

Although the earlier Brazilian experience with valorization is now chiefly of historical interest, a brief summary is desirable for a better understanding of the later, more fully developed, controls that were attempted under "coffee defense."

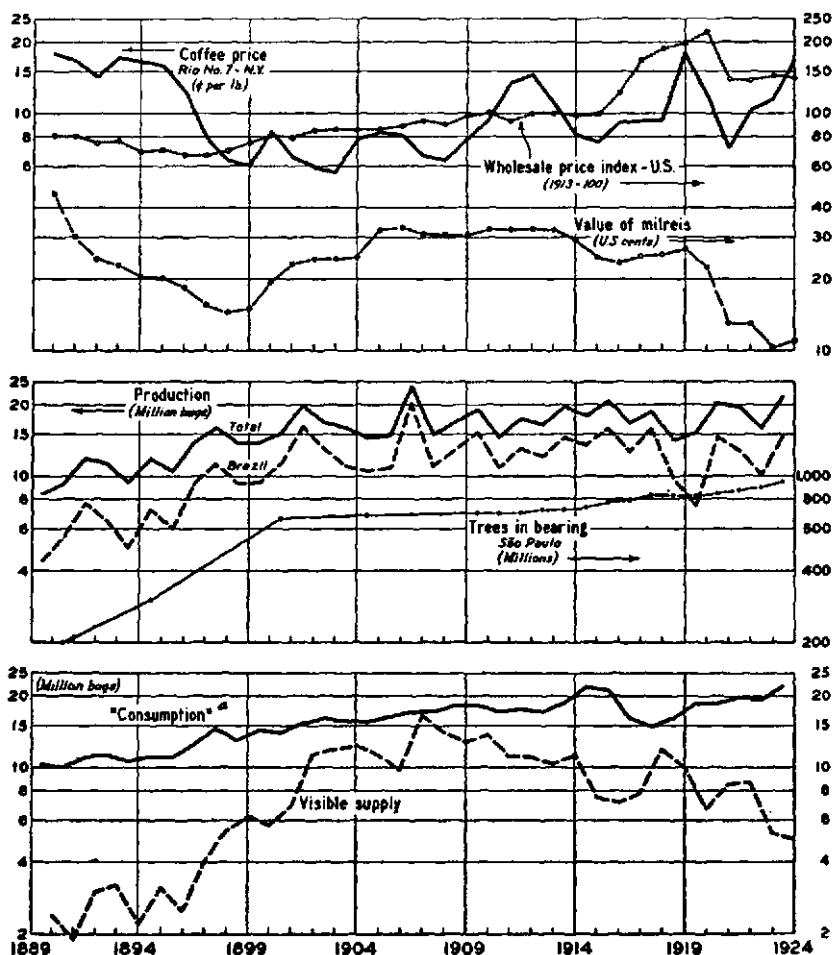
VALORIZATIONS

Large annual variations in supply (chapter viii) coupled with a highly inelastic short-run demand (chapter v) are the circumstances that inspire attempts to exercise control over the production and marketing of coffee. Experimentation with artificial control schemes for coffee has, in the past, been feasible only because one country dominated the world's production and trade. A second and important factor making valorization possible is found in the character of the product itself. Coffee can be stored in the green or raw state for sufficiently long periods to make the manipulation of stocks practicable.

Toward the end of the last century Brazil had become the dominating factor in the world coffee trade. Despite the depression of the 1890's, the years of that decade were generally prosperous for Brazilian planters. During the first half of the decade, coffee prices were high in American currency, and Brazilian growers profited further from the decline in the value of their national currency, which began after the overthrow of the empire in 1889 (Chart 8). Since slavery had been abolished the year before, against the opposition of most planters, the revolution of 1889 found support within the planter class. The Brazilian monetary unit (milreis) was worth about 60 cents at

² Rowe, *Brazilian Coffee*, p. 6.

CHART 8.—DEVELOPMENTS IN THE WORLD COFFEE SITUATION AND THE BRAZILIAN VALORIZATION SCHEMES BETWEEN 1890 AND 1924*



* Data from Appendix Table I; U.S. Bureau of Labor Statistics (wholesale price index); and Mary L. Bynum, *International Trade in Coffee* (U.S. Dept. Comm., Trade Prom. Ser. 37, 1926), p. 17 (trees in bearing in São Paulo).

* Deliveries in importing countries, more accurately "absorption."

this time, but it fell to around 15 cents by 1897.³ Growers' costs (in terms of milreis) increased very little, while sales abroad

³ On Oct. 5, 1942, a new Brazilian unit of currency, the cruzeiro, was created to replace the milreis. The new unit has the same value as the old, but is divided into 100 parts called centavos and is expressed by the symbol Cr\$. One milreis was equivalent to 1000 reis and was expressed by the symbol 1\$000. In most of the present study reference is made to milreis, the unit used until Nov. 1, 1942.

(in terms of gold) resulted in growers receiving a large increase in the number of milreis for a given quantity of coffee. Exports boomed, other crops were neglected, and new coffee plantings increased. By 1900-01 there were more than three times as many trees in bearing in São Paulo alone as in 1890-91. Brazil's coffee production had doubled within a decade.⁴

Larger crops, beginning in 1896-97, reflected the new planting of earlier years. By 1897 New York prices of coffee had fallen to less than half the level prevailing at the opening of the decade. At the close of the century the value of the milreis began to rise, and the planters' few years of great prosperity came to an abrupt end. The 1901-02 crop was over 16 million bags, the largest then on record, compared with an average of about 6 million bags in the early 1890's. Prices on the New York Coffee Exchange dropped to the lowest level ever recorded, and panic followed. An International Coffee Conference, called in 1902, failed to take appropriate action. New planting was prohibited in São Paulo,⁵ but no effective steps were taken to relieve the hardships of the severe depression. Agitation for state aid increased until the state of São Paulo officially adopted a policy of valorization late in 1905, when it became probable that the 1906-07 crop would be another record-breaking one.⁶ Brazilian coffee production for this year turned out to be 20.2 million bags, a figure not to be surpassed until 1927-28.

Three-fourths of the crop of 1906 was in the state of São Paulo. Destruction of part of it was proposed, but did not become a feature of the valorization scheme. Rather, São Paulo undertook to purchase coffee on the world markets, store it, and later resell it, at the same time continuing earlier restrictions on

⁴ For a brief historical account of the expansion of coffee lands in Brazil from about 1835 to the late 1920's, see James, "The Coffee Lands of Southeastern Brazil," *Geographical Review*, April 1932, XXII, 226-30.

⁵ The states of Minas Geraes and Rio Grande do Sul also agreed to prohibit or penalize new planting, but only in São Paulo was the prohibition later extended for another five years.

⁶ The first indication of the size of the next year's crop usually comes with the flowering of the trees in September or October. Harvesting begins the following April or May and is at its height between July and October. Shipments to port begin in July, and the crop or marketing year runs from July 1 to June 30, but heaviest shipments are usually in December and January. From the grower's standpoint, it is more logical to think of the crop year as ending with the harvest, but from the trade standpoint the harvest and its subsequent movement to market is the more significant period. To avoid confusion, the marketing year is referred to throughout this study.

new planting. Failing to secure the co-operation of neighboring states, it soon became apparent that São Paulo alone would be financially unable to carry the program to a successful conclusion. Some assistance was secured from the Federal Government of Brazil, and eventually foreign bankers supplied the money necessary to permit continuation of purchases and holding.⁷ At the end of 1907, the state of São Paulo held over 8 million bags of coffee. Later purchases, made possible by a foreign loan of £15 million, which was forthcoming when prices started to rise in 1908, brought the total to just under 11 million bags. Sales reduced the state's holdings to around 7 million bags by late 1909, and to approximately 3 million bags by 1914.⁸ The remaining stocks held under the valorization scheme were gradually disposed of in subsequent years.⁹

An important feature of this first valorization scheme was the effort to control production, which accompanied the effort to support prices. Not only was new planting forbidden in important growing regions, but one of the conditions in obtaining new credit from the foreign banking group in 1908 was an undertaking to curtail production and exports. The prohibition of new planting in São Paulo for 10 years, from 1902 on, seems to have been in large measure responsible for the favorable setting and success of the scheme. Consumption was expanding so that, with no important increase in productive capacity, it was only a matter of time until supply and demand came into a balanced relationship.

Coffee prices, which averaged a little over 6 cents per pound for the Rio No. 7 grade in New York during 1907 and 1908, rose steadily over the next few years to an average level of

⁷ The financing of the various Brazilian valorization and coffee-defense schemes constitutes a story in itself. More details on this particular aspect of Brazilian experience will be found in the references cited in this chapter.

⁸ Stocks were held mostly in European and American ports. At the close of 1909 a little over 6 million bags of the coffee in the valorization committee's hands were in Havre, New York, Hamburg, and Antwerp. The remainder, less than three-quarters of a million bags, was in London, Rotterdam, Trieste, Marseille, Bremen, and Genoa. See H. C. Graham, *Coffee Production, Trade, and Consumption by Countries* (U.S. Dept. Agr., Bur. Statistics Bull. 79, Dec. 31, 1912), p. 28.

⁹ Although the bankers' loan of £15 million was paid off in 1914, the last of the valorized coffee was not accounted for until 1918. Of the stocks held in Europe a large part was located in Germany and Belgium. These stocks were seized by the Germans early in the war; and indemnity was awarded Brazil only at the peace conference.

above 14 cents in 1912. This rise precipitated a congressional investigation in the United States, Senator G. W. Norris of Nebraska charging that Brazilian valorization was costing the American people 35 million dollars a year. Hermann Sielcken, a New York coffee dealer who undertook the responsibility for financing the São Paulo scheme after the government had encountered difficulties, and his associates, were made defendants in a suit brought by the United States Government charging a conspiracy in restraint of trade, but no injunction or redress was granted by the court.¹⁰

It is likely that prices would have recovered from the low levels prevailing early in the century even without the valorization scheme, inasmuch as consumption exceeded production during most of the period (Chart 8). The sharpness of the rise, however, was doubtless due to the control measures employed.

The merchants and bankers involved in the first valorization made small fortunes, and growers were undoubtedly benefited, but it is almost impossible to assess costs and profits in terms of producer and consumer interests, as there is no way of judging what might have happened if there had been no intervention. Consumers paid more for coffee during this period and resented it, but against this must be set the possibility that without the valorization, many plantations would have reverted to jungle, creating a shortage in supply later that might well have caused prices to rise more than they did.¹¹ Significant residual effects were that the coffee interests of Brazil acquired a strong faith in the merits of valorization and that the Federal Government became less reluctant to participate.

During World War I the central European market was cut off by blockade, and imports by the Allied powers were restricted. Stocks began to accumulate in Brazil, the 1917-18 crop promised to be about 3 million bags larger than the previous one, and New York prices fell rapidly during the

¹⁰ For further details on the United States investigation, as well as other matters in connection with São Paulo's first valorization, see Elizabeth Stoffregen, "A History of Brazil Coffee Control" (reprinted from *Tea and Coffee Trade Journal*, issues of November, December 1928 and January 1929), pp. 10-13.

¹¹ For appraisals of the results of Brazil's first valorization scheme, see B. B. Wallace and L. R. Edminster, *International Control of Raw Materials* (Washington, D.C., 1930), pp. 133-44; and Rowe, *Brazilian Coffee*, p. 9.

latter half of 1917. The state of São Paulo again took the initiative, borrowed from the Federal Government, purchased 3 million bags of coffee, and arrested the decline in prices. The crops of the next two years were the smallest since the turn of the century, demand strengthened at the end of the war, prices rose spectacularly in 1919, and the valorized coffee was sold at an enormous profit. Although many planters had been ruined by the great frost in 1918, they received a much better price for their 1917-18 crop than could otherwise have been expected. The frost not only greatly reduced the crop being harvested in mid-1918, but foreshadowed the extremely short crop of the following year, and assured the successful liquidation of the stocks purchased in 1917.

Unlike the first two valorizations, the third grew out of the postwar depression and deflation of prices, rather than difficulties arising from bumper crops or excessive producing capacity. In 1920-21 Brazilian production returned to "normal" at the same time that the postwar price boom collapsed. Coffee prices fell from over 23 cents for the Santos No. 4 grade at mid-1920 to around 9 cents at the opening of 1921, and the third valorization was undertaken.

This time, as Brazilian exchange depreciated rapidly, the Federal Government took the leading part in the operations. At one time it held 4.5 million bags of coffee, but all of this was successfully marketed by early 1924 on a trend of rising prices beginning in mid-1921 (Chart 8, p. 138). The successful conclusion of this operation was facilitated by relatively smaller crops in 1921-22 and 1922-23. No restrictions on new planting were imposed. As in the second valorization (but not the first), stocks were held in Brazil.

Meanwhile, a scheme of permanent control was taking form as entries from the interior into the ports of Santos and (later) Rio were regulated in order to assure an even flow of the crop to market. In 1923, the Government adopted a policy of holding back supplies in specially constructed warehouses, to be released as desired for their influence on prices.

All three of the interventions were carried out on a highly profitable basis for their promoters. The first valorization, and

its accompanying restrictive measures, prevented a severe drop in prices in 1906-07 and resulted in higher prices than might have been expected otherwise during the three years 1910-12, while the second and third valorizations appear to have moderated price fluctuations to the benefit of producers if not consumers.¹² But the prospect of greater stability in growers' returns arising from control encouraged the rapid extension of new planting and led to new situations calling for more and more state intervention.

PERMANENT DEFENSE—FIRST PHASE

While the third valorization was still in progress, the basis was being established for a permanent scheme of control. Responsibility was once more turned over to the state of São Paulo, and the various measures agreed upon came into operation early in 1925, through the newly established and semiofficial São Paulo Institute for the Permanent Defense of Coffee, later known as "the State of São Paulo Coffee Institute." São Paulo interests have always been the most ardent advocates of control. At times other states and the Federal Government have participated in the various schemes, but faith in their efficacy has rested largely with the Paulists. The story of coffee defense under the leadership of São Paulo and precipitation of the great crises and liquidation has already been told in some detail by the British economist, J. W. F. Rowe. Here it is necessary to give only a brief summary of the main features of the controls employed from 1925 to 1929 and the steps taken in the crisis so that Rowe's conclusions on the Brazilian experience of this period may be examined more intelligently.

During 1925 and 1926 the newly formed Institute engaged chiefly in perfecting the mechanisms for control. The regulation of entries into Santos, initiated by the Federal Government during the third valorization, was continued in a modified and more flexible form. This control was supplemented by intervention in the Santos market whenever prices showed a tendency to weaken. The warehouses built by the Federal Government

¹² Wallace and Edminster, *op. cit.*, pp. 136-50.

had been purchased, others were constructed, and arrangements were made through the establishment of a state bank to make loans on growers' stocks held in the regulatory warehouses and on their plantations. The funds necessary for carrying on the operations of the São Paulo Coffee Institute were obtained by a series of foreign loans and a transportation tax on every bag of coffee moved from the interior. Prices were high, and were successfully maintained, principally because the statistical position was not unfavorable.

The first real test of the new control scheme came with the 1927-28 bumper crop of 27.1 million bags, which was 7 million bags larger than the 1906-07 crop. In September 1926, flowering of the trees gave warning, and prices began a decline that extended to mid-1927. The prospect of a huge unmanageable surplus throughout the Brazilian coffee belt finally induced other states to adopt essentially the same measures of control as São Paulo and to co-operate with the Institute. With the help of additional foreign financing, purchases were made in the market and stocks were held back in the interior. After falling from 22 cents (Santos No. 4, New York) in September 1926 to 16 cents a pound in mid-1927, prices started to recover and in 1928, at 23 cents, actually averaged a cent a pound higher than in 1926 (Chart 9).

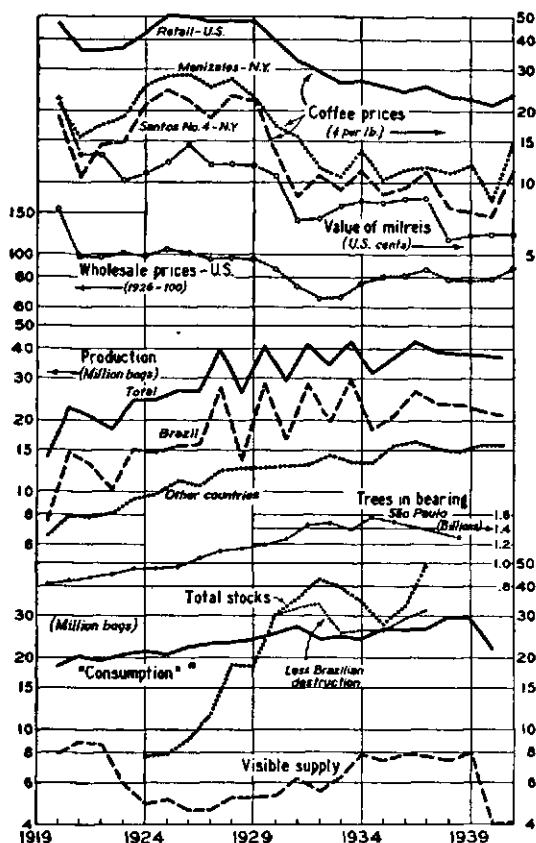
The Institute was given much credit for this price recovery, in the face of an increase in the Brazilian carryover from some 3 or 4 million bags to 13.5 million by mid-1928, equivalent to one year's exports. But the 1928-29 crop was only half the size of the previous year's. It seemed that the danger had passed and that the huge carryover could be managed without too much difficulty, especially since smaller crops normally may be expected to follow an exceptionally large one.

Flowering in the fall of 1928, however, indicated another large crop for 1929-30. It proved unexpectedly to be even larger, by a million bags, than the record crop of two years earlier.¹⁸ Despite this indication of trouble ahead, and despite the facts that stocks were still increasing and that Brazil's 1928

¹⁸ "The prosperity of preceding years," according to Rowe (*Brazilian Coffee*, p. 13), "had led to more intensive and careful cultivation of the trees, and this had resulted in greatly increased powers of recuperation."

exports turned out to be considerably lower than those of 1927, prices went to still higher levels early in 1929, averaging almost 25 cents in New York for the month of March.

CHART 9.—FACTORS IN THE WORLD COFFEE SITUATION, 1920-41*



* Data from Appendix Table VI; U.S. Bureau of Labor Statistics (wholesale price index); and Secretaria da Agricultura, Industria e Comercio, Estado de São Paulo (trees in bearing in São Paulo). Total stocks = world visible supplies + stocks in interior Brazil.

* Net imports.

Meanwhile, new planting had been increasing during the several years of high prices. The output of millions of additional trees was beginning to be felt, though the peak of producing capacity was not reached until later, after the crash and

during the depths of the depression (Chart 9).¹⁴ Thus, the new planting of this period was not mainly responsible for the large crop of 1929-30, though it was a factor in all crops from the middle 1920's on.

Of more immediate importance in the events leading up to the crash was the overexpansion of credit and the unhealthy boom generated by the overliberal loans made on the 1927-28 crop. Advances were made on the then current value of the stored coffee used as security, rather than on the grower's actual cash needs for continuance of operations. Since costs are low with bumper crops, most planters found themselves suddenly flush with cash. Although they used part of this for new land developments and coffee planting, enough was left over for other spending to create a boom which undermined the banking system of the state of São Paulo.¹⁵

The crash came finally in October 1929 with the stock-market break in the United States. The prospect of securing new money to finance the huge stocks and continue advances to planters was poor indeed, though for many months, apparently, the coffee interests of São Paulo regarded the crash as only a market break and were unaware of the real nature of the crisis. The Institute had run out of funds, and market intervention had to be withdrawn.

Although the crash exposed the mistakes of coffee control during the defense period, it was hardly feasible under the circumstances to abandon all efforts at government intervention. One of the characteristics of all control schemes seems to be that

¹⁴ New trees were being brought into production even after abandonment had assumed sizable proportions. This is indicated by the following data for São Paulo from *Estatística Agrícola e Zootécnica*, Secretaris da Agricultura, Industria e Commercio, Estado de São Paulo, for selected years (obtained through the courtesy of Foodstuffs Unit, Bureau of Foreign and Domestic Commerce, U.S. Department of Commerce), in thousands:

Item	1930-31	1932-33	1934-35
No. of trees producing.....	1,265,152	1,504,035	1,560,490
No. of new trees.....	323,447	205,511	48,236
No. abandoned or cut during the year.....	48,973	59,134	56,280
Area cultivated (acres)	2,131	2,335	2,222
Production (60 kg. bags)	12,909	14,977	13,653

¹⁵ "At the back of the coffee situation was the financial situation in Brazil; there lay the key to the whole situation, but the world was concentrating its attention so closely on the statistical position of coffee that few, if any, observers troubled to glance at the returns of the São Paulo banks, though these were telling a most interesting and a very different tale." Rowe, *Brazilian Coffee*, p. 12.

the more they are employed the greater is the difficulty of dropping them and returning to a *laissez-faire* policy. It was natural at this juncture that coffee defense should become even more a matter of politics. The situation, as seen in retrospect and through Brazilian eyes, has been described as follows:¹⁶

There began then, the dark years in coffee history and the effects of the permanent valorization policy suddenly appeared in their stark reality With the rise in prices occasioned by Brazil's successive interventions other countries began to plant it [coffee] and to share in increasing amounts in world markets during the last 20 years [consumption] has increased 8,390,000 [bags] annually. However, of this increase, Brazil's share was only 2,980,000 bags (35.5%) while that of other countries amounted to 5,410,000 bags or 64.5%.

In April 1930 another £20 million loan (the Coffee Realization Loan) was arranged by São Paulo, but only at an interest rate of 7 per cent; and in July the Federal Government again took over the responsibility for coffee defense. Brazilian coffee control had entered a new phase.

PERMANENT DEFENSE—SECOND PHASE

Differences of opinion between the Federal and the São Paulo Governments on how the coffee problem should be handled were apparently resolved after the revolutionary movement in the fall of 1930 and the change of presidents. The new Federal administration placed in effect a new series of defense measures in 1931. Thereafter the "coffee policy has varied according to circumstances, but always with the end in view of reconquering the position which Brazil formerly held in supplying world markets which was lost under the valorization [defense] plan."¹⁷ It was not for some years, however, that the policies pursued contributed much toward regaining the Brazilian position in the coffee world. Rather, they had of necessity to be chiefly concerned with working out the surplus problem that grew progressively worse during the first few years of the 1930's.

From 1931 until the fall of 1937 the main features of Brazilian coffee defense were the destruction of existing and new

¹⁶ Teófilo de Andrade, in Brazil, Ministry of Foreign Affairs, *Brazil 1939/40*, p. 97.

¹⁷ De Andrade, *op. cit.*, pp. 97-98.

supplies and the prohibition of new planting in an effort to bring about a better adjustment with demand. The latter measure had been employed in the first valorization and was adopted again, though under conditions existing during most of the 1930's it is doubtful that growers, in Brazil at least, had much incentive to expand holdings.¹⁸ Despite general prohibition of new planting, the law seems not to have been strictly enforced and some new planting did occur even in the face of a generally drab coffee outlook. Price-manipulating measures had relatively little chance of success when all the world knew of Brazil's predicament; and the producers of mild coffees continued to expand their production and exports, selling at prices not much higher than those for Brazilian coffees.

The two large Brazilian crops of 1927-28 and 1929-30 had left an excess of supplies over exports for the three years 1928-30 of approximately 25 million bags. The prospect of a third huge crop in 1931-32 (which turned out to be 28.3 million bags) made it evident to even the most hopeful that far more drastic measures needed to be taken. Prices continued to fall heavily during 1930, when not only depression influences but the forecast of the third bumper crop resulted in a more or less steady decline. The coffee-destruction program was inaugurated in mid-1931, and some 2.8 million bags were burned during the remainder of the year.¹⁹ As actual burning progressed, even though on a relatively modest scale, prices firmed and began to recover late in 1931 from their lows of about 8 cents.

Brazilian coffee exports in 1931, greatly stimulated by the

¹⁸ Protests, especially from Paraná, resulted in slightly modifying the restrictions to permit a small expansion in the newer coffee areas.

¹⁹ By the world at large the burning of coffee in Brazil was at first regarded as one of those desperate and spectacular measures that are sometimes temporarily resorted to by producers or merchants in an effort to attract political support and relief, or to create an artificial shortage for the purpose of raising prices. As it became clear that bumper crops and excess producing capacity would require a continuation of these or similar measures, coffee was singled out, especially during depression years, as one of the prize examples of breakdown in the world's economic machinery.

Unlike rubber or tea trees, coffee trees produce an annual crop, and supplies cannot very well be adjusted to demand without waste, as by lighter tapping or picking. Theoretically, the berries could remain unpicked and be allowed to fall to the ground, but in practice, supervision and control over a form of wealth lying about loosely would present such an enormous task, almost impossible to keep free from politics, that the only feasible method for carrying out a destruction program is the expensive one of harvesting, transporting, and burning under supervision at a few central places. Coffee trees could be pulled up to eliminate excess capacity, to be sure, but this would be a last resort for reasons already mentioned.

fall in prices to the lowest level since early in the century (8-9 cents for Santos 4's in New York), reached an all-time high of 17.9 million bags; but the increase in volume did not compensate for the fall in prices. The total value of Brazil's exports consequently fell drastically, and the exchange situation again became critical. Despite contraction of imports, Brazil's foreign commitments were large from earlier borrowing. The value of the milreis began to fall rapidly in the latter part of 1930 and remained at a low level throughout 1931 and 1932. Although Brazil had shipped her gold reserves abroad in an effort to support the milreis, the problem of financing remained difficult. High coffee prices during the middle and late twenties, combined with extensive borrowing, had permitted a stabilization of the exchange rate. Now the unwillingness of foreign capitalists to advance further sums in the face of a world financial stringency, the drastic fall in coffee prices, and the failure of São Paulo authorities to handle coffee defense successfully, were ample reasons for the Federal Government again to take the lead in directing policy and control measures.

The Federal Government agreed to buy all stocks in São Paulo on July 1, 1931 at prices somewhat above amounts already loaned to planters. Financing was arranged by credits from the Banco do Brasil, a loan from an American firm against consignment coffee, and an exchange of 1.3 million bags of coffee for 25 million bushels of wheat held by the United States Grain Stabilization Corporation. After some false starts, the coffee-producing states agreed to an export tax of 10 shillings per bag (soon increased to 15s.) for buying and destroying surplus coffee, and also for servicing the 1930 loan to São Paulo.²⁰ In 1933, the rate was fixed in terms of Brazilian currency at 45 milreis per bag, then equal to about 2.7 U.S. cents per pound.

Although the burning of over 9 million bags of coffee in 1932 (interrupted only from August to October by a revolution) brought total destruction to 12 million bags, the statistical posi-

²⁰ Originally the Coffee Realization Loan was serviced by a special tax of 3s. on port entries at Santos. Entries were to be restricted to a monthly rate equal to one twenty-fourth of the estimated crops over a two-year period, in order to prevent a further accumulation of interior stocks.

tion was not greatly improved, and stocks continued at record levels (Chart 9, p. 145). The closing of ports during the unsuccessful São Paulo revolution reduced exports to 11.9 million bags for the calendar year, and led to a temporary price advance in New York. Prices were not long sustained at the recovery level (almost 15 cents during September and October), however, for the flowering of the coffee trees indicated another large crop for the 1933-34 season. As this crop materialized, prices in New York during 1933 returned to an average level of just over 9 cents a pound.

The 1933-34 crop of 29.6 million bags proved to be an all-time high, but was the last of a series of four huge crops coming every other year beginning with 1927-28. This last great crop definitely reflected the new planting that was accelerated (from 1927 on) during the years of high prices and optimism regarding the efficacy of the coffee-defense scheme. Thereafter, the statistics on coffee trees in bearing began to show a decline from abandonment and restrictions on new planting.²¹

According to Brazilian statistics, the carryover in Brazil at the opening of 1933 was 25.6 million bags compared with 29.4 million at the opening of 1931. During 1933 the destruction program was stepped up. Another 13.9 million bags were destroyed, and exports returned to 15.5 million bags, partly because prices eased further and perhaps partly because the price differential between Brazils and milds was tending to widen (see Chart 10, p. 173).

In addition to the destruction of existing stocks, a "sacrifice" quota plan was introduced when it became apparent that the 1933-34 crop would be so large. In February 1933 the National Coffee Department (DNC) was established. The Federal Government thereby assumed full charge of coffee defense, which up to this time had been partly administered by a council of the coffee-producing states. The previous plan of an automatic adjustment of port entries to production was abandoned in the face of a crop of nearly 30 million bags. Instead, the crop

²¹ Table 8 (p. 117) shows a reduction of 478 million trees in Brazil between 1933 and 1939, leaving an estimated 2,500 million trees in the latter year.

was divided into three parts: 30 per cent for port entries; 30 per cent for retention in interior warehouses; and 40 per cent for destruction (sacrifice quota).

The 30 per cent held in the interior was not to be released until the port entry quota was filled, and growers were to receive 30 milreis per bag for the coffee allocated for destruction. Thus, 11 million bags of the 13.9 million destroyed in 1933 represented the current crop sacrifice quota. The DNC also purchased nearly 11 million bags of the surplus from the 1931-32 and 1932-33 crops, bringing total purchases from October 1930 through June 1934 to almost 49 million bags. Growers were not happy over the price offered by the Government, and refused to accept until it was decreed that after July 1 only the new crop could be exported. The heavy destruction of 1933 was apparently also instrumental in the price improvement witnessed throughout 1934, when Santos 4's averaged 11.2 cents as against 9.3 during 1933.

Despite smaller 1934-35 and 1935-36 crops, the maintenance of exports at the level of 14-15 million bags, and continued destruction, improvement in the statistical position was slow, and prices eased to 8 cents in August 1935. A convention of growers proposed the destruction of 4 million additional bags to be purchased from the interior by funds raised by an export tax. This was done and prices recovered somewhat during 1936, but it was apparent that more drastic steps were necessary. Another sacrifice quota was needed, and this time the Government made the destruction of 40 per cent of the current crop practically compulsory, growers being paid merely enough to cover the cost of bags and transportation. At the end of 1936 approximately 40 million bags of coffee had been destroyed. Yet stocks were still high, according to Brazilian figures 18.6 million bags, or 2.2 million bags higher than a year earlier.

The 1936-37 crop was again large (26.4 million bags), a 30 per cent sacrifice quota was again employed, destruction was stepped up, and a total of 17.2 million bags was burned in 1937. At last drastic action was being taken. With the exception of 1932, when the São Paulo revolution stopped shipments for

a while, exports in 1937 fell to the lowest level since early in the 1920's, and mild coffees sold at little or no premium over Brazils. It was therefore high time for a change in policy. Brazil was rapidly losing her position in the coffee world, growers were dissatisfied and restless, Brazilian exchange was falling rapidly, and credit had become tight.²² Attempts in 1931 and 1936 to secure agreement with other producing countries had failed, and a second Pan-American Coffee Congress meeting in Havana in August 1937 also resulted in no agreement on planting or export restriction, or on the defense of coffee prices.

Plans for the 1937-38 crop involved a continuation of destruction and another sacrifice quota of 30 per cent; but upon the failure of the Havana conference to secure agreement with other coffee-producing countries who were profiting from Brazil's troubles, a radical change in policy was finally made. The price-defense policy, first adopted as a permanent feature of state intervention in 1925, was abandoned in favor of one of free competition. By reducing to 12 milreis the export tax, which had stood at 45 milreis since 1933, it was possible to let Brazilian coffee fall to competitive levels without lowering the price received by growers by a corresponding amount. Although Brazilians resent charges of dumping that were made by competitors, they did precipitate a coffee war.²³ The permanent abandonment of price defense, however, cannot be viewed in the same manner as a temporary price cut in order to gain a competitive advantage.

The effects of the new Brazilian policy were immediate. The drop in average prices for Santos 4's in New York from 11.1 cents in 1937 to 7.5 cents in 1939 was accompanied by rising exports, from 12.1 million bags in 1937 to 17.1 in 1938 and 16.5 million in 1939. Whereas other Latin American producers were the chief beneficiaries of Brazilian defense poli-

²² "It is no exaggeration to say that many of the most competent observers really believed that the nation was about to crack up financially." *Christian Science Monitor*, Nov. 11, 1937.

²³ An editorial in the São Paulo newspaper *Folha da Manhã* of Nov. 4, 1937 had this to say: "The suppression of the 45 milreis tax which was the overburden that defeated us in the competitive world markets will result in a lowering by 20 per cent of the foreign prices of coffee without affecting our internal situation though it will damage the interests of our competitors who refused to show any spirit of co-operation." Quoted in *Christian Science Monitor*, Nov. 11, 1937.

cies throughout the early and middle 1930's, they now became the main victims of the change in policy. Colombia and El Salvador reduced their export taxes on coffee and relaxed their foreign exchange regulations, Venezuela introduced an export subsidy, and other countries took similar steps in order to meet the new situation. The colonial coffee producers were least affected, since they enjoyed strong protection behind imperial tariff walls.

Expansion in Brazilian exports, coupled with smaller crops in 1937-38 and 1938-39 and continuation of the destruction program (8 million bags were burned in 1938 and 3.5 million in 1939), resulted in a greatly improved statistical position in 1939. About the time that stocks in the country had finally been reduced to manageable proportions by a series of drastic actions, the war broke out in Europe.²⁴ This brought new problems, the story of which constitutes another phase of recent coffee history. Although the Federal Government, through the National Coffee Department, continues to retain control over the Brazilian coffee situation, after November 1937 less significance attaches to the control scheme. Price-supporting and stabilizing objectives gave way to measures designed to protect the country's coffee industry in the best manner possible against increasing competition from the mild-producing countries, and later against loss of markets resulting from World War II.

WARTIME DEVELOPMENTS IN BRAZIL

The reaction of Brazilian growers to the situation created by the war suggests that considerable faith persists in the efficacy of artificial control schemes. There was apparently a strong sentiment among growers in favor of old-time valorization measures in the belief that, as in 1918, they would soon bring better days. The president of DNC devoted several pages in his annual report for 1940 to recognition of what he termed a "general demand from the interior" for government inter-

²⁴ In his annual report for 1941, J. F. Guedes, President of the DNC, states that "were it not for the war which is affecting the entire world, the coffee problem would have been fully and completely resolved. We would no longer have to worry over excesses of our production." *Brazil Coffee in 1941*, p. 19.

vention of the type employed prior to the permanent-defense experience. He went on to explain and defend the Federal Government's policy in turning down such proposals, and to point out why conditions of 1940 were not comparable with those of 1918.²⁵ It is difficult for the outside observer to understand how any valorization scheme could be seriously considered as a solution to the problems of 1940, especially in view of Brazilian experience during recent years.

Instead, in 1940 Brazil adopted, with reference to the 1940-41 crop, a "principle of maintaining the statistical equilibrium between export possibilities and the quantity to be released on the market."²⁶ Part of the crop was to be withdrawn from the market as before, but now the former sacrifice quotas were called by a different name inasmuch as it was not necessarily the current crop that would be destroyed. However, at a congress of the coffee states it was agreed to continue the prohibition of new planting to June 30, 1941; and the coffee purchased by the DNC, except that used for industrial and publicity purposes, was to be "eliminated from the market." Fixing a "general quota of equilibrium" at 25 per cent on all production, except that of a few small states, meant that one-fourth of the crop was to be delivered to the DNC on payment of a nominal sum per bag. It was also decided to impose a "supplementary rate" of 30 per cent on the São Paulo crop, since national overproduction originated principally in this state. It was estimated that almost 11 million bags needed to be withdrawn from the market and, if this were done, the carryover as of June 30, 1941 would amount to a little over 6 million bags.²⁷ The severe drought of 1940 was counted upon to reduce stocks by another 2 or 3 million bags and was expected also to affect the 1941-42 crop. Actually the drought in the state of São Paulo during the second half of 1940 extended to mid-1941. It reduced the state's crop to perhaps only 4 million bags against an average of 14.5

²⁵ J. F. Guedes, *Brazil Coffee in 1940* (Report submitted on April 30, 1941 to the Advisory Council of the National Coffee Department of Brazil by its president, Rio de Janeiro, 1941), pp. 21-25.

²⁶ Teófilo de Andrade of the National Coffee Department in Brazil, Ministry of Foreign Affairs, *Brazil 1940-41: An Economic, Social and Geographic Survey* (Rio de Janeiro), p. 123.

²⁷ Andrade, *op. cit.*, p. 124.

million bags in the three preceding years,²⁸ though other estimates place the 1941-42 São Paulo crop at closer to 6 million bags.

Brazil's coffee exports amounted to 16.5 million bags in 1939, some 12 million in 1940, and 11 million in 1941.²⁹ After 1937 the rate of destruction tapered off considerably. Over 3.4 million bags were burned in 1941, but this was not enough to establish the statistical equilibrium desired, and stocks of 9.2 million bags were forecast as of June 30, 1942. The equilibrium quota for 1941-42 was therefore increased to 35 per cent.³⁰ Exports for the second quota year under the Inter-American Coffee Agreement (October 1 to September 30, 1941-42) fell to 7.4 million bags as against 10.3 million for the quota year 1940-41, and the DNC forecast an exportable surplus of 13.9 million bags for 1942-43.

Frosts of late June and early July 1942, described as the "worst since 1918," resulted in revising estimates of the 1942-43 São Paulo crop downward from 13-15 million bags to 7 or 8 million, and the crop of Paraná from about 2 million to 250,000 to 500,000 bags. But the equilibrium quota for 1942-43 was again set at 35 per cent, though in view of the heavy drought and frost damage in São Paulo and Paraná these states were exempt from full applicability. Practically all of the young trees (1-3 years old) were killed in São Paulo and Paraná, and many older trees were so badly frozen that they were not expected to produce their usual output for two or three years. However, as has often happened in the past, the frost damage in June-July turned out to be less than anticipated, and flowering of the coffee trees in the fall of 1942 was excellent, indicating good prospects for the next crop.³¹

Despite the confusing and conflicting crop reports of recent

²⁸ Guedes, *Brazil Coffee in 1941*, p. 45.

²⁹ The drop in 1939-40 exports, especially to the United States, was attributed by the DNC to the poor quality of the Brazilian crop in a season when the Colombian crop was of high quality. Guedes, *Brazil Coffee in 1940*, pp. 36-37.

³⁰ By Federal Government decree in mid-1941, at the same time that minimum prices were established for the sale of coffee abroad (pp. 183-86). The 1941-42 crop was estimated at 12.7 million bags and probable exports at 11 million.

³¹ *Foreign Commerce Weekly* (U.S. Dept. Comm.), Aug. 29, 1942, p. 21; Nov. 28, 1942, p. 27; Apr. 17, 1943, p. 29.

years,³² it appeared that at long last the corrective action of nature was taking a hand in the Brazilian coffee situation. The prospect of further adding to surpluses was greatly reduced. The drought was attributed to deforestation as the result of much clearing of land for other crops such as cotton in connection with the policy of diversifying agriculture in São Paulo.³³ In view of the smaller Brazilian crops of recent years, doubts have been raised in some quarters as to Brazil's current and future capacity to produce (pp. 218-19).

LESSONS FROM BRAZILIAN CONTROL EXPERIENCE

Certain characteristics of coffee as a commodity create some inherent difficulties in artificial control that are not found with other commodities. The most important lessons of Brazilian experience, however, are applicable to various other control schemes. Objectives of control policies and methods used, as well as the consequences from intervention, have tended to be broadly similar. In general any interference with the operation of the economic forces causing price changes is for the purpose of influencing the course, level, or characteristic behavior of prices. Whether this purpose is announced or admitted, and whether the measures employed are direct or indirect, makes little difference. Price is the focus of attention.

The first quarter of a century of experience with intervention in the coffee situation largely explains the Brazilian problem of the past decade. Little more need be said of the first three valorization schemes except that their apparent success, to whatever due, led to more ambitious adventures in control. The irritation and criticisms, both in Brazil and abroad, were relatively trifling compared to the dissatisfaction resulting from

³² Crops may have been officially overestimated originally in order to make grower acceptance of high equilibrium (sacrifice) quotas more palatable. The production and stocks situation in Brazil during recent years is by no means clear. There is an undercurrent of suspicion that inconsistencies in official and semiofficial reports are more than accidental, and that a certain vagueness may be a deliberate policy of the control authorities. Improvement in Brazilian coffee statistics is important from several viewpoints.

³³ Guedes, *Brazil Coffee in 1941*, pp. 47-49. The principal crops of São Paulo and the northern Paraná region now are coffee, cotton, corn, rice, citrus fruits, sugar cane, beans, and mandioca. In 1938 cotton accounted for 28.5 per cent of the total value of exports from São Paulo as against 37.5 per cent for coffee, 9.7 for corn, 8.3 for rice, and 4.9 for oranges.

tighter control in the 1920's.³⁴ So long as valorization schemes were introduced to meet special and temporary situations, the byproducts of control seem not to have had lasting significance. With the plan of permanent defense, however, a host of new problems, evils, and complications were introduced that appear to have been of profound significance to the development of the economy of Brazil.

In broadest terms, permanent coffee defense during the 1920's undoubtedly brought growers abnormal profits for a period of a few years, but the price to be paid for such prosperity in later years more than offset the temporary gains. Brazilian coffee control resulted in an even greater concentration on one crop, discouraged agricultural diversification,³⁵ and stimulated competition from other coffee-growing countries. Although coffee assumed an even more prominent place in Brazilian economic life, Brazil's relative position in the world coffee trade tended to deteriorate, and in the 1930's this tendency was to continue at an accelerated rate.

High coffee prices doubtless slowed progress in the expansion of world consumption and created a certain amount of international friction. Even if the influence of defense operations in raising prices above levels that might have prevailed without intervention has been exaggerated,³⁶ it seems clear that prices were higher over several years as the result of the Brazilian control scheme. It is likewise hardly arguable that price

³⁴ In this connection, see *Foreign Combinations to Control Prices of Raw Materials* (U.S. Dept. Comm., Trade Infor. Bull. 385, 1926), pp. 1-6, 27-28.

³⁵ On this point see Wallace and Edminster, *op. cit.*, pp. 163-67.

³⁶ This is the contention of Rowe (*Brazilian Coffee*, pp. 13-14), who holds that the principal effect of control activities between 1922 and 1926 was to minimize price fluctuations. Greater stability in prices could be achieved with relative ease, "because supplies over the period as a whole were barely sufficient to satisfy the world's requirements for consumption, and therefore stock-holding operations were comparatively easy because of relatively small dimensions and short duration" (p. 13). However, a comparison of world production, and "consumption" figures (Appendix Table VI) fails to bear out the first part of this statement. A surplus of 9-10 million bags is indicated for the 5-year period; and prices, at least from 1924 through 1929, appear high by any test, and higher than warranted by the statistical position as known now. Rowe finds little to criticize in the Institute's policy up to the end of 1926, but indicates that accusations that prices were artificially raised above the natural average level must be confined to the period from 1927 onward (p. 14). Contrast this with the conclusions of Wallace and Edminster (*op. cit.*, pp. 156-57): "Permanent defense apparently maintained for several years a fairly high level of prices. This appears to have been the case up to 1929 . . . it is sufficiently clear . . . that the defense operations had a very considerable influence."

objectives were set too high and that the consequences, almost inevitably under such circumstances, were an overexpansion of capacity and ultimate collapse of artificial control. Nor can it be denied that the policies of the defense administration, apart from difficulties inherent in any attempt at price support, contributed to the crisis.

Like most other experiments with artificial commodity control schemes, the Brazilian experience points to a major weakness in setting price objectives too high. Departing from its legitimate meaning, "stabilization" of prices under legislation or controls has in practice meant price raising, then support or stabilization (if possible) at the higher level, further raising and more support or so-called stabilization, and so on. Regardless of conditions that might call for a downward revision, efforts to stabilize prices at lower than existing levels are almost unknown.³⁷ Brazilian storage-valorization and "defense" schemes were all undertaken for the broad purpose of improving coffee prices. Apparently the problem of seasonal variation in prices was never the main concern of producers.³⁸ Rather it was year-to-year variations and the general level of prices that seem to have had the greatest influence on profit results.

Prices that permit profits for the high-cost producer are common objectives in control schemes. If these objectives are attained, low-cost producers realize abnormally large returns. The result is encouragement to the expansion of producing capacity, both within the control area and outside. Newly-created capacity tends to be low-cost capacity, and excessive price objectives in time tend to be self-defeating. The political expediency involved in setting objectives that permit the usually important, older, high-cost, but politically influential producers

³⁷ Before coffee defense was turned over to São Paulo, there was apparently a brief attempt by the Federal Government to bring coffee prices down to aid in improving the monetary situation. See *Journal of Commerce*, Nov. 13, 1924, and Rowe, *Brazilian Coffee*, pp. 26-27.

³⁸ Price fluctuations, especially during the marketing period, have been viewed as one of the chief factors in the profit results of producers of some commodities and one of the main causes of grower complaint. See, for example, V. D. Wickizer, "Rice and Wheat in World Agriculture and Consumption," *Wheat Studies*, March 1931, XVII, 306-07. But for coffee, despite the fact that port entries were at one time concentrated in the first six months of the crop year, prices "seem not to have been greatly disturbed thereby. Thus the average prices for spot Rio No. 7 in New York for the 26 years 1900-25 were 9.80 cents from July through December and 10.02 from January through June." Wallace and Edminster, *op. cit.*, p. 150.

a "reasonable" profit is quite understandable. Nevertheless, the consequences are especially unfortunate in the case of an artificially-controlled tree crop such as coffee.

The three Brazilian valorization schemes, having been designed to meet temporary situations, had no fixed price objectives in the sense that a certain level was desired over the longer term in order to permit stabilized returns to the industry as then constituted. But when a plan of permanent defense was adopted, price objectives necessarily had to be with reference to something fairly specific. The basis selected was the price at which the old and high-cost estates could realize a reasonable profit in average crop years.³⁹ This meant that the objectives were higher than they would have been if designed to permit a reasonable return on a statistical average cost of production for the industry. On the basis of average production costs for the industry, some high-cost producers would necessarily operate at no profit, and the lowest-cost producers would make good profits. But a scheme proposed on such a basis might never eventuate, for reasons already suggested.

Producers invariably expect that consumers will somehow pay the bill.⁴⁰ If intervention is really necessary at times to preserve an industry of importance to the consumer, he will pay higher prices; but he will also resent paying prices that allow the producer to grow rich, presumably at his expense. It is always a delicate matter to determine when some kind of artificial intervention or control is justified. The valorization schemes, especially the first one,⁴¹ were advanced in Brazil as measures to save the coffee industry. By "saving" the coffee

³⁹ J. W. F. Rowe, *Markets and Men: A Study of Artificial Control Schemes in Some Primary Industries* (New York and London, 1936), p. 36.

⁴⁰ ". . . there is little doubt that the popular idea amongst the São Paulo planters was that the consumer would pay the costs involved in the defense scheme: . . . more new planting was probably undertaken during this period [1922-26] than would have occurred under *laissez-faire*." Rowe, *Brazilian Coffee*, p. 16.

⁴¹ For a contemporary critical appraisal of the first valorization, see Lincoln Hutchinson, "Coffee Valorization in Brazil," *Quarterly Journal of Economics*, May 1909, XXIII, 528-35. "The State of São Paulo came to the rescue of its planters in a situation which the latter had created by their own short-sightedness. . . . It is safe to say that the coffee industry will not resume a normal and thoroughly satisfactory condition until the planters resolve to stand on their own feet. This will involve the introduction of better methods all along the line, and closer watching of costs of production, willingness to accept low profits compared with those of ten or fifteen years ago, and the elimination of the weaker producers."

industry, the country was to be kept afloat, economically and politically. These contentions may be debatable, but there is little doubt that, after coffee control had become a permanent institution and the country was deeply involved, it could not readily be abandoned, especially at the time of the crash of 1929.

Even if the high coffee prices of 1924-29 could have been justified on some grounds, the very existence of a control organization aroused suspicion and created antagonisms. In 1926 the Director of the United States Bureau of Foreign and Domestic Commerce described the price curve under valorization as follows:⁴²

after every one of these governmental purchases of coffee there is a steadily mounting curve of price, sale by the Government, and then an immediate drop thereafter; the Government comes in again, up goes the price very abruptly; sale by the Government, another drop; the Government comes in again, up goes the price again. . . .

Furthermore, he voiced the complaint of the trade when he said:⁴³

The governmental reservoirs of stocks in the interior are constantly held over the heads of dealers. No one knows exactly how much is in those reservoirs nor when or how it will be released. The institute began in April of this year to make certain statistics available, but there is considerable doubt in the minds of men in the trade as to the completeness of these statistics. There is a vast quantity of coffee there that might suddenly be turned loose at almost any moment or under any contingency—political or otherwise

Klein suggested shifting as much United States buying as possible to alternative sources, such as Colombia. Earlier, when prices had skyrocketed at the close of World War I, the United States Food Administration had taken steps to protect the American dealer and consumer from what it regarded as unwarranted profiteering by coffee producers. Bitterness and international friction resulted, and for the first time coffees from Central America, Venezuela, and Colombia were taken by dealers who had never before used them.⁴⁴ This was the beginning of the shift in United States coffee consumption from Brazils to milds.

⁴² Julius Klein, "Valorization of Coffee," *Foreign Combinations to Control Prices of Raw Materials* (U.S. Dept. Comm., Trade Infor. Bull. 385, 1926), p. 26.

⁴³ *Ibid.*, p. 27.

⁴⁴ Bernstein, *Coffee Control in World War I*, pp. 13-14.

During the 1920's the Brazilian control authorities definitely had and held the upper hand, but even after the crash there was much jockeying for position between the various conflicting trade interests. Undoubtedly relations would have been better without any control. In the 1930's the situation had changed so radically that many steps were taken by Brazilian coffee interests to cater to their important markets. Earlier, not realizing the severity of the inroads of competitors, little effort had been made to consider the customer's interests.

Setting price objectives too high was the fundamental cause of the difficulties encountered by the control authorities, aside from their own failings in judgment and in execution of the defense plan. If some restriction had been placed on new planting, as in the first valorization, it might have been possible to support the high price level with somewhat less disastrous consequences. Although strict control of producing capacity in Brazil undoubtedly would have left the country in a far better position during the 1930's, it would not necessarily have prevented expansion in other coffee-producing countries. In fact, new planting there might have been stimulated even more than it was, unless competitors had been deprived of the incentive to expand. Brazil, being a low-cost producer, was in an excellent position to strengthen her competitive standing by efforts to improve quality, marketing, and so on, as she did in the 1930's, rather than by following the course of supporting prices at such a high level.

Additional productive capacity was not a serious problem until about 1927. Planting which took place up to the middle 1920's, so far as one can judge, was not directly inspired by Brazilian control measures, but the planting thereafter was stimulated by a continuation of high prices. The expansion might not have been so great in Brazil had it not been for certain policies adopted by the Coffee Institute with regard to loans. When funds became plentiful, planters expanded their acreage. Undoubtedly many who had the urge, but not the funds, to expand were able to embark upon new planting programs as the result of what they were able to borrow on their 1927-28 bumper crops.

The first really big error on the part of the Institute, as Rowe points out, was the financing of this crop on the basis of the current selling price of coffee, "when it should have been the much lower basis of the farmer's minimum requirements of cash for the continuance of cultivation."⁴⁵ There is little question that this loan policy contributed in important measure to later troubles. It is somewhat surprising that, as São Paulo was constantly borrowing from abroad, the lending banker groups did not foresee the consequences of overliberal credit extension and bring moderating pressure to bear. Yet the dependence on foreign borrowing was increased by this policy, and the bankers were not violating a loaning principle in advancing sums representing a certain proportion of the current value of the collateral received. It was the almost complete dependence on foreign borrowing, according to Rowe, that precipitated the collapse.

The important lesson from this experience is that ordinary rules of crop financing are not applicable to the financing of artificial control schemes. This is one of Rowe's main conclusions from his study of the first phase of the permanent coffee defense program.

Admittedly it would not have been easy to reduce the rate of advances. The business world is accustomed to the idea of advances based upon the current value of the security offered, modified by its prospective value in the near, rather than in the more remote, future. If the Institute, through the Banco do Estado, had offered much less than the ordinary banks were prepared to grant, this would most probably have been interpreted as a sign that the Institute doubted its ability to maintain current prices, and confidence would have been badly shaken at what was certainly a most critical time. It seems indeed that the financing required under such a scheme of control is best provided exclusively and directly by the control The success of such schemes in the future seems likely to depend in practice upon the greater caution of lenders rather than on the self-denial of borrowers. . . .⁴⁶

Aside from the unhealthy boom generated in São Paulo and the greater dependence upon foreign financing, the most serious consequences of the Institute's loan policy was the stimulus given to new planting which, in a few years, created a productive capacity far in excess of consumption requirements

⁴⁵ Rowe, *Brazilian Coffee*, p. 15.

⁴⁶ *Ibid.*, pp. 15-16.

for many years to come. No steps were taken to limit new planting; yet it is difficult to understand how any scheme designed to support prices at highly profitable levels can possibly be successful without some provision for effective control over additions to capacity. Rowe believes that an agreement within Brazil could have been reached as late as 1928, "but by that time the São Paulo politicians were concerned only with the political advantages of prolonging prosperity to the last possible moment."⁴⁷

This leads to another very fundamental weakness in the coffee defense plan—politics. But the injection of politics into the coffee situation was nothing new in Brazil.

When coffee became "King," São Paulo attained leadership in the Union and politics began to influence the coffee situation. The entire period of the First Republic is dominated by the interrelation between coffee and politics. The revolution of 1930 was the protest against this situation. The Second Republic attempts to make coffee a national production and not a local one. This means the further extension of money economy.

The history of valorisation is the history of a fight between São Paulo and the federal government, which was often not very enthusiastic about the grandiose schemes of the paulista and even preferred to support a local scheme rather than start a national one. But coffee, national economy, exchange and politics became so interrelated that the federal government *volens nolens* became involved in the coffee schemes and coffee speculation. This interesting topic—coffee and politics—impatiently awaits an investigator.⁴⁸

Rowe charges that the government of the state of São Paulo deliberately used the defense scheme for political purposes and concludes that "few, if any, Governments can be trusted to conduct an artificial control scheme such as this defense of coffee: sooner or later economic considerations will be subordinated to political expediency."⁴⁹

Little is to be gained at this time from an examination of the charges and counter-charges that were made, and have since been made, with regard to the handling of coffee defense in Brazil, even if it were possible to do so. That politics loomed large in the administration of the scheme, and certainly was partly responsible for its breakdown and the subsequent after-

⁴⁷ Rowe, *Brazilian Coffee*, p. 17.

⁴⁸ Normano, *Brazil*, pp. 42, 44.

⁴⁹ Rowe, *Brazilian Coffee*, p. 17.

math, is neither surprising nor debatable. The degree of importance to be attached to political considerations and to economic considerations is the chief area for discussion. Rowe's proposal for the solution of the difficulty is:

Such control schemes must be operated by the business interests concerned, and if the aid of the State is required, the State can be given adequate representation, such as will ensure legitimate public pressure against any attempt by those business interests to sacrifice the interests of the nation for the temporary benefit of the few.⁵⁰

This is not the place to debate this suggested solution, but it appears clear beyond doubt that political considerations, and sometimes corruption accompanying political administration, are major obstacles to the successful functioning of any artificial control.⁵¹ Deficiencies in control machinery and weaknesses in administration are the more likely to arise when politicians have a prominent part in the proceedings. The detailed lessons in administration to be learned from Brazil's experience with coffee control are no doubt numerous, but they are far overshadowed by broader considerations.

Among the more significant general conclusions suggested by Brazilian experience with storage-valorization and "defense" schemes for coffee are these:

1. Price objectives are likely to be placed too high, usually because of the pressure of high-cost producers, and politically it is almost impossible to stabilize prices at a moderate level.

2. Stocks may be accumulated at price levels that subsequent developments prove excessive.

3. Failure to make adequate provision for the regulation of additions to productive capacity leads to a breakdown of permanent control for a commodity with a relatively inelastic short-term demand.

4. Anticipated reduction of the world crop in seasons fol-

⁵⁰ Rowe, *Brazilian Coffee*, p. 17.

⁵¹ In the case of the coffee-defense administration, apparently an abnormal amount of bribery and corruption was involved, at least up to the crash. Rowe describes the three main spheres of corruption: in the Santos market and to a lesser extent in other Brazilian markets; in the regulating warehouses; and in the up-country stations from which coffee was dispatched. Sometimes the machinery of control itself more or less invites bribery and corruption, and oftentimes the abuses have no direct bearing upon the success of the scheme; but "the corruption which mattered concerned the politicians in high places, and the Government officials great and small, who were engaged in operating the control scheme." Rowe, *Brazilian Coffee*, pp. 14-15.

lowing the accumulation of stocks may be small, or may not materialize at all, because of accidents of weather and varying intensity of cultivation.

5. Carrying huge stabilization stocks is costly in several ways, and the necessity for foreign financing may undermine the control set up.

6. Production control is especially difficult to achieve with a tree crop such as coffee and, even if achieved in the principal country of production, excessive price objectives may stimulate planting outside.

7. The destruction of supplies already produced is difficult and costly; yet the alternative of destroying productive capacity is naturally resisted until a long period of unprofitable coffee prices forces it.

8. The apparent success of controls leads to more ambitious ventures which tend to take a political rather than an economic slant and to give rise to serious abuses.

9. Proper consideration of consumer interests tends to be neglected under artificial control, and internal and international friction develops easily.

10. Control shelters the submarginal producer instead of eliminating him; consequently it tends to raise rather than lower average cost levels.

11. Brazil's position in the coffee world was weakened rather than strengthened as the result of her experience with artificial controls, and the effects on her domestic economy were unfavorable.

The above summary does not pretend to cover all the dangers, weaknesses, or advantages of attempts to artificially influence the course or level of coffee prices. Some of the observations that are generalizations based on experience with coffee need to be modified slightly if they are to be applicable to artificial controls in general. However, one important point requiring additional consideration has to do with the proportion of the world coffee industry that must be represented in order to make control effective. As time went on, Brazil's dominance in the trade decreased, and for this reason alone it was necessary to seek agreement with competing coffee-producing countries.

INTER-AMERICAN COFFEE AGREEMENTS

Prior to the 1940 Inter-American Coffee Agreement, several attempts were made to make coffee control something more than an exclusively Brazilian affair. The need for expanding the scope of control became obvious to Brazilians in the 1930's. But none of the efforts produced agreements sufficiently binding to hold participants in line, and Brazil finally abandoned her price-supporting policy but not the surplus-destruction policy late in 1937, after conferences in both that year and the previous one had failed.

INTERNATIONAL COFFEE CONGRESS OF 1931

Earlier, in 1931, an International Coffee Congress was held at São Paulo. This Congress was very largely the inspiration of Dr. Assis Brasil, then Minister of Agriculture, who had presided over an abortive International Coffee Congress held in New York in 1902. Although Brazilians apparently did not have much faith in his project, Dr. Brasil's experience had made him hopeful of promoting an international scheme of export quotas or some other form of international regulation.¹

This Congress, however, was "from the start . . . really little better than a farce."² It did nothing whatever to ease Brazil's difficulties. Although the Brazilians recognized that they had no power to restrict coffee planting in Colombia, they hoped to be able to impress Colombian delegates at the Congress with their own resources to wage a coffee war if friendly agreement should not be forthcoming. When the Congress met, however, Colombia failed to send a representative. One was dispatched later, but the dissension in the ranks of the Brazilian delegates was such as to make prospects for any agreement hopeless. The São Paulo group did not favor Dr. Brasil's scheme for an export cartel, and the only concrete suggestion on which all could agree called for the organization of an International

¹ Rowe, *Brazilian Coffee*, p. 68.

² *Ibid.*, p. 69.

Coffee Bureau for statistical and promotional activities. No action was taken on this proposal, however, until the Bogotá conference in 1936.

Before the depression of the 1930's the mild coffees of Central and South America almost always sold at a fairly substantial premium over Brazilian coffees. By 1932 the differential had narrowed appreciably, and it continued small for several years thereafter. When there is a very small difference between the cost of coffees of considerable difference in quality, demand tends always to favor the better value. As Brazilian coffee prices were artificially supported by the government coffee policy, the competitive position of exporters of mild coffees was strengthened. This is illustrated by the following comparison of differences between average prices of Colombian and Brazilian coffees in the New York market:⁸

Years	Premium of Manizales over Santos No. 4	
	Cents	Per cent
1913-17 average.....	3.58	24.65
1918-22 average.....	3.63	20.00
1923-27 average.....	5.10	20.52
1928-32 average.....	3.45	19.16
1933-37 average.....	1.54	13.22
1938.....	3.31	30.17*
1939.....	4.25	36.45*
1940.....	1.32	15.77
1941.....	3.90	26.45

* Effect of Brazil's abandonment of price-supporting measures.

Colombia, the largest producer of mild coffee and the second largest coffee exporter, was of course a principal beneficiary of the Brazilian coffee-control scheme and, from the Brazilian standpoint, the worst offender. Exports of Colombian coffee expanded at the expense of Brazil. Without the participation of Colombia, no international agreement could stand much chance of success. Hence the choice of Bogotá, Colombia as the locale of the first American Coffee Conference, held October 5-10, 1936.

⁸ Colombia, *Federacion Nacional de Cafeteros, Boletin de Estadistica*, No. 23, May 1942, p. 579.

FIRST PAN-AMERICAN COFFEE CONFERENCE (1936)

From the Brazilian point of view, it was not only highly desirable, but necessary, if the coffee-defense policy were to be pursued further, to secure some kind of an agreement with Colombia and other American coffee-exporting countries that would remove the existing competitive disadvantage of Brazilian coffee in world markets. There were two approaches to this problem: (1) to restore some of the price differential between mild and Brazilian coffees and to maintain this differential by a policy in the mild countries of following the lead of Brazil in adjusting their own prices; or (2) to evolve a system of allocating markets based on quota agreements that would more or less "freeze" the competitive position of the countries concerned, regardless of price differentials.

Brazilian delegates to the Bogotá conference could point to the benefits derived by the entire coffee industry from their country's activities in attempting to maintain price equilibrium by destroying a portion of the crop, by efforts to promote the consumption of coffee, and so on. But the eight mild-coffee-producing countries of Latin America represented at the conference⁴ had profited at Brazil's expense, individually their stakes were small compared with Brazil's, and they were confident that the Brazilians were committed to a price-supporting policy and would continue control efforts even without aid from other producers. They were willing, apparently, to co-operate only if co-operation did not involve any serious deterioration of their improved trade position.

Under such circumstances the Brazilian interests were unable to accomplish their main purpose, but the door was not completely closed to the possibilities of co-operative action and agreement. Among the various resolutions passed, one called for the creation of a Pan-American Coffee Bureau in New York to be supported by the national coffee organizations of the participating states.⁵ Another was a bow to Brazil for her past ef-

⁴ Costa Rica, Cuba, Colombia, El Salvador, Guatemala, Mexico, Nicaragua, and Venezuela.

⁵ Brazil had previously maintained a coffee sales and promotion office in New York representing the Departamento Nacional do Café. The membership of the Bureau includes most of the important producing and exporting countries—Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Mexico, and Venezuela; but a number had not joined by the end of 1942.

forts in attempting to improve the world coffee situation and a promise to "put forth every effort" to sustain prices at predetermined levels.⁶ These, and similar resolutions, had no binding effect and were mostly expressions of desirable objectives upon which all delegates could agree.⁷

The Pan-American Coffee Bureau was to execute the decisions and recommendations of the conference and draft a plan, to be proposed at the next conference, for proportionate sales of coffee from the various exporting countries. Thus Brazil succeeded in getting other coffee-exporting countries to help foot the bill for limited promotional work designed to stimulate coffee consumption in the United States and a commitment to bring up the export-quota idea at a future meeting. The real coffee-advertising campaign in the United States came later, as the result of agreement at the Havana conference in 1937.

This was probably all that could have been accomplished at the time on the important question of price differentials. The delegates were undoubtedly realists, and expected few tangible results merely from passing resolutions. Competitors do not

⁶ The full text of this second resolution concerning prices and control of production was as follows:

"WHEREAS for some years the prices ruling for coffee in foreign markets have not been remunerative for producers; and

"WHEREAS, apart from low prices, the trade abroad has suffered from the effects of speculation which has made a complete uncertainty of prices with grave detriment to foreign roasters and to American producers; and

"WHEREAS the price of the bean, for every desirable reason, should be established at a level that, without being burdensome to the consumer of the beverage, safeguards the roaster against possible losses and at the same time assures the coffee-producing countries an equitable remuneration for their labor in order to maintain their standard of living and increase their purchasing power in benefit of the industrial countries consuming coffee; and

"WHEREAS it is necessary and just that all the American producing countries actively cooperate in the efforts, which up to now Brazil alone has been making, to maintain price equilibrium by sacrificing a part of the harvest—efforts that all the other producers expressly recognize as having redounded to the benefit of the entire coffee industry;

"BE IT RESOLVED, That the coffee organizations represented in this Conference agree to give their active cooperation and put forth every effort within their power to sustain the price of their respective coffees at a level related to the prices that may be established for Brazilian coffees, which prices will be taken as a base;

"That they also will bring into play the measures and resources that may be within their power for the purpose of maintaining in the domestic markets of each country prices related to the quotations abroad after deducting the necessary expenses."—*Bulletin of the Pan American Union* (Washington, D.C.), January 1937, LXXI, 42-43.

⁷ Other resolutions passed included one recommending that, in the interests of encouraging coffee consumption and discouraging the consumption of substitutes, all producing countries prohibit the export of coffee of inferior quality. Another dealt with the question of high import duties and taxes levied by a number of European countries, and suggested that negotiations be opened with the countries involved looking toward reasonable reductions.

ordinarily agree not to undersell or otherwise take advantage of each other, unless there is some compelling reason such as fear of reprisals. At this time it did not appear that Brazil would abandon the coffee-defense policy that she had been pursuing for so many years. The danger of reprisal probably seemed remote, partly because of the continued dissension within the ranks of Brazilian coffee planters. The first Pan-American Coffee Conference therefore failed to take positive steps toward effective regulation of coffee exports, prices, or production.

SECOND PAN-AMERICAN COFFEE CONFERENCE (1937)

Following the Bogotá Conference, meetings were held in New York by representatives of the coffee-producing countries of the Pan-American Union. From these emerged a schedule of relative parities between prices of different coffees for the guidance of countries adhering to the agreement: Colombia was to keep the minimum price of Manizales at 12 to 12.5 cents, while Brazil was to peg Santos 4's at a minimum of 10.5 cents.⁸ Actually, the proposed minimum on Manizales was not observed, and the contemplated differential was not attained. The average annual price of Santos No. 4 in New York in 1936 was 9.5 cents; in 1937 it rose above the 10.5 cent minimum to 11.1 cents. But Manizales sold at an average price of 11.3 cents in 1936 and rose to only 11.6 in 1937. The situation from Brazil's standpoint grew worse, her leadership in prices clearly was not followed, and the exporters of mild coffees got more of the business.⁹

The second Pan-American Coffee Conference met in Havana, August 9-19, 1937, with 15 countries represented.¹⁰ The Brazilian delegate opened by calling attention to the failure of participants of the first conference to abide by the resolutions with regard to restrictions of exports of low-quality coffee, the promotion of consumption in the United States, and the defense of prices.

⁸ See *International Review of Agriculture*, September 1938, XXIX, 421 E.

⁹ In 1937 for the first time imports of Colombian coffee into the United States reached one-fourth of the total, while imports of Brazilian coffee fell from around 65 per cent in the earlier 1930's to slightly over half the total.

¹⁰ In addition to the nine countries at the first (Bogotá) conference, six others were represented at the second. These were Ecuador, Panama, the Dominican Republic, the United States, Honduras, and Puerto Rico, the latter three being represented by observers only.

He proposed a minimum program that would prohibit new planting for five years, prohibit exportation of coffee inferior to No. 8, finance an advertising campaign to promote consumption, and protect prices at certain levels. The question of price differentials became one of the most important points of discussion; but again Colombia and Brazil could not agree, Colombia spokesmen contending that the maintenance of a parity differential was too burdensome. No agreement was reached except to try to arrive at a settlement of the question of price parity within 60 days.

The question of restricting new planting was postponed to another conference. It was felt that without a world agreement Latin American countries would be at a disadvantage, since Asiatic and African planters would be free to expand production. At several successive conferences, the Brazilians had tried to secure an international agreement to limit new planting,¹¹ but the problem of excessive productive capacity was Brazil's alone. Other producers generally found a demand for their own additions to world output; and as long as Brazilian growers were unwilling to let their coffee prices seek competitive levels, market conditions would continue to favor non-Brazilian producers. It is, therefore, not surprising that the mild-producing countries were unwilling to enter into an agreement to limit expansion of their productive capacity.

The export-quota scheme was accepted in principle at the Havana conference, but wide differences of opinion developed with regard to an equitable basis for establishing such quotas. A number of resolutions were passed,¹² but this conference, like the preceding one, failed to produce any important results.

With this latest failure to secure the co-operation of other American producers, Brazil had no alternative but to abandon her current defense policy and to substitute a new one. This

¹¹ In addition to the conferences at São Paulo (1931), Bogotá (1936), and Havana (1937), the Brazilian delegation to the London Monetary and Economic Conference (1933) sought an international agreement for the prohibition of new planting in all producing countries and the reduction of existing capacity in Brazil. Also proposed was a plan for consuming countries to remove various barriers to the promotion of coffee consumption. Nothing came of either proposal.

¹² For a description of the resolutions, see *International Review of Agriculture*, September 1938, XXIX, 421-22 E.

was done, as already related, in November 1937. Prices in world markets fell by one-third, and Brazil considerably improved her position in the export trade. Smaller crops and continuation of the coffee-destruction program noticeably improved the statistical position in following years. Brazilian coffee had become once more a price coffee.

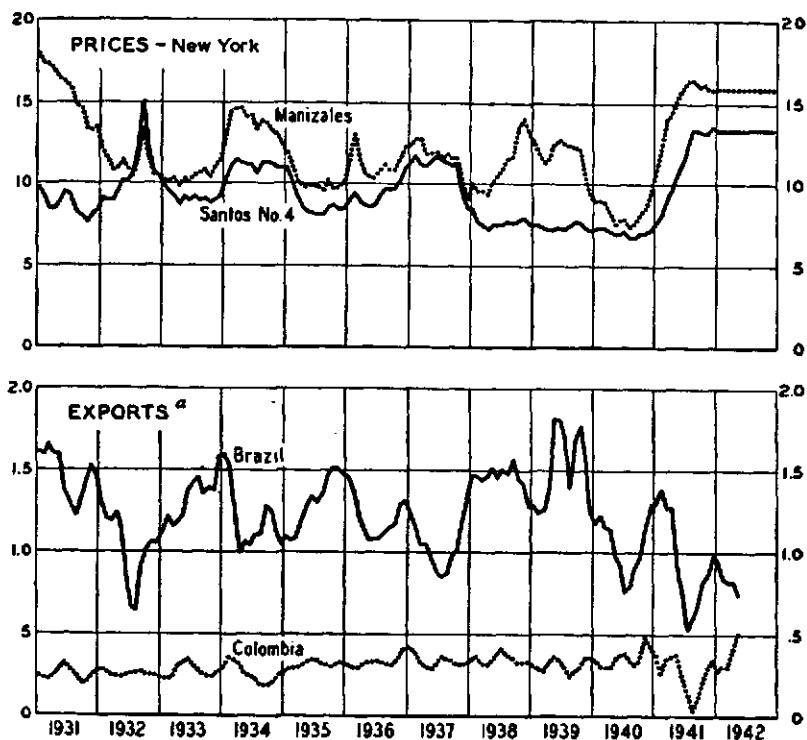
After the initial effects of the "free competition" policy that Brazil adopted in November 1937 had worn off, prices of mild coffees began a recovery in 1938, while Brazils remained fairly steady at the lowest level in many years. Prices of Colombian coffee started up in May 1938, and rose so much that the average price in New York for the year 1938 was only slightly lower than in 1937, and even compared favorably with the general level of Colombian coffee prices that prevailed through the entire period 1932-39 (Chart 10). The old price differential between mild and Brazilian coffees had been restored, but this was accomplished by allowing Brazils to fall in price and not by increasing the price of milds.

Although mild coffees were no longer as attractively priced in comparison with Brazilian coffees, buyers were inclined to continue to take a greater volume of such coffees than they had ever absorbed prior to the depression years. The relatively low level of coffee prices, and the small price differential between milds and Brazils that had prevailed for the half-dozen years between 1932 and 1937, had induced many American roasters to modify and improve their blends by the inclusion of a greater proportion of the former. The composition of popularly-priced and widely-distributed blends in the United States changes very slowly; so gradually, in fact, that the consumer is seldom aware of the change. Roasters saw no compelling reason for making any change whatsoever in their blends at this time. Consumers were accustomed to prevailing blends and might soon detect a change, milds had not materially increased in cost, and the over-all blend cost had declined because of the lower prices prevailing for Santos-type coffees.

Although exporters of mild coffees did not continue to increase shipments, they were able to maintain them at existing levels and to retain the portion of the market they had captured

CHART 10.—PRICES AND EXPORTS OF BRAZILIAN AND COLOMBIAN COFFEE, MONTHLY, 1931-42*

(Cents per pound; thousand bags of 60 kg.)



* Data from *Commodity Yearbook, 1939*, pp. 316-19; *ibid.*, 1942, pp. 48, 50, 53.

^a Three-month moving averages.

in earlier years.¹³ Aggregate exports of all coffee increased, principally because of the increased absorption by the trade accompanying the very low prices of Brazilian coffees. Roasters selling coffee in the lower-price brackets tended to increase their share of the total market.

¹³ In the United States market, for example, imports from Colombia amounted to 3.2 million bags in 1937, 3.4 in 1938, and 3.2 in 1939, while imports from Brazil increased from 6.6 million bags in 1937 to 9.1 in 1938 and 9.3 in 1939.

Much of the European demand for mild coffees is normally supplied by African and Asiatic colonies. The Brazilian policy adopted in 1937 had little effect on colonial producers, partly because competition, especially in the British market, was more definitely on a quality basis and partly because markets were assured by virtue of tariff protection for Empire commodities.

THIRD PAN-AMERICAN COFFEE CONFERENCE (JUNE 1940)

At the onset of the war in Europe in September 1939, the commercial "war" between Brazil and the producers of mild coffees was still in progress. Brazil undoubtedly had felt the pinch more than other coffee-exporting countries, though statistically her coffee position was improving as the result of enlarged exports, a continuation of the coffee-destruction program, and the prospect of smaller crops. Stocks of Brazilian coffee in the United States were small when the war broke out. A buying wave that began in September was short-lived, as traders soon realized that the contraction of the European market would create pressure to sell in the United States. Between October and December Brazilian coffee prices remained fairly steady, but milds declined substantially (Chart 10). The Manizales premium over Santos 4's was reduced from about 6 to 2 cents.

The full meaning of the war to the coffee industry of Latin America was not apparent until after the invasion of the Low Countries in May 1940. In June, representatives of the coffee-growing countries met in New York for a Third Pan-American Coffee Conference, in a more receptive and co-operative mood than had prevailed in 1936 and 1937. Still, the results of this conference were hardly more tangible than those of the earlier conferences.¹⁴ At this time the idea of United States participation was advanced in order to enforce some sort of a control plan. A letter was addressed to the Secretary of State, and Secretary Hull replied sympathetically, stating the position of the United States government and conditions for co-operation.

Although war itself should not decrease coffee consumption, the blockade of European ports, shortage of shipping, and general currency difficulties would effectively close the European market for coffee—a market accounting for some 40 per cent of the total. The United States market was left unaffected by the war in 1940, but only about half of world exports were normally absorbed there, and the export movement on this side of

¹⁴ See P. C. Daniels, "The Inter-American Coffee Agreement," *Law and Contemporary Problems*, Autumn 1941, VIII, 711-20. This article gives an account of the negotiations leading up to the Inter-American Coffee Agreement, the organization of the Coffee Board, and some of the problems encountered during the early months of its existence.

the Atlantic was threatened by a prospective shortage of shipping. These difficulties, added to the fact that world coffee supplies were already in excess of consumption requirements, presaged even more critical times for the world coffee industry.

INTER-AMERICAN COFFEE AGREEMENT (NOVEMBER 1940)

The conference held in New York in June and July 1940 was followed by further discussion during the latter month at the Havana Conference on Western Hemisphere defense against totalitarian encroachment.¹⁵ An outgrowth of this conference was the Inter-American Coffee Agreement, signed in Washington on November 28, 1940, after negotiations lasting from August. It was an agreement designed to cushion the impact of war on the economies of Latin American countries,¹⁶ and was to run for three years beginning October 1, 1940. It was submitted to the signatory countries in the form of a treaty, and was put into effect on April 16, 1941.¹⁷

Nearly five months elapsed between the signing of the Agreement and its coming into force, and four more before the last of the signatory governments formally adhered to it. United States official action was crucial. On January 9, 1941 the President addressed a request to the Senate, asking for advice and consent, and the Senate advised ratification on February 3. On April 11, President Roosevelt approved a joint resolution of the House and Senate, which provided that during the operation of the Agreement "no coffee imported from any foreign country" into the United States "may be entered for consumption except as provided in said agreement."¹⁸ The President

¹⁵ This was the Second Meeting of the Ministers of Foreign Affairs of the American Republics. The first had been held at Panama in September-October 1939.

¹⁶ In 1926, when coffee prices were high, some \$315,000,000 in exchange was created by coffee sales to the United States. Just before the outbreak of World War II, when coffee prices were low, Latin American countries were receiving about \$137,900,000 annually (average 1937-39), but this was more than one-third of the total value of all sales to the United States by the 14 countries signatory to the Inter-American Coffee Agreement. For those countries exporting their coffee mostly to the United States market, the importance of such sales was very high. Of total merchandise sales to the United States, El Salvador, for example, derived over 99 per cent from coffee, Colombia almost 92, and Brazil about 63.

¹⁷ For a complete text of the Agreement and relevant documents, see U.S. State Dept., *Inter-American Coffee Agreement* (Treaty Series 970, 1941). The text of the Agreement is also reprinted in the Documentary Appendix of this study.

¹⁸ 155 Stat. 133.

ratified the treaty on the 12th. By this time eight Latin American governments had also ratified. A protocol was signed in Washington, D.C., April 15, bringing the Agreement into force on April 16, 1941 among the nine governments that had deposited ratifications or approvals (Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Peru, and the United States). The protocol was signed later by Haiti (effective as of April 15), Ecuador (April 29), the Dominican Republic (April 30), Nicaragua (May 13), and Venezuela (August 14).

The Inter-American Coffee Agreement is essentially the embodiment of the export-quota idea, but it has several unique features. The principal one is that it constitutes the first important international commodity agreement in which a consuming country that is not also a producer participates and plays a dominant role. The United States, which imports half of the coffee entering into world trade, joined in a co-operative agreement with 14 Latin American coffee-producing countries, accounting for over 85 per cent of world production, for the purpose of providing an "orderly" outlet for over 55 per cent of their exports. The Agreement was inspired, and perhaps made possible, by abnormal conditions arising from war. It has definite international political aspects in that it represents one measure designed to promote hemispheric solidarity. At the same time, it runs all the risks inherent in any scheme involving what amounts to a form of political subsidy. Discussion of such points, however, is reserved for the following chapter.

At the meeting of the Ministers of Foreign Affairs of American Republics at Havana in July 1940, it was agreed that efforts should be made to assure the orderly marketing of commodities of prime importance to the Western Hemisphere. Coffee is one such commodity. From the United States' standpoint any program that increased payments to Latin American countries to compensate in part for the loss of normal European outlets would strengthen their ability to resist Axis pressure, promote the Good Neighbor policy, and render the United States' strategic position more secure. The Agreement as finally drafted was the product of the Inter-American Financial and Economic

Advisory Committee,¹⁹ working in close co-operation with the American coffee industry (especially the National Coffee Association) and the Pan-American Coffee Bureau.

By the terms of the Agreement, three basic annual export quotas were established: (1) for coffee exported to the United States from the 14 Latin American countries signatory to the pact, (2) for exports to the United States from nonsignatory countries, and (3) for exports by the 14 producing countries to markets outside the United States. The United States, on its part, agreed to limit imports in accordance with these quotas. Thus, on the basic schedule, the parties to the agreement could export in the aggregate 15,545,000 bags (of 60 kg. net) to the United States, and nonsignatory countries could export, and the United States agreed to import from them, 355,000 bags annually,²⁰ making the entire basic quota for the United States market 15,900,000 bags. This figure compares with 15,482,830 bags imported into the United States in the year ending June 30, 1940, a record total at the time. Outside the United States the 14 coffee-producing countries would, if they could, export a total of 11,612,000 bags. Basic annual quotas for the producing countries signing the agreement are given in Table 11.

During the first quota year (October 1 to September 30, 1940-41) these countries actually exported a total of 19.4 million bags of coffee, 17.1 of which went to the United States and only 2.3 million elsewhere. Of this latter figure, about 1.3

¹⁹ This body is the "collective economic weapon" of the American republics for waging war. For an account of its organization, assignments, activities, and accomplishments, see U.S. State Dept., *Bulletin*, Mar. 27, 1943, VIII, 260-63.

²⁰ The joint resolution of Apr. 11, 1941 authorized the President to make necessary and appropriate allocations of this quota "in order to afford any such country or countries an opportunity to supply a fair share of the quota, whether or not required by any international obligation of the United States, or in order to make available the types of coffee usually consumed in the United States." No individual allocations for nonsignatory countries were made for the first quota year, but for the second (1941-42) they were made by an Executive Order dated Aug. 21, 1941, when the quota in effect was 125 per cent of basic quotas. This made the quota for nonsignatory countries 443,750 bags, divided as follows: British Empire, except Aden and Canada, 146,615 bags; Kingdom of the Netherlands and possessions, 163,167 bags; Aden, Yemen, and Saudi Arabia, 32,127 bags; and all other countries, 101,841 bags. The governments of Great Britain, the Netherlands, and Belgium made representations to the United States that the quotas assigned them were smaller than justified. Due to war conditions and the need for added flexibility, no individual allocations were made for the third quota year. See Inter-American Coffee Board, *First Annual Report, 1941-42* (Washington, D.C., 1942), pp. 34-35. All resolutions of the Board up to Sept. 30, 1942 are reprinted in this report, together with an account of the Board's major activities from its inception to the end of the second quota year.

TABLE 11.—BASIC ANNUAL EXPORT QUOTAS FOR COUNTRIES SIGNATORY TO THE INTER-AMERICAN COFFEE AGREEMENT

(Thousand bags of 60 kg. net or equivalent)

Exporting country	United States	Outside the United States	Total quota
Brazil.....	9,300	7,813	17,113
Colombia.....	3,150	1,079	4,229
Costa Rica.....	200	242	442
Cuba.....	80	62	142
Dominican Republic.....	120	138	258
Ecuador.....	150	89	239
El Salvador.....	600	527	1,127
Guatemala.....	535	312	847
Haiti.....	275	327	602
Honduras.....	20	21	41
Mexico.....	475	239	714
Nicaragua.....	195	114	309
Peru.....	25	43	68
Venezuela.....	420	606	1,026
Total.....	15,545	11,612	27,157

million bags represented exports to other countries in the Americas.

Administration of the Agreement, including the adjustment of quotas, was vested in an Inter-American Coffee Board, composed of delegates of the participating governments. Of a total of 36 votes, the United States has 12, Brazil 9, Colombia 3, and each of the other countries one. The Board is empowered to increase or decrease quotas not oftener than once every six months, by amounts not greater than 5 per cent of the basic quotas. If a shortage of supplies is imminent in the United States, however, the Board can, upon a one-third vote (12 votes) increase the United States quota without limit, but any reduction greater than 5 per cent at a time requires a unanimous vote. Furthermore, in order to shift part of a producing country's United States quota to outside markets, a two-thirds majority is required.²¹ The Board was also charged with studying

²¹ This provision was for the purpose of adjusting the supply of, and demand for, special types of coffee, and for meeting possible changes in demand for coffees of a particular origin in markets outside the United States. It was planned as a safeguard for United States roasters against shortages of certain blending coffees in that, if the United States did not favor a transference of the quota to outside markets, a unanimous vote of the 14 Latin American countries would be required to put it into effect.

the problem of coffee surpluses and working out methods of financing and storing supplies that necessarily accumulate during wartime.

The export quotas for individual countries were not set solely on the basis of the coffee production of each country or recent participation in the United States market or any other mathematical formula, but were compromises based upon negotiation.²² Effecting an agreement on export quotas was not simple. "The proceedings were long and difficult owing to the exacting demands of the small producers, who are not members of the Pan American Bureau and wanted to secure a high share."²³ Apparently an attempt was made to relieve distress resulting from the elimination of the European market regardless of previous participation in United States imports.²⁴ Thus Costa Rica, for example, has a United States basic quota of 200,000 bags, though her exports to the United States amounted to only 96,000 in 1938-39 and 110,000 in 1939-40; and Venezuela, Haiti, Peru, and Honduras were permitted exports far in excess of their previous shipments to this market. Most of these countries normally found their principal outlets in Europe and were, consequently, more adversely affected than countries like Colombia or El Salvador, which had been sending a greater proportion of their exports to the United States. Colombia, surprisingly and perhaps shrewdly, accepted a United States quota below her average exports in 1935-39. The basic quota for nonsignatory

²² Daniels, *op. cit.*, p. 714.

²³ Andrade, *Brazil 1940/41*, p. 125. From the Brazilian viewpoint "the most sensible criterion" was 1938 exports to the United States. This was the year following the abandonment of price-supporting measures, during which Brazilian exports increased from 12.1 to 17.1 million bags. In justification of the policy adopted in the fall of 1937, the President of the National Coffee Department pointed out in his annual report for 1940 that Brazil would never have been able to fare so well under the quota arrangement if it had not been for the change of policy and the resulting recovery of sales abroad. See Guedes, *Brazil Coffee in 1940*, p. 27.

²⁴ Varying degrees of participation by Latin American coffee-producing countries in the United States market are indicated by the approximate percentage distribution of average exports for 1935-39, as follows:

Country	U.S.	Europe	Other	Country	U.S.	Europe	Other
Brazil	55	38	7	Guatemala	51	47	2
Colombia	77	19	4	Haiti	20	79	1
Costa Rica	21	77	2	Honduras	23	69	8
Cuba	57	41	2	Mexico	62	38	..
Dominican Republic	26	70	4	Nicaragua	45	55	..
Ecuador	38	49	13	Peru	4	81	15
El Salvador	60	38	2	Venezuela	29	69	2

countries was apparently based on their 1938 exports to the United States.

Each party to the Agreement is required to take all measures necessary to make it effective, and provisions are made for adjusting inadvertent violations of the terms resulting from the procedures of administration, termination or renewal of the Agreement, and so on.²⁵ As such agreements go, the Inter-American Coffee Agreement is relatively simple. Perhaps this was due chiefly to the fact that the circumstances surrounding its consummation were abnormal, and many matters that might otherwise have been more difficult to adjust were rather quickly compromised.²⁶ Under Article XVII, the "participating Governments agree to maintain, in so far as possible, the normal and usual operation of the coffee trade." The agreement sought to prevent demoralization resulting from uncontrolled efforts of producers to sell in the one important remaining market.

The preamble of the Agreement refers to the object of "assuring terms of trade equitable for both producers and consumers by adjusting the supply to demand." The State Department's relevant release stated: "The Inter-American Agreement is an attempt to provide effective measures for bringing the supplies of coffee in the international markets more nearly in line with existing demand at prices which will be reasonable to both producers and consumers."²⁷ A statement of policy made by the Inter-American Coffee Board, following its first meeting on April 17, 1941, pointed out the desirability of maintaining reasonable prices fair to producers, at the same time maintaining them at levels which would encourage increased consumption.²⁸

The Agreement itself says nothing specific about prices. The chief safeguard to American consumers lies in the authority

²⁵ Any participating country may withdraw from the Agreement one year after notification; and if governments representing 20 per cent or more of the Latin American quota for the United States withdraw, the Agreement automatically terminates. If the Agreement is to be extended, the recommendations of the Inter-American Coffee Board must be made not less than one year prior to Oct. 1, 1943.

²⁶ One matter that worried the Brazilians, doubtless because of earlier experience, was how to make any agreement reached really binding and effective. The control over quotas was considered to be "one of the greatest difficulties," but this was solved by United States participation in the plan and the control of imports through customs. Another "serious difficulty" was the competition of colonial coffees. Andrade, *op. cit.*, p. 125.

²⁷ U.S. State Dept. *Bulletin*, Apr. 19, 1941, IV, 486.

²⁸ Inter-American Coffee Board, *Annual Report*, p. 58.

granted in Article VIII, by which, "as an emergency measure," an unlimited increase in quotas may be ordered by a one-third vote of the Coffee Board, if "there should be foreseen an imminent shortage of coffee in the United States market in relation to its requirements." Inasmuch as the United States has 12 out of a total of 36 votes on the Board, the necessary power to declare an emergency situation, and act accordingly, rests with the consuming country. In effect, if prices were to go too high, the Board could raise the quotas, thereby permitting supplies to increase. The increase in supply would thus check an excessive rise in prices.

It was undoubtedly the expectation of all 15 signatories to the Agreement that prices would rise as the result of the quota arrangement. In fact, one objective of the plan was to raise prices so that coffee would again be profitable to producers. Largely for reasons of hemispheric defense policy, American consumers were to be made to give support to the coffee industry of Latin America. At the same time—to use the customary phraseology found in connection with most control schemes—prices were to be "fair" or "equitable" to consumers. But no criteria of fairness were set up, and no specific price objectives were publicly stated in connection with the Agreement.

THE COURSE OF PRICES UNDER THE IAC AGREEMENT

Although the first quarter of 1941 passed without complete ratification, coffee prices firmed during the period of drafting the Agreement, and signing in November 1940 set off an abnormal amount of speculative activity. From a low of 6.75 cents per pound in August 1940, average spot prices for Santos 4's on the New York market rose strikingly to reach a level of 13.4 cents a year later (Chart 10, p. 173). At the close of the first quarter of 1941, futures were quoted more than 4 cents higher than in August 1940, and the volume of trading in coffee futures on the New York Coffee and Sugar Exchange for the three-month period exceeded that for the whole of the year 1940.²⁹

Coffee quotas were rapidly filled as heavy purchases were

²⁹ *New York Times*, Apr. 6, 1941, sec. 3, p. 1.

made by commercial and speculative interests. A buying wave that followed signing of the Agreement resulted in sales by several producing countries of their full quota within the first six months of the quota year that began October 1, 1940. By April 1, 1941, only 2.5 million bags of the Brazilian quota of 9.3 million bags remained unshipped. Stocks of green coffee in the United States increased rapidly, reaching an all-time peak. In mid-1941, at 6.5 million bags, they stood 2.4 million higher than at the same time a year earlier. Most of the supply was thought to be in the hands of large dealers, but small roasters bid prices up in an effort to secure the growths needed to carry on their business.⁸⁰ Agitation for raising the quota limits began, and resulted in affirmative action before the last of the participating countries had ratified the Agreement.

Coffee prices continued to rise in the United States despite a government policy early in 1941 of freezing prices to quell growing fears of inflation. The official attitude with regard to coffee prices was not clear, but tacit approval of continued advances seemed quite inconsistent with this general policy. Reasons why the American coffee consumer should be asked to pay more for coffee were given as follows:⁸¹ (1) increased coffee prices will improve Good Neighbor relations and make for hemispheric solidarity by contributing to the prosperity of Latin American countries; (2) if the American consumer pays more for coffee, this will increase purchasing power in Latin American countries so that they can buy more from the United States; (3) the United States should cushion the impact of war on the economies of Latin American countries, many of which are heavily dependent upon coffee exports; (4) the American housewife doesn't know within a few cents a pound what her coffee costs her anyway. Except for the last reason, the others all amount to the same thing.

A publication of the United States Department of Agricul-

⁸⁰ The small coffee roaster in the United States is not financially able to take a long position; yet the problem of maintaining blends is fully as important to him and to his business as it is to the large nation-wide roaster and distributor. In a period of abnormal speculation in the coffee markets, and of wartime uncertainty of supplies, only the large roaster is able to protect himself adequately.

⁸¹ *Business Week*, Feb. 15, 1941, p. 42.

ture stated hopefully that American consumers "may not notice a price increase that would be a real benefit to the Latin American growers."³² But at the same time (early in April), Harriet Elliott, consumer representative on the National Defense Advisory Commission, termed the increase in wholesale coffee prices "unwarranted." She explained that one of the objectives of the coffee-quota agreement was to maintain prices fair to both consumers and producers, adding that the Federal Government had the power to assure consumers adequate coffee supplies at "reasonable" prices.³³

Coffee interests pointed to Secretary of State Hull's position that the coffee agreement was designed to remedy the depressed coffee price situation that had adversely affected the purchasing power of Latin American countries. When the United States Senate approved the pact early in February, Senator Vandenberg (Republican) pointed out that "the immediate and direct result of the agreement is to raise the price of coffee \$25,000,000 in the United States," but conceded that under the treaty "the stabilized price will be a normal price."³⁴ In September, the Office of Price Administration stated that "complaints received . . . of advancing coffee prices have been increasing month by month. Prices for green coffee . . . have increased 80 to 100 per cent since last October," and gave the factors mainly responsible as (1) conditions brought about by the Agreement, (2) fears of a shipping shortage, (3) export controls by Latin American governments, and (4) speculation in the United States.³⁵

Colombia, whose United States quota was fixed at a conservative level, set minimum prices in November 1940, and raised them a dozen times by the close of the first quarter of 1941. Brazil did not establish minimum prices until June 1941, but raised them in the following month in order to establish a more favorable differential with Colombian coffees. Both steps had the effect of forcing prices higher in the United States, and

³² J. B. Gibbs, "The Inter-American Coffee Agreement," *Foreign Agriculture*, April 1941, p. 170.

³³ *New York Times*, Apr. 6, 1941, sec. 3, p. 1.

³⁴ *Washington Post*, Feb. 4, 1941. As a matter of fact, each cent that coffee prices rose added about \$20,000,000 annually. With a doubling of prices, producers received, in the aggregate, many times this figure, and American consumers paid a large part of the cost.

³⁵ Office of Price Administration, *Consumer Prices*, Sept. 15, 1941, No. 16, p. 1.

called forth much criticism, as they were considered by many to be responsible for the rapid mid-1941 price advance and consequent disturbances in the United States coffee market.³⁶ Late in May 1941, the Inter-American Coffee Board voted to increase the United States quota by 5 per cent. It also authorized producing countries to export an additional amount not to exceed 15 per cent of their basic quotas on condition that such coffee be not entered for consumption before October 1, 1941. This step was to permit a speed-up of deliveries in the face of a growing threat of scarcity of shipping space.³⁷

The action of Brazil in following Colombia's lead in establishing and increasing minimum export prices in June and July led the Board to take stronger measures. Paul C. Daniels, Assistant Chief of the Division of the American Republics in the State Department and United States delegate to the Board, who was elected chairman at its first meeting in April, stated in July that under current conditions any increase in prices above present levels was unwarranted. The United States exercised its right under Article VIII of the Agreement to declare an emergency, and in August the Board voted a 20 per cent quota increase, which remained in effect through October 23. The effect of these two quota increases was to authorize additional coffee imports into the United States of 710,000 bags during the first quota year, or a total of 16.6 million bags. Actual imports for consumption totaled nearly 16.7 million, and at the beginning of the second quota year imports were authorized at the rate of 19.3 million bags annually (125 per cent of basic quotas, plus deficiencies and less excesses of imports over quotas at the end of the first quota year).

The Brazilian delegate explained the July increase in minimum prices as a step taken reluctantly in order to effect a more favorable differential between Santos 4's and Manizales.³⁸ From

³⁶ Daniels, *op. cit.*, p. 718. The acute situation that had developed became a source of increasing concern to the Office of Price Administration and Civilian Supply.

³⁷ In March 1942 the Board stated that it would remove this limit if it should prove an obstacle to taking full advantage of whatever shipping space might be available.

³⁸ In his annual report (*Brazil Coffee in 1941*, pp. 35-36), J. F. Guedes, president of the DNC, explains the action taken with regard to minimums in a somewhat defensive manner as follows:

"Within the best principles of cooperation and of the spirit of the Inter-American Coffee

a 3.2 cent spread in January 1941, the differential had increased to almost 5 cents in March and was still about 4.5 cents in June. Brazilians, at this time, wanted recognition and acceptance of a 3-cent differential. The following comparison of average monthly prices in the New York market, in cents per pound, indicates that the DNC by its action was successful in re-establishing a more favorable differential:

Month	Manizales	Santos 4's	Differential
1940 July	7.91	7.13	.78
Aug.	7.45	6.75	.70
Sept.	7.60	6.82	.78
Oct.	8.17	7.00	1.17
Nov.	8.65	7.03	1.62
Dec.	9.56	7.25	2.31
1941 Jan.	10.91	7.69	3.22
Feb.	12.37	8.22	4.15
Mar.	14.06	9.09	4.97
Apr.	14.40	9.70	4.70
May	15.44	10.68	4.76
June	15.96	11.48	4.48
July	16.41	12.46	3.95
Aug.	16.41	13.38	3.03
Sept.	16.11	13.39	2.72
Oct.	16.16	13.21	2.95
Nov.	15.86	13.19	2.67
Dec.*	15.87	13.37	2.50

* Prices frozen on December 11.

The text of the Board's resolution in raising the United States quota in August refers to "official acts not contemplated in the Inter-American Agreement" and also to stocks in the

Quota Agreement, on July 8, 1941 we fixed the minimum prices for Brazil coffee for foreign consumption. . . .

"Quotations for the 'Manizales,' for one reason or another, continued to increase without maintaining the necessary and indispensable correspondence with the 'Santos type 4' . . . in order to reestablish the necessary correspondence between the prices of both coffees, we raised our own minimum limit to 43\$000 per ten kilos . . . equivalent to nearly 13 cents in the New York 'spot.' . . .

"This price . . . according to a publication which appeared in the United States, is lower by 0.10 cent than the average price for the last 50 years, and 1.10 cents lower than the average price for the past 21 years.

"The reasonableness of the price of our Santos coffee is evident in view of the above data, and also as compared with . . . increases . . . on the following commodities . . . August 15, 1939 and September 16, 1941 . . ." He then shows how the price of lard, butter, cheese, flour, and rice had risen by a greater amount than the price of coffee, although prices of tea, cocoa, and sugar had not risen as much (p. 37).

United States believed to be closely held, partly for speculative purposes.³⁹ The Board's action in raising the quotas checked the advance, and in fact prices tended to ease (Chart 10, p. 173) as the trade became increasingly confused in September and October. There was much uncertainty as to how the differences between the viewpoints of the United States and the Latin American producing countries would be resolved. On the one hand, the coffee growers appeared to feel that they could, under the circumstances, exact almost any price for coffee they wanted. On the other, the United States did not wish to disturb relations with the countries to the south, but nevertheless showed no disposition to be exploited without limit.

At the October 23 meeting of the Board, however, the 1941-42 United States quota was set at 17,550,225 bags,⁴⁰ a reduction to 110 per cent of the basic quota, and a reassuring statement was issued to the effect that any misunderstandings that had existed had been cleared up and the success of the Inter-American Coffee Agreement was assured. This followed a declaration of policy by the Board "to the effect that minimum prices would not be used in such a way as to control market prices or prevent normal fluctuations in the market."⁴¹ November was uneventful. Then came the United States entry into the war with the attack on Pearl Harbor, December 7. Four days later the OPA established tentative price schedules for coffee as well as many other items. A revised schedule went into effect on December 29. It is interesting to note that when ceiling prices were established the Manizales top was placed at 15⁷/₈ cents per pound and Santos No. 4 at 13³/₈ cents, a differential of 2¹/₂ cents, approximately that prevailing before the freezing order. Late in January 1942 the OPA stated that no major changes were contemplated in price ceilings and none in the price itself, and reminded the trade that the OPA was the official source of information on coffee prices and the Inter-American Coffee Board on quotas.

³⁹ Inter-American Coffee Board, *Annual Report*, pp. 92-93.

⁴⁰ For the 14 countries participating in the Agreement, the adjusted quotas for export to the United States were 17,156,341 bags (effective Oct. 24, 1941), later increased to 17,618,494 bags, effective Feb. 26, 1942.

⁴¹ Daniels, *op. cit.*, p. 718.

OTHER RECENT DEVELOPMENTS

The shipping situation became more critical in the spring and summer of 1942. It operated especially to restrict shipments from Brazil, and to favor shipment from several nearer sources of supply. In April the question of the need for coffee rationing was much discussed. Late in the same month, in order to conserve supplies, the War Production Board placed restrictions on the distribution of coffee, and the Inter-American Coffee Board removed all restrictions on shipments to the United States for storage. Under the WPB order, deliveries, with certain exceptions, were limited to 75 per cent of those for the corresponding period in 1941.

In July the Coffee Board again boosted the United States quota, to approximately 134 per cent of the basic quota, but announced that this was an emergency increase and that quotas would be adjusted to 110 per cent at the beginning of the next quota year. This action was to permit the release of impounded stocks into consumption channels and additional shipments from countries that had already filled their quotas.

In August the OPA amended its earlier price schedules, fixing ceilings on approximately 200 grades and types of coffee, thereby greatly expanding the original list in order to eliminate confusion that had arisen with regard to ideas about "customary price differentials in effect prior to December 8, 1941."⁴² An arrangement was also effected whereby the Commodity Credit Corporation was to absorb added costs incurred by coffee roasters since December 7 on war risk and marine insurance, ocean freight surcharge rates, and 75 per cent of the inland freight costs due to steamer deviations to southern ports. Price Administrator Henderson declared that this action had "averted a severe squeeze on the coffee industry."⁴³ The War Production Board announced an additional reduction of 10 per cent, effective September 1, in the amount of coffee available to consumers. Distributors' allotments thereby became 65 per cent

⁴² Prices of coffees not listed on the early schedules had had to be determined by their "customary" relationship to the 39 upon which maximum prices were fixed.

⁴³ OWI-OPA press release, Aug. 10, 1942 (OPA-487).

of the average monthly amount of coffee handled during the corresponding quarter in 1941.

In September the Inter-American Coffee Board fixed the United States quota for 1942-43 at 19,330,115 bags for the participating countries and 390,500 bags for others, or a total of 19,720,615 bags. This figure was nearly 5 million bags higher than the actual 14,922,880 bags imported for consumption during the 1941-42 quota year, but was less than a half million bag increase over actual imports from countries other than Brazil, as shown by the following tabulation (in thousand bags):

Country or countries	1940-41 imports	1941-42 imports	1942-43 quota
Brazil	9,715	7,148	11,607
Other signatory countries.	6,612	7,249	7,723
Nonsignatory countries ..	371	526	391
Total.....	16,698	14,923	19,721

The WPB reduction in allowable deliveries within the United States soon created regional shortages, for aggregate consumption had not been curtailed by a corresponding amount. Although stocks were drawn upon, coffee became scarce in parts of the United States and consumer hoarding increased. Rationing was advocated by some distributors and by other groups, while the trade in general hoped to avoid it. Finally, the OPA announced late in October that coffee would be rationed beginning November 29. Thereupon runs quickly exhausted retailers' stocks. The ration was fixed at one pound every five weeks for persons 15 years of age and over, equivalent roughly to one cup per day. On a per capita basis this amounted to 10.4 pounds annually. Per capita imports of green coffee, adjusted to a roasted-coffee basis, for persons 15 years and over, had amounted to 12.6 pounds in the census year 1900; 14.5 pounds in 1920; 15.2 pounds in 1930; and 17.4 pounds in 1940.⁴⁴

Under coffee rationing in the United States, it was estimated that imports would be reduced 37-38 per cent. Such reduction would inevitably accentuate the storage congestion in some pro-

⁴⁴ *Foreign Commerce Weekly*, Nov. 21, 1942, p. 21.

ducing countries. Santos warehouses were reported already full.⁴⁵ As the situation developed, the reduction in shipments was not uniform. Colombia and Central American mild producers were able to ship in increasing volume, while Brazil was obliged to resort to additional storage. This put a strain on storage facilities even though Brazil was better able to handle surpluses than any other country. To compensate countries that were unable to ship their quotas, the United States undertook to purchase and store coffee that would have been permitted entry under the Agreement. The Commodity Credit Corporation purchased the entire unshipped portion of Brazil's 1941-42 United States quota (2,659,279 bags) and guaranteed to purchase an amount equal to the unshipped portion of the basic quota of 9.3 million bags of the 1942-43 quota coffee. It is to be noted that the United States thus alone assumed the burden. Government ownership of stocks created some new problems and fears which are discussed in chapter xii.

Despite the fact that Brazil was compensated for her inability to export, Brazilian growers worried over the possible adverse effects of this development on the postwar United States market. Blends had to be altered to include more mild coffees in order to make use of the supplies available. As early as the summer of 1942, Brazilian producers advocated an agreement with the United States that would assure the maintenance of the prewar ratio of imports between Brazils and milds.⁴⁶

Normally, popular blends are based on a few grades of Brazilian coffee at more or less standardized prices. With the supply of Brazils cut off, or drastically reduced, coffee roasters in the United States who had heretofore not been large users of mild coffees were forced to alter their blends, using whatever growths could be secured from nearer supply sources. There is a great variety of grades of mild coffee, prices are less standardized than they are for Brazils, and roasters had difficulty in maintaining their over-all blend costs. Caught between rising labor and material costs, and lag in reflecting higher green costs, ceilings on sale prices, reduced volume over which to distribute

⁴⁵ *Chicago Journal of Commerce*, Nov. 3, 1942, p. 14.

⁴⁶ *New York Times*, Aug. 2, 1942, sec. 3, p. 6.

overhead, and uncertain and fluctuating blend costs, roasters had great difficulty in squeezing any profit out of their business. Generally they felt that the domestic coffee industry was absorbing too much of the rise in coffee prices and favored an upward revision of the OPA schedules.

In order to quiet alarms in coffee-producing countries over shipping and rationing developments in the United States, Donald M. Nelson, chairman of the War Production Board, at the instigation of Paul C. Daniels, chairman of the Inter-American Coffee Board, wrote the latter a letter on November 4 in which he stated that the intent of the rationing program was not to affect adversely the exportation of coffee from producing countries, but was to provide an equitable distribution of such coffee as it was possible to import in view of the shortage of shipping space. He also stated that "every effort will continue to be made, consistent with the war effort, to provide shipping space for the movement of coffee into the United States."⁴⁷

The shipping situation inspired a number of schemes for getting coffee from Latin American producing countries to the United States market. These ranged from the development of a fleet of sailing ships for use in the Caribbean to the dehydration of coffee in producing countries. For all practical purposes shipping itself came to provide the limitation on coffee imports into the United States. Quotas were set high so that coffee could be shipped from wherever bottoms could be found. A resolution of the Board on March 11, 1943 set the United States quota for the remainder of the quota year at 200 per cent of the basic quota.

Since the quotas under the Agreement no longer had any practical significance and the OPA had already become the arbiter of coffee prices in the United States, the operation of the Agreement was necessarily radically modified. The Inter-American Coffee Board, however, was in a position to function as a common meeting ground for all the various governmental and private interests concerned with coffee in the Western Hemisphere. As such it has concerned itself with many matters affecting both coffee-producing countries and the trade in the United

⁴⁷ Inter-American Coffee Board release.

States. As indicated in the following chapter, however, it has not yet taken positive action on a number of matters of fundamental importance to the industry. It formulated a set of principles to guide its policies, and in September 1942, in accordance with Article XXIV, recommended an extension of the Agreement without modification for a period of one year, from October 1, 1943. On April 26, 1943 the Board announced that the participating countries had unanimously decided to extend the Agreement as recommended, because it had "operated so successfully."

REGULATION OF THE WORLD COFFEE INDUSTRY

The Inter-American Coffee Agreement was the first truly international co-operative scheme for the regulation of the coffee trade and the support of coffee prices. The various valorization and coffee-defense programs of Brazil were strictly national in conception and operation, and all attempts at international agreement prior to 1940 were unsuccessful.

Unquestionably the Inter-American Coffee Agreement has already proved of immense value to the 14 Latin American countries involved. The striking increase in coffee prices since August 1940, largely attributable to the Agreement, has meant far greater financial returns to growers. The net advantages of the Agreement to the United States are less easily appraised. The cost of coffee to the American consumer was markedly increased, certainly by more than would have occurred without the Agreement. Against this, however, must be set a number of imponderables in the political sphere. In operation, the Agreement has been highly successful in assuring Latin American adherence to United States political objectives. Furthermore, it introduced into the coffee market certain elements of stability that had been lacking. At the same time, it created some new elements of instability, and its operation thus far has contributed very little to the solution of long-standing difficulties of the world coffee economy.

There are indications now that the generosity displayed by the United States toward its Latin American neighbors, not only with respect to coffee but in many other ways, may have gone too far. The coffee industry, though of high importance, has been only one of many Latin American economic activities to receive, directly or indirectly, financial assistance from the United States. Too much assistance can create boom conditions with unfortunate long-run effects, politically as well as economically. These significant possibilities, if not probabilities, are currently rather easily overlooked.

OPERATION OF THE INTER-AMERICAN COFFEE AGREEMENT

Perhaps the most crucial question, and one upon which earlier international commodity agreements have foundered, is that of price. Because price has been the focus of attention in the past, it is not unreasonable to judge the operation of any international agreement for coffee primarily by its influence on the course and level of coffee prices. The expression "prices fair to both producers and consumers" has been used more and more commonly in connection with international commodity agreements. The Inter-American Coffee Agreement makes no mention of prices, price levels, or price objectives, but the Coffee Board is on record as favoring "reasonable" prices that would be "fair" to both producers and consumers and would "encourage consumption."

The only specific official reference that might be interpreted as a definition of a price level that would meet these requirements is found in a statement made in July 1941 by Paul C. Daniels of the State Department, Chairman of the Inter-American Coffee Board, to the effect that "under present conditions" a further increase in coffee prices was unwarranted. Santos 4's, fixed by Brazil at 10.5 cents f.o.b., were then selling ex-dock New York at 11.7 cents. In December of the same year, when the OPA established maximum prices, the ceiling for the Santos 4 grade was set at 13³/₈ cents a pound. If 11.7 cents can be considered the upper limit of "fair" under conditions in July, by implication prices in December, and perhaps subsequently, were "unfair" to consumers to the extent that they have been above this level, unless conditions had been greatly altered in the interim. The conditions undoubtedly referred to in July were those causing difficulties for some roasters because of the rapidity of the advance, whereas stability of prices is always more conducive to profitable operations. Prices were far more stable at the end of the year, and this was helpful to roasters. Such stability as was achieved at the higher level, however, was not necessarily in the best interests of ultimate consumers or perhaps those of the trade.

Actually, a Santos 4 price of 11.7 cents was higher than any annual average price for this grade in the 10 years 1931-40.

The level at which coffee prices were frozen was approximately double the low prices of August–September 1940, some 86 per cent higher than 1940 average prices, 55 per cent higher than the 1936–40 average, 45 per cent higher than the 1931–40 average,¹ and a little more than three-fifths of the abnormally high level that prevailed between 1924 and 1929. Wholesale prices of all foods in December 1941, on the other hand, were only about 12 per cent higher than the 1931–40 average, and for the whole of the year 1942 averaged less than 14 per cent higher. This is not to say that the 1930's constitute a period of "normal" coffee prices. There is, in fact, no period in the coffee history of the past two or three decades that can be described as "normal." Attempts to relate recent coffee prices to the 1926 or 1925–29 level, or even an average level of 30 to 50 years, however, are totally irrelevant in measuring whatever obligation the United States may have to relieve distress in Latin American producing countries *arising from war dislocations*.

The Inter-American Coffee Board had its first real test between July and October 1941 over the question of prices. Even before the Agreement was signed in late November 1940, coffee prices began to advance from their low August–September level in anticipation of the successful consummation of an agreement. At first the rise was gradual, but it was accelerated by the end of the year when Colombia took the lead in establishing and rapidly increasing the minimum prices at which she would export coffee. Early in 1941, when it was certain that the Agreement would be ratified by the United States, prices began the spectacular rise that culminated six months later.

The trade generally conceded that green coffee prices had been forced too low in August and September 1940, but few believed that prices would have gone still lower if there had been no Agreement. Most roasters recognized that growers could not make a fair return on the extremely competitive prices that prevailed for a while, but felt that it was only a matter of time before

¹ The average import price of all coffees entering the United States during the 1930's was about 8 cents a pound. A 45 per cent rise above this level amounts to 72 million dollars annually at the average rate of importation for the three years 1938–40. Under the Agreement basic import quotas were set higher than this rate, and imports broke previous records until a shortage of shipping intervened.

the situation would correct itself. They could find little justification for the extent of the price rise that followed. Yet prices were at a depressed level from which to advance, and stocks in the United States were low. As soon as it was apparent that the price trend would be upward, speculative conditions emerged that made a sharp rise almost inevitable.

Early in 1941, when Santos 4's were selling at approximately 8 cents and Manizales at approximately 12 cents, the general trade opinion seems to have been that prices were high enough—that they had been restored to levels remunerative to growers but not too high for an expanding volume of coffee business in the United States. This level of prices, it will be noted, was about two-thirds of that prevailing when Daniels made his statement a few months later, and approximately three-fifths of the level at which Santos 4's were frozen at the close of 1941.

The attitude of official Washington, both on domestic and foreign matters, facilitated the coffee-price developments that took place during this period. The government was extremely reluctant to offend Latin American countries at such a critical time. At home, likewise, it failed to deal vigorously with the problem of rapidly rising prices of farm products. The coffee-producing countries made the most of the situation, and encouraged the price rise. They could do this easily since no machinery was provided for control over prices during the time that elapsed while the Agreement was being ratified and before the Coffee Board could be set up.

At first propaganda emanating from the south was confined to a justification for increased coffee prices, comparisons usually being made with the abnormally high level of 1924-29.² As prices continued to rise, and as Colombia and Brazil established and successively raised the minimum prices at which they would export coffee, further justification was sought for the efforts being made to force coffee prices still higher. For example, the

² See, for example, Pan-American Coffee Bureau, *Coffee Statistics*, Release No. 2, Feb. 15, 1941, "The Slump in Coffee Prices since 1925," p. 3. In this report (p. 5), a study of the National Foreign Trade Council, Inc., is quoted as saying: "Only by restoring the incomes of the coffee producing countries to an approximation of the high levels of the late 'twenties,' can they have exchange for their imports, remission of earnings on foreign investments, and external debt services." This, of course, is very different from saying that *coffee prices* should be raised to their former levels.

president of the National Coffee Department explained that it was necessary for Brazil to take such action because Colombia did, and pointed out that the rise in coffee prices in the United States was modest in comparison with the rise in the prices of such commodities as lard, butter, cheese, flour, and rice.⁸

If the framers of the Inter-American Coffee Agreement had any price objectives in mind, they were not made public. The minimum that could be expected from an agreement was the prevention of a further decline in prices. However, there seems to be no doubt that expectations went beyond this; a price rise was desired and expected. Apart from other factors that brought about the Agreement, the mere cessation of the trade war between Brazil and Colombia would have tended to lift prices. The question as to what might have been a reasonable price objective is not easily answered. From most points of view, and certainly from that of the United States, there was little justification in 1940 for considering the coffee-price level in terms of 1924-29. There was, however, a pre-1937 basis of "reasonableness."

Although coffee prices throughout the 1930's were low in comparison with those of the 1920's, this did not mean that coffee-growing was unprofitable, especially for the producers of mild coffees who were not embarrassed by surpluses. Until 1940, Colombian and other growers of mild coffees received sufficiently attractive returns to provide an incentive for expanding productive capacity. For the eight years 1932-39 average annual prices of the Manizales grade ranged between 10.3 and 13.7 cents, averaging 11.5 cents for the entire period. Santos 4's, on the other hand, ranged between 7.5 and 11.2 cents, averaging 9.5 cents for the eight years.

It was the price of Santos coffee that was high in relation to Manizales during part of the period because of the price-supporting activities of Brazil. In 1936 the Brazilians were satisfied with a 2 to 2.5 cents differential between Santos 4's and the Manizales grade. The agreement following the Bogotá confer-

⁸ See p. 184, footnote 38. It is of course fallacious to reason that, because prices of commodities that are scarce relative to demands have risen, prices of those that are abundant in relation to their demands should rise also. Moreover, if the price of flour in the United States is higher than justified by the wheat supply situation, it does not follow that, because political considerations are involved here, concepts of parity must be applied to imported commodities that exist in abundance elsewhere.

ence was to keep the minimum price of Manizales at 12 to 12.5 cents and Santos 4's at 10.5 cents. Manizales sold at 11.3 cents in 1936 and rose to only 11.6 cents in 1937, whereas Santos 4's sold at 9.5 and rose to 11.1 cents. A price of around 11-12 cents for Manizales and 8-9 cents for Santos 4's might have constituted a fair price objective. With the exception of 1934, a price of 12 cents for Manizales is higher than any average annual price for the entire period 1932-39; and, in comparison with the unsupported prices of 7.8 and 7.5 cents in 1938 and 1939, 8 to 9 cents for Santos 4's is likewise generous and only slightly below average prices for eight years that included years of artificially supported prices.

The feeling of many in the trade early in 1941 that prices of roughly 12 and 8 cents for the two grades were "fair" had, therefore, a reasonable basis. Prices of 15 $\frac{7}{8}$ and 13 $\frac{3}{8}$ cents for Manizales and Santos 4's are certainly far above this particular basis of reasonableness, even allowing for general price advances since late 1940.

Bringing the trade war to an end in 1940 was in itself of great value to producing countries; restoring prices to the previous levels in the face of continued surpluses was highly beneficial to these countries; but permitting prices to rise further involved a virtual subsidy by the United States. Coffee prices approximately 100 per cent higher than prevailed in the months before the Agreement was signed meant that half the former export volume could be sold to produce the same financial return. Until shipping difficulties interfered, the United States was receiving a little more than half of the entire coffee output of Latin America.

After prices were frozen, moreover, most of the subsequent increases in costs were met by outright government subsidies. Price control in the United States necessitated subsidy payments of about 1.7 cents per pound for roasted coffee, and subsidies were also paid to cover 75 per cent of the increased domestic transportation costs arising from the diversion of coffee to other than normal ports of entry.⁴ Then, when a stringency of shipping interfered with exports, the United States bought coffee even

⁴ U.S. Dept. Agr., Bur. Agr. Econ., *The National Food Situation*, January 1943, p. 24.

though importation was impossible (p. 189). If it should prove necessary later to give away or destroy these stocks, the cost to the United States will be increased still further.

The crucial question, from the United States point of view, concerns the necessity for so much generosity. At the time, something more than a gesture of good will was undoubtedly politically necessary. Putting a floor under prices, perhaps somewhat above the minima to which they had fallen, was probably essential in the interest of hemispheric solidarity and economic support to Latin America. To the layman, however, it seems clear that the economic diplomacy was conducted without adequate regard to the financial burdens that would be imposed on this country, to the other contributions to Latin American economies that the United States war program would entail, or to the danger of creating boom conditions in those countries.

Price behavior during this period has added significance when related to the buying policies that were adopted by the United States coffee trade. A large volume of speculative purchases was made in the later months of 1940 and early in 1941 on the price rise. These purchases, and the price advance, apparently were but little influenced by the threat of a shipping shortage, but were considerably influenced by the minimum export prices that were established and rapidly increased in producing countries. Under the Agreement the imposition of quotas meant that only so much coffee could be sold, and growers were disposed to get the best price possible. If there had been no restrictions, it is possible that stocks in the United States might have been built up more than they were. The low level of prices would have minimized the risks of importers, and the growing uncertainties would have made heavy stocking advisable. As the months passed and the shipping situation became tighter, there was some feeling that the Agreement had prevented, and was preventing, the accumulation of stocks in this country.

The record of the Board was set forth by its chairman, Paul C. Daniels, at the annual meeting of the National Coffee Association in September 1942:⁵

⁵ As reported by the *Tea & Coffee Trade Journal*, October 1942, p. 16 b.

As early as May 28, 1941, . . . attention was called to the critical uncertainties of the shipping situation . . . Later, in July, 1941, . . . a formal resolution once more was made public . . .

In October, 1941, . . . a resolution was approved to make sure that in so far as the Board was concerned, the quotas would not constitute an obstacle to the shipment of coffee to this market, by permitting advance shipments on next year's quota. . . . Subsequently, last April 29th, . . . the 15 per cent restriction was removed, with the result that since that time there has been no restriction whatsoever on amounts of coffee that may be shipped from any producing country to the United States.

. . . the quotas were expanded thirty per cent last July so as to make such coffee available for immediate distribution.

Later Daniels stated that "although the United States is now threatened with a relative scarcity of coffee due to shipping shortages, it can correctly be stated that this problem today is far less than it would have been had it not been for the operation of the Inter-American Coffee Agreement."⁶ This contention is debatable; it can be defended on the grounds that the aspect of restriction of exports and the probable influence on prices had received so much emphasis in formulation of the Agreement that the trade in general, rather than a limited number of speculators, scrambled to secure supplies in order to protect their requirements and also to profit from the generally anticipated price rise. Although the operation of the Agreement may have prevented the importation of all the coffee demanded by buyers from specific countries at specific times, these lots needed for blending, even if they had been available, would probably not have greatly altered the general stocks position of the United States. The Board's action on quotas anticipated growing shipping difficulties, and, so long as prices were not affected adversely, there was every incentive to permit entry of as much coffee as the market would absorb. On the other hand, if there had been no Agreement and prices had remained low, the trade would also have purchased heavily as it has always done in the past. Stocks in the United States might or might not have been built up as large and as rapidly under the market conditions and war developments at the time.

After coffee prices were frozen in December 1941, there was less incentive for the trade to build up stocks, inasmuch as

⁶ *Coffee Annual 1942* (Commodity Research Bureau, New York), p. 12.

the opportunity for profit through advance purchases was largely removed. Furthermore, most roasters had already acquired about all the coffee that they could conveniently store, and their requirements were fairly well protected. Price freezing removed the price problem from the jurisdiction of the Coffee Board only a short time after the settlement of the issue over minimum prices in October. The action of the Board was effective in checking a further price advance that had already gone far. But the all-important question, whether or not quota adjustments could, over a period of time, be effective in stabilizing prices at levels considered satisfactory to producers, the trade, and to consumers, was never given a real answer. If the entry of the United States into the war had not interfered, there might have been some easing of prices with increased quotas, and ultimately a better adjustment to prewar conditions.

The issue over minimum prices established by producing countries was resolved only after coffee prices in the United States had advanced considerably beyond the level at which the United States representative had thought that the rise should stop. The level at which green coffee prices were frozen was little under the peak prices reached in the spectacular advance from the low level of August-September 1940. Since the mid-1941 price rise was under way when the Board was beginning to function, it is not surprising that it was unable to secure control over a situation that had been developing for months before its organization. When price stability was achieved, it was at a level that left little justification for complaint by producers. If the criteria of fair prices mentioned earlier are accepted, the Board cannot be credited with very effective regulation of prices in the interests of consumers as well as producers.

Any conception of a "fair" price to producers and consumers must, of course, be related to conditions existing at any particular time. What might have been fair at the outset of the Agreement may no longer be fair, appropriate, or desirable. The coffee pact was the first practical result of the Havana conference on hemispheric solidarity in the field of economics and trade. Since its consummation, many other steps have been taken to fortify Latin American economies, gain for the United

States certain badly-needed strategic materials, and provide countries to the south with funds and equipment necessary to strengthen their own positions.⁷ When coffee was the chief means of the Latin American countries for creating exchange, one policy with regard to coffee prices may have been appropriate. After many of these countries began to export other products needed in the United States, there no longer existed the same degree of necessity for virtual subsidization of coffee exports at the expense of American consumers.

Under the pressure of war and the urgency of collaborative measures, indeed, the United States appears to be creating conditions in some countries that will give rise to serious repercussions later. Rather than the severe hardship envisaged for Latin America in 1940, at the opening of 1943 there were many signs of unexpected prosperity bordering on boom conditions. That booms did not develop in some places was due solely to the inability to make foreign purchases and secure delivery.⁸ If boom conditions are created on an extensive scale now or later, the readjustments necessary may be so drastic as to cause both ill-will toward the United States and economic suffering. Although the short-run effects of the Inter-American Coffee Agreement are extremely beneficial to producing countries, the long-run effects may be adverse. Mutual recognition of the dangers both in the United States and in Latin America cannot come too soon.

Even if these dangers are recognized now, corrective action is not easy. It is always politically difficult to readjust prices downward. The United States domestic policy with regard to farm prices provides little basis for expecting early efforts to be made to lower coffee prices to producers at a time when external politics is an even more delicate matter than the handling of internal relationships.

Certain developments in mid-1943 present new possibilities

⁷ At the opening of 1943 the United States was reported already to have been committed to finance the "industrial and agricultural revolution" in Latin America to the extent of approximately 2 billion dollars. *United States News*, Feb. 19, 1943, p. 20.

⁸ In 1941 and 1942 Latin American countries created export balances in their trade with the United States of about 600 million dollars. By the time the war ends in Europe, this balance will be considerably larger and will tend to increase still more when shipments of coffee, sugar, bananas, cocoa, and other products can be resumed in normal volume.

of downward readjustments in coffee prices. Sharp reductions in shipping losses in May-June, and continued rise in output of new vessels, are tempering the extreme shipping stringency. Coffee imports increased so much that coffee stocks returned to normal, rations were enlarged, and finally on July 29 coffee rationing was suspended. Meanwhile, labor leaders insisted that the cost of living be reduced to the level of mid-September 1942, or that the "Little Steel formula" be thrown overboard and wage rates raised. On April 8 the President issued a "hold-the-line" order with respect to prices and wages. Within a few weeks the OPA announced plans to "roll back" retail prices of meat, butter, and coffee about 10 per cent, using subsidies to processors. The meat and butter rollbacks were made effective June 10 and 21 respectively. The scheme for coffee was vigorously opposed, as administratively cumbersome and expensive, and as promising insignificant savings to consumers; and in July it was shelved.

If the mid-1943 improvement in the shipping situation should continue, another approach to the problem of lowering coffee costs to ultimate consumers will be open. Coffee supplies in Latin America are greater than the United States market can absorb. If these supplies are not held back by minimum prices imposed in producing countries, green coffee prices are almost certain to fall below present OPA ceilings. Should ample shipping for coffee remain available, the Inter-American Coffee Board will be under pressure to reimpose quotas on shipments to prevent price declines.

If, however, the Board were to set the new quotas high enough to permit the entry of sufficient supplies to bring about a moderate easing in the coffee price level, a number of useful ends would be served. Coffee consumption here would be encouraged, while growers' aggregate returns would probably suffer very little. Inflationary tendencies would be given some check, both in the United States and in Latin American countries. Such action would be in accord with the announced "hold-the-line" policy of the President, and would contribute toward meeting the demands of labor in the United States. Broad considerations of domestic and foreign policy alike suggest that advan-

tage be taken of this opportunity, which may materialize before the termination of the war in Europe. In retrospect it seems clear that higher quotas during the first quota year would have moderated the extent of the price rise and perhaps have lessened later difficulties.

The Inter-American Coffee Agreement must be regarded primarily as a political measure devised to meet pressing problems arising from war. In the interests of hemispheric solidarity the United States has displayed extraordinary generosity toward its Latin American neighbors. The Agreement in operation, and supplementary actions by the United States, have been outstandingly successful in improving the wartime position of coffee producers. The Agreement has, however, contributed very little toward solving the fundamental problems of the world coffee economy. These remain essentially as before, and some are even worse than when the Agreement was signed. Most of the control features of the Agreement are now virtually suspended. Any contribution that its operation may make toward solution of the basic economic problems of the world coffee economy must remain for the future.

Inasmuch as the experience under the Inter-American Coffee Agreement has been limited in the fields in which most commodity agreements break down, it becomes necessary to think in terms of potentialities of this or a similar agreement in a period favored by more normal conditions.

THE PROBLEM OF CONTROL FOR COFFEE

In appraising the problem of coffee control, certain distinctions need to be made with respect both to the purpose or objectives of control and to the period during which the control operates. Price raising, or price supporting in the interests of producers, has been the central objective of most control schemes. Moderation of price fluctuations in the interests of both producers and consumers is often advanced as a desirable objective, and the trend of opinion is in the direction of giving consuming countries, if not ultimate consumers, effective representation in control schemes. However, an international agreement among producers or producing countries may be less ambitious,

and may be limited to such purposes as orderly disposition of temporary or persistent surpluses, improvement of trade practices, or promotion of demand for the product. Both purpose and appropriate procedures, moreover, will be different while the war is still in progress, during the transition period, and in the later period of peace. Developments in mid-1943 have already initiated a transition period for coffee, and have strengthened the possibility that part or most of that period may have elapsed before the war ends in the Pacific.

Brazilian experience in attempting to manipulate coffee prices solely in the interests of her coffee producers reveals a number of dangers that must be avoided if future schemes for influencing prices, even for the purpose of stabilization in the best sense, are to be considered desirable and feasible for continuous operation. The fundamental objectives of control, as commonly advocated today, need to be clarified. At least there is needed some amplification and interpretation of what is meant by stabilizing markets and prices in the interests of both producers and consumers.

The coffee roasters' interests and those of the ultimate consumer are rather easily described. A moderately low price level for green coffee generally means greater profit margins for roasters and a faster turnover. A low price level tends to favor the small roaster more than the large, but both attach much importance to stability of green coffee prices. The lack of stability is unfavorable to the roasters' operations, because competitive conditions usually permit only a slow raising of retail prices when green coffee prices advance but force a rapid downward adjustment when green coffee prices fall. The ultimate consumer stands to gain more from price instability than from prices stabilized at a high level. Over the longer period, however, it would be more advantageous to both roasters and ultimate consumers to have coffee prices stabilized at a level that would permit the maximum number of consumers to indulge in the coffee-drinking habit, without important limitations by reason of price or income.

A moderate coffee price level tends in the long run also to be advantageous to producers, but producers' and consumers'

ideas on prices are invariably at odds. Producers usually show interest in price stability in another sense. Most important to the producer is a "profitable" price level, i.e., one usually higher than consumers feel is justified. In the past, most schemes for price stabilization were really devices for raising the price level and giving the grower a larger return, without necessarily stabilizing year-to-year incomes. The reason growers attach less significance to stability of returns, desirable as that may be, is their realization that market intervention, even if successful in stabilizing prices, will only moderate the fluctuations in their income.

The wide variations in returns to growers are caused by varying production costs as well as by changes in green coffee prices in the world markets. Coffee production costs are predominantly fixed costs, only 20-30 per cent of the total cost of an average crop varying with the size of the crop. Under these circumstances growers tend to think of "profitable" prices in terms of a minimum return for any particular year. In other words, they seek a floor on income but no ceiling. Average returns would be greater under this concept than would be possible under a price level causing income to fall below such a minimum in some years. Furthermore, there are high- and low-cost producers. When price objectives and policies are formulated to give the high-cost producers satisfactory returns, as under Brazil's control scheme, the price level will be much too high from the standpoint both of consumers' best interests and of the majority of producers.

Under control, aggregate returns to growers tend to be larger, but regularization of this income has remained thus far the problem of the individual grower. When the excesses of control in Brazil resulted in a breakdown of the scheme, returns fell to abnormally low and unprofitable levels for many growers. They tended to be "stabilized" at these levels as the result of persistent surpluses due to the unjustified expansion in productive capacity during the period of artificially high prices. Any future schemes to stabilize prices in order to moderate the fluctuations in growers' returns must, if they are to be successful, attempt real stabilization rather than price raising. This means that they must be

devised to operate in a manner somewhat different from the procedures used in the past.

Control schemes are devised to compensate for, or to prevent, irrational action of producers as a group, and necessarily involve a considerable amount of regimentation. Regimentation is seldom popular; yet it is inevitable if stabilization objectives are to be realized. If the control is dependent upon an assumption of rational action on the part of growers, at least in certain respects, it possesses a fundamental weakness that can be compensated for only by the introduction of more complex features into the scheme. This increases its vulnerability by magnifying the difficulties of administration and enforcement. In order to avoid such weaknesses, the plan of control must leave little to the judgment of producers individually.

Because of the highly variable annual coffee output, any plan to prevent natural price responses must involve regulating the rate at which supplies are permitted to reach the markets. This means storage somewhere, and involves financing the holding of stocks. Such operations were the essence of the Brazilian valorizations, conducted with the aid of public credit. In theory, withholding supplies when crops are large and releasing them when crops are short, thereby providing a more or less even flow to market, should result in a high degree of price stability *provided* that no other factors influencing production and consumption undergo change. Changes in consumption are not rapid, owing to the relative inflexibility of consumer habits, but do occur over a period of years. Increases in production may also occur over a relatively few years if productive capacity is altered under a price-and-profit incentive. If valorization is to be practicable for any period of time, expansion of output must not be more rapid than the growth in consumption. It therefore becomes necessary either to stabilize prices at levels that will induce restraint on new production, or to establish effective control over productive capacity.

Assume that a control scheme is devised for minimizing the influence of crop variations on prices through the manipulation of stocks. With a bumper crop the grower would make handsome profits if all of his coffee could be sold. The supply, how-

ever, is greater than market requirements; hence a portion of the crop goes into storage for release upon the market at a later date. Although the grower's unit costs are low with a bumper crop, his aggregate costs have increased because of the extra help needed in harvesting, handling, and so on. If he is able to sell only that portion of his crop that represents a normal or average output, he may not secure a sufficient return to compensate for out-of-pocket costs and provide funds to continue cultivation. He demands that the control authority buy his surplus or give him a loan value on it. Under control, bumper crops have usually meant larger returns to growers despite the fact that only a portion of the output was sold for immediate entry into consumption channels. The responsibility for putting aside part of this income was left entirely to the grower.

With a short crop, the grower's aggregate return may also be too small to permit continuation of operations, unless he has a reserve to draw upon. From the standpoint of orderly marketing this is the appropriate time to release pool stocks, but it is also the time when the grower would most like to see prices rise. A short crop means high unit costs, and at a "stabilized" price the grower may even show a loss. Certainly at stabilized prices he will have less borrowing power on the small crop. Most growers will be so situated and will make strong representations in an effort to shape the policies of the control authority, even though their individual positions may vary greatly.

The obvious remedy to this weakness in the operation of a control scheme is a policy that would permit advances on a bumper crop only to the extent that the grower must have cash for current operations, and supplementary payments upon the disposition of stored surpluses, presumably when the current crop is short. In theory this procedure is sound. In practice large and small crops do not exactly offset one another or occur at regular intervals. There is always pressure from producers for advances or payment before final disposition of excess supplies. The control authorities have a temptation to let prices rise to relieve the strain, and tend to justify such action by the anticipation of further short crops.

Even when the control provides for rigid restriction of new

planting, there is a tendency for output to expand and for production costs to rise. Liberal advances on large crops encourage greater expenditures upon cultivation, tend to enlarge output, and stimulate demand for commodities and services unconnected with coffeegrowing. Sometimes local or regional booms are created, inflation takes hold, and labor and other production costs rise. Growers then demand recognition of changed conditions and agitate for an upward revision of price objectives.

Without production restraints, the usual operation of control schemes results in an expansion of productive capacity, tending to lead to persistent surplus problems. With a control over productive capacity, this evil may be avoided, but if growers' returns are to be regularized much depends upon their own acumen. Since this cannot be counted upon, any more than consistently wise behavior with regard to planting and marketing, the control authority must, if it can and will, adopt policies independent of pressure that will be in the best interests of producers in the long run. Stability of returns to growers is desirable; it cannot be achieved by measures that result merely in increasing aggregate returns, for such measures inevitably create new problems that lead to a breakdown of control. A control must be devised that does not place responsibility for operating and financial decisions entirely upon the individual. The obstacles to achieving some degree of stability of income for large numbers of growers are many, but it is too early to conclude that they are unsurmountable. Unfortunately, however, many of these obstacles can be overcome only by the introduction of a normally distasteful degree of regimentation of the growers' affairs.

PROBLEMS OF THE TRANSITION PERIOD

Following the war in Europe, two classes of problems will confront the coffee industry: (1) readjustments involved in the restoration of the coffee trade during the war-peace transition period; and (2) regularization of this trade, upon whatever basis is established as the result of general economic and political reorientation, after the transition period. Future trends in

coffee production and consumption will be partly conditioned by developments during the critical years of readjustment.

Coffee surpluses will probably exist in Latin America at the end of the war. Article XI of the Inter-American Coffee Agreement directs that the Coffee Board shall undertake as soon as possible "a study of the problem of coffee surpluses in the producing countries participating and shall also take appropriate steps with a view to working out satisfactory methods of financing the storage of such surpluses in cases where such action is urgently needed to stabilize the coffee industry." Although this directive is limited, vague, and hedged, it seems reasonable to assume that its intent was to make the Board contribute toward, if not be responsible for, solving the surplus problem. The Board's two resolutions of January 21, 1943 were the first public indication that work on it had begun. One resolution invites consultation with the Board for its assistance and advice on present and contemplated international commitments or agreements on the financing and disposition of coffee surpluses; the other recommends that participating countries "contribute coffee to the fullest amount possible to a program of relief" and devise a plan for handling coffee destined for such purposes. Thus far any plans or proposals appear to be in a very preliminary stage.

When the Inter-American Coffee Agreement was drafted, it was expected that the end of the war would find coffee surpluses in most of the producing countries. Their size would depend much upon the length of the war, and upon crops and shipping developments during the war. Orderly disposition of accumulated stocks was undoubtedly contemplated as a major problem of the industry during the transition period. If a shortage of shipping should continue to make it necessary for the United States to draw supplies mainly from the nearest sources, i.e., countries bordering on the Caribbean, this will tend to eliminate abnormal stocks from most Latin American producing countries, leaving the surplus concentrated, as in pre-war years, primarily in Brazil. The probabilities of securing some kind of joint agreement, under these circumstances, would be greatly reduced, but the United States has assumed at least a moral obligation to continue to bear some of the burden of

the surplus and will presumably own part of it. Unless the war in Europe lasts longer than now seems in prospect, most producing countries of Middle America will not have had time to accumulate unmanageable surpluses. Even if shipping ceases to be the limiting factor in the coffee movement to the United States, the bulk of the surplus will undoubtedly remain in Brazil.

The world coffee surplus has been centered in Brazil for many years. Finding it there at the end of the war should simplify its handling. At the same time, the temptation will be strong to deal with it outside the Inter-American Coffee Board because of the difficulties involved in securing agreement of 15 countries upon a program. If the Board should evade or shift this responsibility, the future of Inter-American co-operation in the coffee industry would be seriously jeopardized. Only chance will have made the troublesome problem of surpluses primarily the concern of one or two producing countries, rather than a problem common to all. As a matter of equity, each producing country should shoulder its fair share of the load. If this is not done, old antagonisms are likely to be revived, for the interests of Brazilian growers and the producers of mild coffees are to a high degree fundamentally at odds. To avoid a breakdown of the present co-operative machinery, Brazilian interests must be satisfied either by agreement with the other producing countries or with the United States alone. Any arrangement whereby the United States should assume the entire responsibility for a problem that would have been common to all producing countries if there had been no shipping difficulties would set a bad precedent and increase the vulnerability of the control scheme by making it too dependent upon United States policy.

The coffee surplus of Brazil is made up of coffee carried over from earlier years (partly pledged against loans), additional wartime accumulations, and stocks that have been purchased by the United States and not imported. The supplies owned by the United States and stored in Brazil awaiting an easing of the shipping situation are part of the current Brazilian problem in so far as their disposition has an important bearing on future market prospects. If imported under Brazil's quota, when conditions permit, the quotas for all countries will probably have

to be readjusted downward later on, because for many months the Caribbean countries made up as much of the deficit in supply of Brazils as shipping allowed.

In view of the progress that mild coffees made during the interwar period, Brazilian fears that forced change in blends in favor of a greater proportion of milds might permanently alter consumer tastes are not entirely without foundation. This danger, however, can be easily exaggerated. Although mild coffees are in general more flavorful and of better quality, the real reason for the earlier shift in preference in the United States market was not that coffee drinkers suddenly became aware of differences between Brazils and milds. Rather it was a case of blenders being able to improve their product at small extra cost because of the slight price differential that prevailed for some time between Brazils and milds. There is little doubt that Brazils can remain the basis of popular-priced blends if they continue available in volume at favorable prices. This has been true in the case of tea, where cheaper "filler" teas help reduce blend costs without adding or detracting from the quality of the beverage, and it is reasonable to assume that it will remain true for a long time in the case of coffee. There may be difficulty, however, in changing back to a greater proportion of Brazils if quotas have to be lowered at a later date in order to avoid the creation of excessive total coffee supplies in the United States. If it becomes necessary to reduce export quotas to the United States in order to adjust supplies to market requirements, the changes should be made gradually so that the government stocks can be absorbed without disturbing the market.

A question may be raised as to whether it was not possible for the United States to assist in carrying stocks without purchasing them. Since it was the intent of the Inter-American Coffee Agreement to aid producing countries through the purchase of specific quantities of coffee, it may be argued that merely financing the carrying of stocks would defeat this purpose and would be insufficient help. Apparently, upon representations of Brazilian interests who sought fulfillment of the spirit of the Agreement in this fashion, the State Department was primarily responsible for a purchase arrangement, which may perhaps

be justified on broad grounds of war policy, but appears not to be in the best longer-term interests of Brazil, the United States, or other Latin American producing countries. Under the Agreement the United States has no commitment to purchase coffee, but if there had been no agreement, financial assistance might more readily have been provided through loans. This would have prevented the United States from becoming involved in all the problems accompanying government ownership and control over stockpiles of surplus foodstuffs.

An alternative course of action lies in the disposition of such stocks outside the United States market. This, too, is a procedure that may be difficult, especially since it is almost impossible for the United States government to act without in some measure affecting special interests within the coffee industry, either at home or abroad. Government-owned stocks are always potentially competitive with supplies that the trade will wish to sell as opportunity presents. Under certain circumstances, their disposition can undoubtedly adversely affect interests within the coffee industry. Yet these stocks have been purchased with public funds, and consumers have vocal representatives who are not likely to overlook the political capital to be made from a government policy of making "gifts" except for legitimate relief purposes in war-torn areas. This is the more likely since government acquisition of stocks is not confined to coffee but extends to many Latin American foodstuffs and raw materials.⁹

The possibility of postwar dumping of United States government-owned stocks has already aroused the fears of the coffee industry. The Board of Economic Warfare has taken the position that there are too many unknowns to make binding commitments now on the disposition of these supplies. "The BEW feels very strongly that neither its hands nor those of the CCC should be tied in any way whatsoever in the disposition of any commodities which may be accumulated in store in foreign countries We may wish to sell, barter, lend-lease, or give away, all or part of such stocks." The trade warned that

⁹ In addition to purchases of Brazilian coffee, the United States has contracted to buy and store Cuban sugar, Peruvian cotton, and Uruguayan wool, apart from extensive purchases of raw materials needed for the prosecution of the war for which shipping is provided.

this stand would "destroy the whole system upon which the marketing of coffee has been based in this country and set up an agency of the Government as an irresponsible competitor to every coffee producing country in the western hemisphere."¹⁰ It would be "in flagrant violation of the Good Neighbor policy" if the stocks normally exported to Europe are given away or "thrown on the market for what they will bring after the war."¹¹ Later the BEW clarified its policy by stating that it would "make every effort possible which does not interfere with the war effort to maintain private enterprise in the importation and exportation of coffee" and that it would "consult the Inter-American Coffee Board and the coffee trade prior to its disposition of any surplus coffees in countries of production."¹²

There is much to be said for handling part or perhaps all of the United States-owned coffee stocks and surpluses owned by the producing countries by the gift-for-relief or exchange method. The most desirable policy will depend, of course, upon circumstances. A plan might be devised for pooling all Western Hemisphere coffee stocks over and above necessary working stocks and possible "security reserves." These stocks could be centrally marketed for the benefit of all participants in the Inter-American Coffee Agreement, regardless of the distribution of surpluses at the end of the war. Each party to the pact might reasonably share the risks on the same basis as the quotas established under the Inter-American Coffee Agreement.

As much of the stocks of this pool as could be sold would be marketed during the transition period, but probably the greater part would be allocated for relief purposes. If wisely executed, such a program could lay an excellent promotional groundwork that would pay dividends once European countries are rehabilitated economically and financially. It would permit prices favorable to producers and not too burdensome to consumers in the United States and would not arouse strenuous consumer objec-

¹⁰ Correspondence of Richard D. Quinlan, Chief of the Coffee Section of the BEW, and George C. Thierbach, President of the National Coffee Association, reported in the *Tea & Coffee Trade Journal*, March 1943, pp. 12, 14.

¹¹ *New York Times*, Mar. 16, 1943, p. 35, reporting a letter from William B. Craig, President of the New York Coffee and Sugar Exchange to Vice-President Henry A. Wallace, Chairman of the BEW. See also *United States News*, Mar. 26, 1943, pp. 60, 62.

¹² *Tea & Coffee Trade Journal*, May 1943, pp. 15-16.

tions. It would facilitate more rapid readjustments in the world coffee situation.

Substantial parts of the coffee surpluses that may exist in Latin America after the war are almost certain to hang over the market for some time. It cannot now be foreseen whether Europe will on the whole be freed in piecemeal fashion so that relief can proceed in certain areas before the war's termination, or whether the great bulk of it will all be freed rather suddenly. Much commercial shipping will be needed for the transportation of food and war materials until the cessation of hostilities, and for the transportation of urgent relief and reconstruction materials and the repatriation of armed forces for some time afterward. More essential foods and materials than coffee will probably have first call on available shipping. In so far as United States coffee stocks held in Latin America are concerned, there is a possibility that they may in time be eliminated as a competitive threat. If delays are extended, these stocks are likely to be moved only after other stocks, and quality deterioration is likely unless they are held under very favorable conditions. A program for their disposition should be evolved now that will prevent or quickly terminate any controversy. This may be difficult because of the obvious conflicts of interest that are involved, but seems by no means impossible.

In the formulation of a program for dealing with the post-war coffee surplus, consideration must necessarily be given to the level of stocks that it is desirable to maintain both in producing and in consuming countries. Determination of normal working stocks should not be difficult. In addition to working stocks, however, it may be desirable and feasible to set up other categories of stocks that may contribute toward market stabilization. Until the world has overcome its natural fears about security from further aggression, the idea of security reserves of many foodstuffs and raw materials will probably figure prominently in national and international policy discussions. Opinions will vary widely over definitions of "adequate" in considering reserve stocks, but it is quite conceivable that such reserves could be employed simultaneously in another manner. They might become buffer stocks that would facilitate the orderly flow

of supplies into consumption channels and contribute toward the maintenance of market and price stability.¹³

The buffer-stock idea has had considerable popular appeal and has been much discussed in connection with broad schemes for stabilizing prices of raw materials and foodstuffs of world importance. It has also been advocated as an important and useful feature of more limited control schemes for individual commodities. With or without other control, the manipulation of so-called buffer stocks is for the purpose of moderating price fluctuations, especially extreme fluctuations resulting from sudden changes in demand, supply, or both. Conceivably this idea has many practical applications; with coffee, however, it seems less important, more difficult of application, and perhaps not feasible at all.

In addition to a possible shipping shortage, another factor will tend to discourage for a time any substantial movement of coffee from Latin America to Europe. It will be natural for Europe to draw from colonial sources of supply in Africa both to facilitate shipping and to provide relief for dependencies, many of which have also suffered as the result of war dislocations. If the rapidly-growing coffee industry of Africa is able to survive the war, it may find a new stimulus during the reconstruction period as plans are evolved for whatever new relationships are to be established between European governments and their African colonies. Similarly, there will be a natural tendency to favor Asiatic colonial sources of supply if they should be reopened soon after the war ends in Europe.

If the surplus problem is not dealt with principally through the machinery set up under the Inter-American Coffee Agreement, then justification for continuance of an agreement along similar lines will rest heavily upon prospects that it would give promise of achieving desirable market and price stability. There would be a number of difficulties in attempting simultaneously to maintain coffee prices in the United States market and to dis-

¹³ In this connection, see the proposals for handling buffer stocks in League of Nations, *Report of the Committee for the Study of the Problem of Raw Materials*, A. 27. 1937. II. B (Geneva, 1937), pp. 56-62; and the report of the section on Facilitation and Improvement of Distribution in *United Nations Conference on Food and Agriculture, Hot Springs, Virginia, May 18-June 3, 1943, Final Act and Section Reports* (Washington, D.C., 1943), esp. pp. 59-60.

pose of surplus stocks in former European and other markets at much lower prices. If coffee prices should be maintained at levels comparable with those now prevailing in the United States, it is very doubtful that postwar markets outside the United States would absorb very much surplus coffee in the years immediately following hostilities. Nor is it likely that United States consumers or the coffee trade would willingly continue to provide a safe, sure, and profitable market for the bulk of Latin American coffee exports, while others were able to buy their coffee requirements at very much lower prices. Some differential between coffee prices in the United States market and elsewhere might raise no serious objections. Since a small differential would not move much coffee, one or more of three courses are indicated: abandonment of attempts to maintain coffee prices in the United States, maintenance of prices at somewhat lower levels, or disposal of surpluses by gift or destruction.

If attempts at maintaining coffee prices in the United States were abandoned, there would be still less left for an agreement along present lines to accomplish. Coffee prices in the United States may not seem out of line with other food prices at the termination of the war. However, a deflation of prices sometime after the war seems inevitable. A lower coffee price level will probably be needed in order to promote exports both to the United States and to other parts of the world. If coffee producers resist this trend, they will invite trouble; yet, in the light of experience with commodity control schemes, it seems too much to expect a voluntary recognition of this need. Unless recognized, however, the tendency will be for the international agreement to break down. Real encouragement will come to those who see potentialities in such agreements when producers deliberately choose to stabilize prices downward in the interest of their own long-term benefit.

There are other problems with which the coffee industry will be confronted that will call for co-operative solution. For example, although coffee consumption was increasing notably in the United States during the years immediately preceding the war, and until shipping conditions prevented the importation of all the coffee demanded by consumers, there is no assurance that

as soon as coffee is again plentiful the United States will resume its former rate of consumption. Co-operative action by producers designed to revitalize the important and promising United States market may be desirable or necessary. If coffee-pricing policies are reasonable and if consumer incomes are not drastically curtailed, there is no apparent reason why coffee consumption in the United States cannot be restored to a high level.

Campaigns against adulterants to the contrary, under wartime coffee rationing in the United States some adjustments in consumer habits were inevitable and perhaps unavoidable. This does not mean that many coffee drinkers will be lost from the ranks; but their habits of consumption will have undergone some degree of modification such as drinking less coffee, adulterating it with "stretchers," preparing the beverage so as to utilize a minimum amount of ground coffee, and so on. Waste of coffee will have been reduced to a minimum. The stimulus to coffee consumption originally provided by placing millions of men under arms will be largely lost, though some of those returning will have formed coffee-drinking habits that will carry over into civilian life. Many in the service will be overseas when the war ends, and their return will be gradual owing to shipping limitations and the necessity for maintaining armies of occupation. In the meantime the composition of popular blends in the United States will have undergone substantial change. All of these considerations point to the desirability of joint efforts by the coffee industry to re-establish conditions favorable to a growth of coffee consumption.

Another responsibility of the coffee industry during the war-peace transition period will be lending its support and influence to the end that a world economic and political environment is created that will promote rather than restrict consumption of agricultural products generally. According to League of Nations' specialists, experience after the last war teaches that:

getting generally adopted a commercial policy designed to promote rather than to restrict international relations as a whole may be jeopardized in the first post-war months if governments fail to agree in advance upon some orderly process of decontrol and some financially and economically sane system of reviving the economic life of countries impoverished by the war . . . the first essential for the achievement of commercial policies designed to promote

trade, is the establishment of a mechanism for the preservation of peace so adequate and sure as to create confidence despite antipathies or mistrust.¹⁴

Continental Europe normally consumes the largest volume of coffee exclusive of the United States. There is a good prospect that Europe would increase its consumption far above previous levels, if public policies were to foster instead of restrict this consumption. It is reasonable to expect that, in the process of rebuilding Europe economically and politically, attempts will be made to free the continent of a substantial measure of the restrictions to trade so prevalent in the 1930's. This would be in line with the liberal principle of promoting the general advance in planes of living, and it would greatly facilitate the enlargement of coffee exports to Europe. If achieved, it would ease the problem of coping with surplus stocks held at the close of the war, and the use of the producing capacity that was excessive in relation to actual consumption both before and during the war. The reduction of import trade barriers is important not only for developing the European coffee market; it is a necessary condition for the successful functioning of international commodity agreements in general.

Any scheme for the regulation of the world coffee industry that might be evolved as the result of international agreement will necessarily operate in, and be conditioned by, the postwar economic and political environment. The coffee industry cannot construct a new world by itself, but it can play a part. If trade becomes freer after the war, the trend in world coffee consumption can be upward, and coffee production can then expand. The movement to reduce trade barriers is likely to center on protective tariffs and preferential treatment for colonial producers. Even though tariffs-for-revenue are general, many prewar European duties were set so high that coffee was placed beyond the reach of the masses, and therefore did not produce the maximum revenue.

In the meantime, in addition to the length of the war and shipping developments, production trends will influence the size of the postwar coffee surplus. There are some who have counted

¹⁴ League of Nations, *Commercial Policy in the Interwar Period: International Proposals and National Policies* (Geneva, 1942), pp. 156-57.

upon smaller crops to bring adjustments in the world coffee situation. Even before the recent weather experiences in the coffee-producing regions of Brazil (droughts in 1940 and 1941, frosts in 1942), which materially affected the size of crops, doubts were entertained about future trends in production. In 1939 it was stated:

There are many who believe that Brazil's crops are due to shrink at a rapid pace in the next few years. Many millions of trees have either been uprooted or abandoned over the past seven or eight years. Cultivation has been sketchy because of lack of funds and the need for labor for the expanded cotton and citrus fruit production. Less fertilizer has been used and other products have been planted between trees—as part payment to the laborers—and have drawn from the ground certain essentials needed by the coffee trees.¹⁵

At the 1942 convention of the National Coffee Association, one speaker expressed his conviction that at the end of the war the world will face a shortage of coffee. This opinion was based upon assumptions of increased postwar demand and lowered production capacity.¹⁶ While it is undoubtedly true that Brazilian production is now at a considerably lower annual rate, the crops of the past few years can hardly be termed "normal." Substantial stocks presumably will have accumulated in Brazil, if not elsewhere in Latin America, by the end of the war. They cannot be liquidated quickly even with a good demand. If it appears during the transition period that world coffee production is lagging, new planting can be started that will close any gap between demand and supply that may develop sometime in the future. Indeed, new planting seems already to have started in some of the mild coffee-producing countries under the stimulus of favorable prices and marketing conditions; and beginning July 1, 1943, new planting is permitted in Brazil after having been prohibited, with certain exceptions, since 1932.

Problems of the coffee industry during the postwar transition period will be many and varied, but they will have sufficient elements in common to suggest the desirability of co-operative action by agreement among producing countries in their solution. Many elements of uncertainty make speculation as to post-

¹⁵ *Commodity Year Book*, 1939, p. 306.

¹⁶ G. G. Paton, "Postwar Coffee Prospects," *Excerpts from Proceedings, Annual Convention, The National Coffee Association* (Hot Springs, Va., 1942), pp. 38-39.

war developments at this time rather unproductive. Yet this is not necessary if one proceeds upon assumptions involving primarily an examination of potentialities rather than prospects.

REGULATION POTENTIALITIES AND PROSPECTS

In looking beyond the period of the first few years of post-war adjustment, when the surplus problem will probably loom largest, it is necessary to think of coffee control by international agreement in somewhat different terms. The Inter-American Coffee Agreement has been, and is now being, referred to loosely as a "model" for postwar international agreements for other commodities. Official discussion envisages some evolution in form, to be sure, but it is not at all clear how the major difficulties of the world coffee industry are to be eased, let alone how the present Coffee Agreement can serve as a guide in the formulation of international controls for other foodstuffs and raw materials.

For the present and at least a few years after the war ends in Europe, some kind of an international agreement on coffee will undoubtedly be advantageous to Latin American producing countries. Their interests will remain essentially the same as they are now. The United States, however, will have less reason for continuing extensive subsidies to coffee producers, though it will continue to have a strong interest in seeing that normal conditions prevail in the world coffee market. It will also be interested in the economic development and prosperity of Latin American countries. At the same time, the focus of those interests will tend inevitably to become more economic and less political, as long as the United States continues to be an important consumer of products from the south. Similarly, for many other commodities, consumer and producer interests will tend to diverge, except as some products will assume greater importance to consuming countries, temporarily at least, for reasons of security.

Because of their importance to producing countries, it may be assumed that efforts to bring about international agreements on commodities of world importance will continue. The partici-

pation of consuming countries may be active or passive, depending upon circumstances and prospects of achieving desirable objectives. For coffee, it is likely to be passive; yet active participation may be necessary to the success of a producers' control scheme. It may also be assumed that some form of market and price stabilization will remain the predominant interest of producer groups, and moderate prices the primary interest of consumers. On such assumptions the potentialities of the Inter-American Coffee Agreement (or a modified but similar agreement), or some other international agreement among world coffee interests, may be examined.

By a modified but similar agreement is meant one that follows essentially the same principles as the present Inter-American Coffee Agreement, i.e., a regulation of the flow of trade by export and import control for the purpose of stabilizing prices in the markets concerned. Such a scheme could be more or less inclusive in so far as producer and consumer participation or representation is concerned. Or, the present Agreement might be replaced by another type, i.e., one employing different basic devices to influence prices such as production control or the manipulation of stocks, or one having no restrictive features and somewhat different purposes such as the broad objective of increasing world coffee consumption. Appropriate policies and procedures would vary considerably depending upon objectives; and the problems of administration would be more or less difficult depending upon the scope of operations contemplated, the number of participants in the scheme, the adequacy of representation, and so on.

The present Inter-American Coffee Agreement, or an agreement on similar lines, will probably be inadequate for the post-war period of peace. There are a number of reasons for this. The objectives of the control scheme will necessarily be somewhat different; they are likely to continue to be market and price stabilization but without political "relief" features. The scope of operations will be broader with renewed access to the European market; the "other countries" quota will have real meaning for the first time. The problems of administration, enforcement, reconciliation of conflicting interests, establishment of

appropriate policies and procedures, and so on, will all be more complex and difficult.

The present Inter-American Coffee Agreement is probably not sufficiently comprehensive, although it undoubtedly could be made so without great difficulty at least from the standpoint of producer participation. As now constituted, the Agreement provides for the marketing of coffee in the United States and outside the United States, but the total basic quota of 11.6 million bags for countries other than the United States has never had practical significance. The basic quota for the United States of 15.9 million bags (including nonsignatory countries) has been exceeded, but the maximum amount of coffee ever imported in any 12-month period was about 19 million bags. This maximum figure represents approximately 70 per cent of prewar world coffee exports, but only half of prewar world production.

This lack of comprehensiveness is not quite so ominous when it is considered that more than 85 per cent of world coffee production is accounted for by the 14 Latin American countries now participating in the Agreement.¹⁷ The small but numerous colonial producing countries of Africa, Asia, and even the Americas account for around 12 per cent of world production. But productive capacity, especially in Africa, has shown a marked tendency to expand during the past decade or so, and this trend may continue. Most of these coffee-growing countries have enjoyed advantages in the form of market and duty preferences in the European market. British, French, Spanish, Portuguese, and Italian colonial coffees have or had such tariff preferences; only Belgium and the Netherlands had none. There should be no inherent obstacles to bringing most of the important African coffee-growing areas within the scope of a new or modified international regulatory agreement, especially if Great Britain is favorably disposed. However, since the United Kingdom is not one of the leading coffee markets, interest in supporting an international coffee agreement might depend upon concessions to more important Empire products, tea for example, in countries where coffee is of greater importance. Likewise, the Netherlands In-

¹⁷ In other words, the discrepancy between representation on an export and on a production basis arises largely as the result of Brazilian stocks.

dies have been a sufficiently important factor in the world coffee trade not only to warrant their inclusion in a more comprehensive international coffee control scheme, but perhaps to make it essential.

Experience indicates that a near approach to comprehensiveness from the standpoint of export-producer representation is essential if an ambitious control scheme is to function successfully over a period of years. Experience does not provide a clue as to the necessity for consumer representation or the comprehensiveness of such representation. Past abuses of one kind or another have led to a rather widespread belief that future international commodity agreements must provide safeguards by also including the principal consuming countries. Such representation seems necessary to assure price policies fair to all interests; yet it appears feasible in some cases and not in others. The Inter-American Coffee Agreement represents a beginning in this direction, and the International Wheat Agreement recognizes this need. Safeguards for consumers are unquestionably desirable, but the methods suggested for providing protection are mostly untried.

If the principal consuming countries were to be represented in a new international agreement on coffee, they would include France and Germany in addition to the United States. These three countries accounted for 71 per cent of world net imports during the years 1934-38. The next most important coffee-importing countries were Belgium and Sweden, followed by Italy and the Netherlands. About 82 per cent of world coffee imports were accounted for by these seven countries. The next four in importance add 6 per cent more. In order to have 90 per cent of world coffee-consuming interests represented, it would be necessary to include a dozen importing countries in the agreement. Consumer interests might be safeguarded by the participation of the three leading importers alone, at least the interests of consumers in those three countries might be protected, but this would not necessarily benefit small countries that are not among the leading importing nations but are much more important coffee users on a per capita basis. In agreements involving foodstuffs or raw materials that are considered

“essential” to the wellbeing of many nations, the idea of incorporating a plan of consumer representation is more important. With coffee, this feature may be desirable but not necessarily feasible.

Even under the present Agreement, which gives the United States an important, if not in every case a dominating, voice in policies, consumer representation is somewhat nebulous. It is true that United States interests are represented by a government official who might be presumed to reflect consumer interests. But the United States representative is also a member of the State Department, the broad international interests of which may not always coincide with those of the coffee trade or ultimate consumers. In the process of representing the United States as a consumer of coffee, one individual is called upon to resolve every conflict that may arise. This may become a burdensome responsibility that might advantageously be shared by representatives of the coffee trade and of consuming interests. A group composed of such interests might well be more than advisory in determining the position of the United States in Coffee Board matters. Consumer representation, under these circumstances, would probably be considered “adequate.”

If comprehensive consumer representation is considered necessary as well as comprehensive producer representation, it is apparent that an expansion of the present Agreement would involve such a large number of participating countries as to seriously jeopardize successful operation of the scheme. Yet an agreement confined to the principal producing and consuming countries would run certain risks of failure unless price and other control objectives were set on a basis that would deprive smaller and newer producing countries of an incentive to expand output and that would minimize consumer resistance to an expansion of consumption. The adoption of such policies by a control group so constituted is possible, but very difficult, because the high-cost producers would tend not to consider profit returns adequate or participation under the circumstances advantageous.

An important feature of the Inter-American Coffee Agreement is the provision whereby the United States undertakes to

control coffee exports from Latin American countries by limiting imports into the United States to predetermined quotas. In enforcing the agreement this procedure is far more certain and effective than any plan that might be devised for limiting the coffee movement at its source. To make this type of control effective on a world-wide basis, however, it would be necessary for similar arrangements to be made with other importing countries. But if the coffee trade were to be regulated by the importing countries, as the United States now regulates a portion of the trade, the task of enforcement would become just as difficult and complicated, if not more so, as regulation by export control from 14 Latin American countries. Because of the war it has not been necessary to face this problem for the "other countries" quota under the present Agreement. A comprehensive control scheme for coffee would involve a great extension of the enforcement machinery, and the task of designing adequate administrative controls will not be easy. Indeed, the requisite modifications to the present Agreement might be so numerous and extensive that effective control would prove impracticable. If practicable, a new agreement would differ considerably from the present one.

Aside from administrative complications, a control scheme built around the export- and import-quota device presents other difficulties. Although a central feature of many commodity controls, quota arrangements often introduce elements of rigidity in the operation of such schemes, and tend to discourage rather than promote orderly marketing. When shipping became the limiting factor in the movement of coffee from Latin America to the United States, it was necessary, under the present Agreement, to raise quotas to such high levels that they no longer had any practical significance. In order to secure supplies from sources having access to shipping space, the quotas for all countries had to be raised. Crop failures, civil and military disturbances, or various devastations of nature might at some future date cause an important interruption in the flow of coffee exports from some areas. If it is necessary to increase the quotas for all countries participating in the Agreement in order to augment the supply of certain coffees, the effectiveness of quota adjustments in stabilizing prices will be greatly impaired. Part of this

difficulty has been overcome in the operation of the International Tea Agreement by making rights to export transferrable.¹⁸

One fundamental difficulty confronting any group attempting to formulate procedures and policies for an international regulation scheme for coffee is the lack of an adequate statistical basis for operation. This deficiency has been recognized by the Inter-American Coffee Board and can be overcome, but it will be difficult and require time, organization, standardization, and the perfection of local arrangements. Wise price objectives cannot be formulated without far more and better information on the operations of growers, differentiation of the efficient and inefficient, and the changes in conditions that occur from season to season. Nor can intelligent price policies be formulated without more accurate information on coffee production and consumption. Many influences are at work tending to determine future trends; some can be studied and measured, while others are not clearly apparent until after the event. This has been true, for example, with regard to changes in productive capacity.

There is need for greatly improved information upon a number of important phases of the coffee industry and a frank exchange of this information. Data on production, stocks, costs, and similar matters are deficient in one way or another. Sometimes governments have been guilty of deliberately hiding or distorting information that if generally known might have an adverse effect on market developments. Not all producing countries will have large or small crops simultaneously, storage problems will vary from one to another, and considerable flexibility will be needed in the operation of controls within each country. If objectives of income stability for growers are to be achieved, obviously no broad general policy will be applicable in detail to every producing country at the same time. The problem will probably continue to be most acute in Brazil, where crop variations have had the most influence upon the market. Possibly the development of processes for using coffee industrially as a

¹⁸ The author has in process a study (scheduled to appear within coming months) on the international regulation of the world tea industry, which examines the various features of this agreement and appraises its operation since its inception in 1933. The problem of control for tea differs strikingly from that for coffee, and, for various reasons, achievements under regulation have been substantially greater for tea than for coffee.

plastic material (see pp. 6-7) may offer Brazil a means of improving her competitive position by the diversion of the poorer qualities into industrial channels and, at the same time, provide a supplementary regulation of annual supplies.

Over the longer period it is reasonably certain that the world's coffee output will gradually become more dispersed geographically. This may increase the difficulty of effecting an international agreement. On the other hand, the variations in year-to-year aggregate world coffee supplies will gradually tend to become less marked. In so far as this is true, supply variability will have less influence on prices, and price-stabilizing activities will to that extent be simplified.

These two observations, of course, look a considerable distance into the future, but they are made to emphasize the importance of planning any control scheme in relation to probable future trends. Experience with controls during the interwar period indicates how rapidly changes can occur under artificial conditions unwisely created by the control itself. They suggest the necessity of broadening the scope of control to include production outside the Western Hemisphere, of giving due weight to probable production and consumption trends, and of focusing attention more upon expanding markets and consumption and less upon restriction of production and exports.

Another problem in connection with the operation of any international control scheme for coffee that has as its main purpose market and price stabilization concerns the human element. The importance of the human factor is magnified the more comprehensive the scheme with regard to producer and possibly consumer participation. The Inter-American Coffee Agreement has brought Latin American coffee-producing countries together for the first time in a successful co-operative arrangement. However, this co-operation was made easier by the willingness of the United States to pay generously for the coffee it imported. Furthermore, lessons in co-operation are frequently forgotten and depend heavily upon the personal element. Changes in representatives, with different personalities, often mean that the co-operative process must be relearned and re-established. It is reasonable to assume that the spokesmen for the important

producing countries have been carefully selected, have been identified with the industry over a long period of years, and are in most cases not likely to be victims of a changing political scene at home. Nevertheless, such representatives are always subject to pressures from ultimate beneficiaries who tend to be less farsighted and less able to appreciate the necessity for effective readjustment and for reaching understandings. Furthermore, they reflect a variety of interests, both within the countries they represent and outside. This always increases the difficulty in squarely facing the important and fundamental problems involved in control.

After reviewing some of the difficulties involved in regulation for the world coffee industry, it becomes clear that enthusiasm for international commodity agreements as a solution to fundamental problems of the world coffee industry must be considerably tempered. As a means of bringing greater price stability to coffee in the world markets over a period of years, an agreement along present lines does not appear to offer great promise. One that might accomplish this purpose would have to be more comprehensive as to producing and possibly consuming countries, and this implies considerable evolution in enforcement machinery. It must also be planned to operate so that the benefits to producers are more definitely a stabilization of returns over a period of years rather than larger aggregate returns.

Price policies of the control group should encourage an expansion in consumption, minimize the danger of rapid growth of productive capacity in countries within and outside the control scheme, and tend to discourage production by the less efficient growers within the scheme. Even assuming the fulfillment of these conditions and the utmost wisdom in the broad policies pursued, the difficulties of equitable allotment of market quotas and of enforcement, while not unsurmountable, are nevertheless of sufficient magnitude to suggest that, from a practical standpoint, any international agreement for coffee must be more restricted and less ambitious than agreements for some other commodities. The prospects for solving the world coffee industry's difficulties of intermittent or persistent surpluses arising from the annual variability of coffee crops are not encouraging. This

does not mean, however, that attempts to improve conditions should be abandoned or discouraged. Rather, it means recognizing the difficulties and obstacles and proceeding slowly with plans that involve a realistic appraisal of the present limitations of international agreements for coffee.

It is quite possible that regional and restricted agreements can be so operated as to serve a very useful purpose, indirectly contributing to market stability. From the standpoint of encouraging productive efficiency, agreements involving no restrictive features are to be preferred. In effect, one can conceive of growers with common interests pooling those interests under co-operative marketing arrangements that would benefit all. One may also conceive of broader agreements having as their purpose such general objectives as increasing world coffee consumption by propaganda, by minimizing trade barriers, and by the improvement of trade practices. The producers of Central American countries and certain African colonies growing mild coffees have more in common with each other than they have with Brazilian producers. Their problems are likely to be more nearly comparable than with those of Brazil. Unless some broad comprehensive scheme embracing many commodities is evolved in the postwar period, it seems more reasonable to expect the development of coffee controls to proceed upon much less ambitious lines than formerly.

The Inter-American Coffee Board is a logical agency for dealing with many problems of readjustment that must be faced by the coffee industry now and in the postwar period. The machinery set up under the Inter-American Coffee Agreement is flexible enough and the powers conferred by the Agreement upon the Board are apparently broad enough to permit the evolution of practical plans and programs. Failure will be due to inability of countries participating in the pact to agree, their unwillingness to co-operate, personal deficiencies of representatives on the Board or leaders of producers or trade groups, lack of sufficient foresight about actual developments in production and consumption, or slowness in formulating plans of action.

At the termination of the war another inter-American or international coffee agreement may conceivably facilitate the

restoration of the world coffee market to normal by an orderly disposition of accumulated surpluses. Contrary to present prospects, the handling of surplus problems should be largely within the scope of such an agreement. The arrangement outside the Inter-American Coffee Board for handling Brazilian coffee, unshipped because of the war, is not a hopeful sign. Instead of the United States undertaking to purchase this coffee, the burden preferably should have been distributed among other producing countries who were the main beneficiaries of Brazil's enforced smaller participation in the United States market. Unless, through the Board, Latin American countries are willing to face such issues and take constructive action, it is difficult to see how co-operation on the numerous major matters of policy involved in stabilization activities can be forthcoming in the absence of the artificial support or pressures now supplied by the United States. In the postwar period any agreement dependent upon United States generosity would be unsoundly conceived and doomed to ultimate failure.

Whatever the evolution of the present Inter-American Coffee Agreement, certain facts and factors will continue to influence the world coffee economy. Brazilian coffees will continue to provide the basis of widely distributed blends for some time to come. They will remain the price coffees of world commerce. As long as this is true, the National Coffee Department of Brazil, or a similar organization, will undoubtedly continue to exert a powerful influence on the world market. The producers of mild coffees in Colombia and elsewhere will feel Brazilian competition; yet they will enjoy a certain market somewhat apart, as milds will continue to provide the chief flavor characteristics of blends. Concern over the possibility of postwar coffee shortage seems premature. Statistics on tropical crops are notoriously conservative when they are available, and there seems little likelihood that the world's need for coffee will not be satisfied under conditions of strong demand and remunerative prices to growers.

The coffee outlook is as good as the world economic outlook. It can be better only if coffee producers are able to surmount the many and difficult problems facing any scheme of interna-

tional regulation that has for its main objective market and price stabilization in the interests of both producers and consumers. The potentialities are great; the prospects for any lasting success under control are, unfortunately, not at present impressive. There is no lack of experience to point out errors that must be avoided, but alternatives have not been proven and political considerations that will inevitably be involved are not predictable. The prospects for limited-purpose international agreements are better. Experience gained under these may in time make possible broader, more ambitious schemes.

DOCUMENTARY APPENDIX

INTER-AMERICAN COFFEE AGREEMENT

The Governments of Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Peru, the United States of America and Venezuela,

CONSIDERING

that in view of the unbalanced situation in the international trade in coffee affecting the economy of the Western Hemisphere, it is necessary and desirable to take steps to promote the orderly marketing of coffee, with a view to assuring terms of trade equitable for both producers and consumers by adjusting the supply to demand,

Have accordingly agreed as follows:

ARTICLE I

In order to allocate equitably the market of the United States of America for coffee among the various coffee producing countries, the following quotas are adopted as basic annual quotas for the exportation of coffee to the United States of America from the other countries participating in this Agreement: [The tabulation is included in Table 11, p. 178.]

For the control of the quotas for the United States market, the official import statistics compiled by the United States Department of Commerce shall be used.

ARTICLE II

The following quotas have been adopted as basic annual quotas for the exportation of coffee to the market outside the United States from the other countries participating in this Agreement: [See Table 11, p. 178.]

ARTICLE III

The Inter-American Coffee Board provided for in Article IX of this Agreement shall have the authority to increase or decrease the quotas for the United States market in order to adjust supplies to estimated requirements. No such increase or decrease shall be made oftener than once every six months nor shall any change at any one time exceed 5 percent of the basic quotas specified in Article I. The total increase or decrease in the first quota year shall not exceed 5 percent of such basic quotas. Any increase or decrease in the quotas shall remain in effect until superseded by a new change in quotas, and the quotas for any quota year shall be calculated by applying to the basic quotas the weighted average of the changes made by the Board during the same year. Except as provided in Articles IV, V and VII, the percentage of each of the participating countries in the total quantity of coffee which these countries may export to the United States market shall be maintained unchanged.

The Board shall also have the authority to increase or decrease the export quotas for the market outside the United States to the extent that it deems necessary to adjust supplies to estimated requirements, maintaining un-

changed the percentage of each of the participating countries in the total quantity of coffee to be exported to that market, except as provided in Articles IV, V and VII. Nevertheless, the Board shall not have the authority to distribute these quotas among determined countries or regions of the market outside the United States.

ARTICLE IV

Each producing country participating in this Agreement undertakes to limit its coffee exports to the United States of America during each quota year, to its respective export quota.

In the event that, due to unforeseen circumstances, a country's total exports of coffee to the United States of America exceed in any quota year its export quota for the United States market, that quota for the following year shall be decreased by the amount of the excess.

If any producing country participating in this Agreement has exported in any quota year less than its quota for the United States market, the Board may increase that country's quota for the immediately following quota year by an amount equal to the deficiency for the preceding quota year, up to the limit of 10 percent of the quota for such previous year.

The provisions of this Article shall also apply to the export quotas for the market outside the United States.

Any exportation of coffee to the market outside the United States which may be lost by fire, inundation or any other accident, before arriving at any foreign port, shall not be charged against the quota of the respective country corresponding to the date of shipment, provided that the loss is duly established before the Inter-American Coffee Board.

ARTICLE V

In view of the possibility of changes in the demand for coffee of a particular origin in the market outside the United States, the Board is empowered, by a two-thirds vote, to transfer, on the request of any participating country, a part of that country's quota for the United States market to its quota for the market outside the United States in order to bring about a better balance between supply and demand in special types of coffee. In such cases, the Board is authorized to make up the resulting deficiency in the total quota for the United States market by increasing the quotas of the other producing countries participating in this agreement in proportion to their basic quotas.

ARTICLE VI

Each producing country participating in this Agreement shall take all measures necessary on its part for the execution and operation of this Agreement and shall issue for each coffee shipment an official document certifying that the shipment is within the corresponding quota fixed in accordance with the provisions of this Agreement.

ARTICLE VII

The Government of the United States of America shall take all measures necessary on its part for the execution and operation of this Agreement and shall limit, during each quota year, the entry for consumption into the United

States of America of coffee produced in the countries listed in Article I to the quotas as established in the said Article or as modified pursuant to other provisions of this Agreement, it being understood that notice of any modified quotas will be communicated by the Board to the Governments of the countries participating in this Agreement.

The Government of the United States of America also undertakes to limit the total entry for consumption of coffee produced in countries other than those listed in Article I of this Agreement to a basic annual quota of 355,000 bags of 60 kilograms net or equivalent quantities. The quota on such coffee shall be increased or decreased by the same proportion and at the same time as the global quota of the participating countries for the United States market.

In the event that due to unforeseen circumstances any quota is exceeded during any quota year, that quota for the following year shall be decreased by the amount of the excess.

ARTICLE VIII

In the event that there should be foreseen an imminent shortage of coffee in the United States market in relation to its requirements, the Inter-American Coffee Board shall have the authority, as an emergency measure, to increase the quotas for the United States market, in proportion to the basic quotas, up to the quantity necessary to satisfy these requirements even though in this manner the limits specified in Article III may be exceeded. Any member of the Board may request such an increase and the increase may be authorized by a one-third vote of the Board.

When, owing to special circumstances, it may be necessary for the purposes of the present Agreement to reduce the quotas for the United States market by a percentage greater than that established in Article III, the Inter-American Coffee Board shall also have the authority to exceed the percentage of reduction beyond the limits established by the said Article III, provided that this is approved by the unanimous vote of the Board.

ARTICLE IX

The present Agreement shall be under the administration of a Board, which shall be known as the "Inter-American Coffee Board", and which shall be composed of delegates representing the Governments of the participating countries.

Each Government shall appoint a delegate to the Board upon approval of the Agreement. In the absence of the delegate of any participating country, his Government shall appoint an alternate who shall act in place of the delegate. Subsequent appointments shall be communicated by the respective Governments to the Chairman of the Board.

The Board shall elect from among its members a Chairman and a Vice Chairman who shall hold office for such period as it may determine.

The seat of the Board shall be in Washington, D.C.

ARTICLE X

The Board shall have the following powers and duties in addition to those specifically set forth in other Articles of this Agreement:

- (a) The general administration of the present Agreement;
- (b) To appoint any employees that it may consider necessary and determine their powers, duties, compensation and duration of employment;
- (c) To appoint an Executive Committee and such other permanent or temporary committees as it considers advisable, and to determine their functions and duties;
- (d) To approve an annual budget of expenses and fix the amount to be contributed by each participating Government, in accordance with the principles laid down in Article XIII;
- (e) To seek such information as it may deem necessary to the proper operation and administration of this Agreement; and to publish such information as it may consider desirable;
- (f) To make an annual report covering all of its activities and any other matters of interest in connection with this Agreement at the end of each quota year. This report shall be transmitted to each of the participating governments.

ARTICLE XI

The Board shall undertake, as soon as possible, a study of the problem of coffee surpluses in the producing countries participating in this Agreement, and shall also take appropriate steps with a view to working out satisfactory methods of financing the storage of such surpluses in cases where such action is urgently needed to stabilize the coffee industry. Upon request, the Board shall assist and advise any participating Government which may desire to negotiate loans in connection with the operation of this Agreement. The Board is also authorized to render assistance in matters relating to the classification, storage and handling of coffee.

ARTICLE XII

The Board shall appoint a Secretary and take all other necessary measures to establish a Secretariat which shall be entirely free and independent of any other national or international organization or institution.

ARTICLE XIII

The expenses of delegates to the Board shall be defrayed by their respective Governments. All other expenses necessary for the administration of the present Agreement, including those of the Secretariat, shall be met by annual contributions of the Governments of the participating countries. The total amount, manner and time of payment shall be determined by the Board by a majority of not less than two-thirds of the votes. The contribution of each Government shall be proportionate to the total of its respective basic quotas, except that the Government of the United States of America will accept as its contribution an amount equal to 33-1/3 percent of the total required contribution.

ARTICLE XIV

Regular meetings of the Board shall be held on the first Tuesday of January, April, July and October. Special meetings shall be called by the Chairman at any other time at his discretion, or upon written request of

delegates representing not less than five of the participating Governments, or fifteen percent of the quotas specified in Article I, or one third of the votes established in Article XV. Notice of all special meetings shall be communicated to the delegates not less than three days before the date fixed for the meeting.

The presence of delegates representing not less than 75 percent of the total votes of all the participating Governments shall be necessary to constitute a quorum for a meeting. Any participating Government may, through its delegate, by written notice to the Chairman, appoint the delegate of another participating Government to represent it and to vote on its behalf at any meeting of the Board.

Except as otherwise provided in this Agreement, decisions of the Board shall be taken by a simple majority of the votes, it being understood that, in every case, the computation shall be calculated on the basis of the total votes of all the participating Governments.

ARTICLE XV

The votes to be exercised by the delegates of the participating Governments shall be as follows: [Herein follows a tabulation showing the division of a total of 36 votes as follows: United States, 12; Brazil, 9; Colombia, 3; and all other countries, one each.]

ARTICLE XVI

The official reports of the Board to the participating Governments shall be written in the four official languages of the Pan American Union.

ARTICLE XVII

The participating Governments agree to maintain, in so far as possible, the normal and usual operation of the coffee trade.

ARTICLE XVIII

The Board is authorized to appoint advisory committees in the important markets, to the end that consumers, importers and distributors of green and roasted coffee, as well as other interested persons, may be given an opportunity to express their views concerning the operation of the program established under this Agreement.

ARTICLE XIX

If the delegate of any participating Government alleges that any participating Government has failed to comply with the obligations of the present Agreement, the Board shall decide whether any infringement of the Agreement has taken place, and, if so, what measure shall be recommended to correct the situation arising therefrom.

ARTICLE XX

The present Agreement shall be deposited with the Pan American Union at Washington, which shall transmit authentic certified copies thereof to the signatory Governments.

The Agreement shall be ratified or approved by each of the signatory

Governments in accordance with its legal requirements and shall come into force when the instruments of ratification or approval of all the signatory Governments have been deposited with the Pan American Union. As soon as possible after the deposit of any ratification the Pan American Union shall inform each of the signatory Governments thereof.

If, within ninety days from the date of signature of this Agreement, the instruments of ratification or approval of all the signatory Governments have not been deposited, the Governments which have deposited their instruments of ratification or approval may put the Agreement into force among themselves by means of a Protocol. Such Protocol shall be deposited with the Pan American Union, which shall furnish certified copies thereof to each of the Governments on behalf of which the Protocol or the present Agreement was signed.

ARTICLE XXI

As long as the present Agreement remains in force, it shall prevail over provisions inconsistent therewith which may be contained in any other agreement previously concluded between any of the participating Governments. Upon the termination of the present Agreement, all the provisions which may have been temporarily suspended by virtue of this Agreement shall automatically again become operative unless they have been definitively terminated for other reasons.

ARTICLE XXII

The present Agreement shall apply, on the part of the United States of America, to the customs territory of the United States. Exports to the United States of America and quotas for the United States market shall be understood to refer to the customs territory of the United States.

ARTICLE XXIII

For the purpose of this Agreement the following definitions are adopted:

- (1) "Quota year" means the period of twelve months beginning October 1, and ending September 30 of the following calendar year.
- (2) "Producing countries participating in this Agreement" means all participating countries except the United States of America.
- (3) "The Board" means the Inter-American Coffee Board provided for in Article IX.

ARTICLE XXIV

Subject to the eventuality covered by Article XXV, the present Agreement shall remain in force until October 1, 1943.

Not less than one year prior to October 1, 1943 the Board shall make recommendations to the participating Governments as to the continuation or otherwise of the Agreement. The recommendations, if in favor of continuation, may suggest amendments to the Agreement.

Each participating Government shall signify to the Board its acceptance or rejection of the recommendations referred to in the immediately preceding paragraph within six months after the date of the receipt of such recommendations. This period may be extended by the Board.

If said recommendations are accepted by all the participating Governments, the participating Governments undertake to take such measures as may be necessary to carry out said recommendations. The Board shall draw up a declaration certifying the terms of said recommendations and their acceptance by all the participating Governments, and the present Agreement shall be deemed to be amended in accordance with this declaration as from the date specified therein. A certified copy of the declaration together with a certified copy of the Agreement as amended shall be communicated to the Pan American Union and to each of the participating Governments.

The same procedure for making amendments or for the continuation of the Agreement may be followed at any other time.

ARTICLE XXV

Any of the participating Governments may withdraw from the present Agreement after prior notification of one year to the Pan American Union which shall promptly inform the Board. If one or more participating Governments representing 20 percent or more of the total quotas specified in Article I of this Agreement withdraw therefrom, the Agreement will thereupon terminate.

ARTICLE XXVI

In the event that because of special and extraordinary circumstances the Board should believe that the period fixed by Article XXIV for the duration of this Agreement might be reduced, it shall immediately notify all the participating Governments which, by unanimous agreement, may decide to terminate this Agreement prior to October 1, 1943.

TRANSITORY ARTICLE

All coffee entered for consumption into the United States of America between October 1, 1940 and September 30, 1941, both inclusive, shall be charged against the quotas for the first quota year.

All coffee exported to the market outside the United States between October 1, 1940 and September 30, 1941, both inclusive, shall be charged against the quotas for the first quota year.

Done at the City of Washington, in English, Spanish, Portuguese and French, the twenty-eighth day of November, 1940.

APPENDIX TABLES

TABLE I.—WORLD PRODUCTION, CONSUMPTION, VISIBLE SUPPLY, AND PRICE OF COFFEE, ANNUALLY, 1890-1924*

Marketing year ^a	Production			World "consumption" ^b	Calendar year	World visible supply June 30	Price Rio No. 7 (New York)	Average value of milreis
	World	Brazil	Other countries				(U.S. cents)	
	(Million bags of 60 kg.)					(Million bags)	(Cents per lb.)	(U.S. cents)
1889-90.....	8.4	4.4	4.0	10.3	1890.....	2.4	17.9	45.76
1890-91.....	9.3	5.5	3.8	10.0	1891.....	1.9	16.7	30.23
1891-92.....	11.9	7.7	4.2	11.0	1892.....	3.0	14.3	24.40
1892-93.....	11.3	6.5	4.7	11.3	1893.....	3.2	17.2	22.88
1893-94.....	9.4	5.0	4.4	10.6	1894.....	2.2	16.5	20.47
Average..	10.1	5.8	4.2	10.6	Average.	2.5	16.5	28.75
1894-95.....	11.8	7.2	4.5	11.1	1895.....	3.1	15.9	20.15
1895-96.....	10.4	6.0	4.4	11.0	1896.....	2.5	12.3	18.38
1896-97.....	13.9	9.3	4.6	12.4	1897.....	4.0	7.9	15.65
1897-98.....	16.0	11.2	4.8	14.6	1898.....	5.4	6.3	14.58
1898-99.....	13.7	9.3	4.4	13.0	1899.....	6.2	6.0	15.08
Average..	13.2	8.6	4.5	12.4	Average.	4.2	9.7	16.77
1899-00.....	13.8	9.4	4.4	14.3	1900.....	5.7	8.2	19.27
1900-01.....	15.1	11.3	3.8	14.0	1901.....	6.8	6.5	23.07
1901-02.....	19.8	16.1	3.6	15.3	1902.....	11.3	5.9	24.27
1902-03.....	16.7	12.9	3.7	16.1	1903.....	11.9	5.6	24.34
1903-04.....	16.0	11.1	4.9	15.6	1904.....	12.3	7.8	24.78
Average..	16.3	12.2	4.1	15.1	Average.	9.6	6.8	23.15
1904-05.....	14.4	10.5	3.9	15.5	1905.....	11.2	8.3	32.23
1905-06.....	14.8	10.8	3.9	16.3	1906.....	9.7	8.1	32.80
1906-07.....	23.8	20.2	3.6	17.1	1907.....	16.4	6.6	31.05
1907-08.....	14.9	11.0	3.9	17.1	1908.....	14.1	6.3	30.74
1908-09.....	16.9	12.9	4.0	18.2	1909.....	12.8	7.8	30.71
Average..	17.0	13.1	3.9	16.8	Average.	12.8	7.4	31.51

* Production, consumption, and visible supply figures of E. Laneville from Brazil, Departamento Nacional do Café, *Anuário Estatístico 1938* (5th ed.), facing p. 264; prices from U.S. Dept. Labor, Bur. Labor Stat., *Wholesale Prices, 1890 to 1926* (Bull. 440, July 1927), pp. 82-83; exchange rates for 1890-99 from Brazil, Instituto Nacional de Estatística, *Anuário Estatístico do Brasil, 1937*, p. 855, converted from British pence to U.S. cents at \$.02023, and for 1900-24 from J. R. Mood, *Handbook of Foreign Currency and Exchange* (U.S. Dept. Comm., Trade Prom. Ser. 102, 1930), p. 25.

^a Crop harvested in 1889 and marketed between July 1, 1889 and June 30 of 1890; etc.

^b Deliveries in importing countries; more accurately "absorption."

TABLE I (Concluded)

Marketing year ^a	Production			World "consumption" ^b	Calendar year	World visible supply June 30	Price Rio No. 7 (New York)	Average value of milreis
	World	Brazil	Other countries					
	(Million bags of 60 kg.)								(Million bags)	(Cents per lb.)	(U.S. cents)
1909-10.....	19.1	15.3	3.8	18.2	1910.....	13.7	9.5	32.47
1910-11.....	14.5	10.8	3.7	17.2	1911.....	11.1	13.4	32.28
1911-12.....	17.4	13.0	4.3	17.5	1912.....	11.0	14.6	32.36
1912-13.....	16.4	12.1	4.3	17.1	1913.....	10.3	11.1	32.16
1913-14.....	19.6	14.5	5.1	18.6	1914.....	11.3	8.2	29.26
Average..	17.4	13.1	4.2	17.7	Average.	11.5	11.4	31.71
1914-15.....	17.9	13.5	4.4	21.7	1915.....	7.5	7.5	24.67
1915-16.....	20.8	16.0	4.8	21.2	1916.....	7.1	9.2	23.51
1916-17.....	16.7	12.7	4.0	16.0	1917.....	7.8	9.3	25.01
1917-18.....	18.8	15.8	3.0	14.8	1918.....	11.8	9.4	25.34
1918-19.....	14.2	9.7	4.5	16.0	1919.....	10.0	17.9	26.74
Average..	17.7	13.5	4.1	17.9	Average.	8.8	10.7	25.05
1919-20.....	15.2	7.5	7.7	18.5	1920.....	6.7	12.0	22.51
1920-21.....	20.3	14.5	5.8	18.5	1921.....	8.5	7.2	13.12
1921-22.....	19.8	12.9	6.9	19.7	1922.....	8.6	10.3	12.95
1922-23.....	15.9	10.2	5.7	19.2	1923.....	5.3	11.5	10.23
1923-24.....	21.7	14.9	6.9	22.0	1924.....	5.0	16.8	10.94
Average..	18.6	12.0	6.6	19.6	Average.	6.8	11.6	13.95

TABLE II.—PRODUCTION OF PRINCIPAL COFFEE-PRODUCING COUNTRIES, MARKETING YEARS 1919-20 TO 1939-40*

Area	Thousand bags of 60 kg.					Per cent of world total				
	1919-20 to 1923-24 average	1924-25 to 1928-29 average	1929-30 to 1933-34 average	1934-35 to 1938-39 average	1939-40*	1919-20 to 1923-24 average	1924-25 to 1928-29 average	1929-30 to 1933-34 average	1934-35 to 1938-39 average	1939-40*
World total	20,410	28,606	37,860	37,867	37,782	100.0	100.0	100.0	100.0	100.0
South America	15,040	21,621	29,633	28,347	27,832	73.7	75.6	78.3	74.9	73.7
Brazil	11,989	17,327	24,519	22,441	22,067	58.7	60.6	64.8	59.3	58.4
Colombia	1,966	2,830	3,545	4,154	4,450	9.6	9.9	9.4	11.0	11.8
Venezuela	806	1,093	940	988	800	4.0	3.8	2.5	2.6	2.1
Bolivia	160	203	395	400	...	.8	.7	1.0	1.1	...
Ecuador	77	109	134	238	215	.4	.4	.3	.6	.6
Other	42	59	100	126	300	.2	.2	.3	.3	.8
Central America, Mexico, and West Indies...	3,615	4,016	4,389	4,898	4,933	17.7	14.0	11.6	12.9	13.1
El Salvador	666	748	1,000	1,013	1,117	3.3	2.6	2.6	2.7	3.0
Guatemala	725	761	749	919	917	3.5	2.7	2.0	2.4	2.4
Mexico	647	627	635	714	873	3.2	2.2	1.7	1.8	2.3
Cuba	200	320	416	520	533	1.0	1.1	1.1	1.4	1.4
Haiti	500	550	532	441	270	2.4	1.9	1.4	1.1	.7
Costa Rica	250	295	373	391	400	1.2	1.0	1.0	1.2	1.1
Dominican Republic	25	202	284	396	350	.1	.7	.7	1.0	.9
Nicaragua	204	231	225	249	255	1.0	.8	.6	.6	.7
Other	398	282	175	255	218	2.0	1.0	.5	.7	.6

Africa	435	878	1,371	2,138	2,600	2.1	3.0	3.6	5.6	6.9
British East Africa.....	174	290	457	746	852	.8	1.0	1.2	2.0	2.3
Italian East Africa.....	61	215	331	283	...	.3	.8	.9	.7	...
French Africa.....	54	68	246	523	743	.3	.2	.6	1.4	2.0
Belgian Congo.....	2	10	109	304	383	.0	.0	.3	.8	1.0
Angola.....	137	289	219	272	317	.7	1.0	.6	.7	.8
Other.....	7	6	9	10	...	.0	.0	.0	.0	...
Asia	1,273	2,039	2,377	2,381	2,317	6.3	7.2	6.3	6.3	6.1
Netherlands Indies.....	961	1,706	1,978	1,999	1,888	4.7	6.0	5.2	5.3	5.0
India.....	174	170	263	255	250	.9	.6	.7	.7	.6
Other.....	138	163	136	127	179	.7	.6	.4	.3	.5
Oceania.....	47	52	90	103	100	.2	.2	.2	.3	.2

* Data from Brazil, Departamento Nacional do Café, *Anuário Estatística do Café, 1939-40*, pp. 5-11. In the absence of production estimates, exports have been used for certain countries in some years. In other cases where one or more years were missing in the source cited, four-, three-, or two-year averages are shown above.

* Data from International Institute of Agriculture, *International Yearbook of Agricultural Statistics, 1940-41*, pp. 85-87. Data are preliminary and otherwise not strictly comparable with earlier years.

TABLE III.—WORLD EXPORTS OF COFFEE BY CHIEF EXPORTERS, 1909-41*

(Thousand bags of 60 kg.)

Area	1900-13 average	1914-18 average	1919-23 average	1924-28 average	1929-33 average	1934-38 average	1939	1940	1941*
World total	18,116	17,695	20,559	22,949	25,297	27,021	...	...	...
South America	14,333	13,905	15,669	17,440	19,131	19,552	20,970	17,287	...
Brazil.....	12,642	11,882	12,799	14,091	14,963	14,579	16,498	12,097	11,055
Colombia	774	1,116	1,863	2,327	3,111	3,831	3,702	4,426	2,912
Venezuela.....	843	843	898	861	836	794	456	479	730
Other.....	74	64	109	161	221	348	314	285	...
Central America, Mexico, and West Indies.....	2,784	2,789	2,902	3,259	3,463	3,764	3,864	...	...
El Salvador.....	478	578	615	736	853	903	930	942	687
Guatemala.....	633	650	718	753	728	788	732	692	696
Mexico.....	366	360 ^b	289	395	497	608	584	429	464
Haiti.....	499	406	565	552	514	463	488	270	463
Costa Rica.....	215	235	237	289	375	387	337	289 ^c	391
Nicaragua.....	155	167	195	252	220	255	290	255	209
Other.....	438	393	283	282	276	360	503	...	...

Africa	182	195	417	647	1,154	2,029	...	...	...
British East Africa.....	32	55	186 ^a	193	446	684	848	...	...
Belgian Congo.....	0	1	2	5	63	258	332	...	...
Angola.....	79	67	105	169	180	251	346	263	...
Somali coast ^c	54	62	80	201	266	209	...	...	...
Other French Africa.....	4	8	28	64	187	594	...	...	...
Other Africa.....	13	2	16	15	12	33	...	...	...
Asia	783	771	1,531	1,558	1,472	1,589	1,311	...	...
Netherlands Indies	401	446	1,077	1,360	1,300	1,409	1,091	...	...
India	210	193	194	163	144	146	188	...	...
Other.....	172	132	260	35	28	34	32	...	...
Oceania.....	34	35	40	45	77	87	76	...	...

* Data for 1909-23 from M. L. Bynum, *The World's Exports of Coffee* (U.S. Dept. Comm., Trade Prom. Ser. 110, 1930), pp. 10-11; for 1924-40 from successive issues of *International Yearbook of Agricultural Statistics*, which give net exports of net exporting countries. These two series are not strictly comparable, but totals differ by 1.5 per cent or less in overlapping periods. Data are for calendar years as far as possible. Totals have been adjusted to secure data for the same period throughout. Dots (...) indicate that data are not available.

^a From *Coffee Statistics* (Pan-American Coffee Bureau), Release No. 7, January-June 1942, pp. 24-25.

^b Four-year average.

^c Transit trade from Ethiopia.

TABLE IV.—NET IMPORTS OF COFFEE INTO PRINCIPAL WORLD MARKETS, 1909-39*

(Thousand bags of 60 kg.)

Area	1909-13 average	1914-18 average	1919-23 average	1924-28 average	1929-33 average	1934-38 average	1939
World total.....	17,554	16,040	19,830	22,134	24,907	26,534	29,184 ^a
United States.....	6,828	8,364	9,682	10,546	11,834	13,089	15,083
Europe.....	9,591	6,375	8,723	9,870	11,268	11,503	11,667 ^a
United Kingdom...	174	494	200	286	301	236	295 ^b
France.....	1,862	2,364	2,861	2,724	3,087	3,077	1,727 ^c
Germany.....	3,016	...	922 ^d	1,698	2,387	2,762	1,552 ^e
Czechoslovakia.....	...	...	188	223	222	188	...
Belgium.....	592	...	641	661	772	821	907
Netherlands.....	715	285	604	602	658	599	666
Sweden.....	564	401	668	689	738	801	934
Denmark.....	253	234	378	398	447	466	661
Finland.....	217	123	191	275	278	343	440
Norway.....	219	246	303	269	275	294	353
Italy.....	438	712	701	754	720	618	347 ^f
Spain.....	222	267	354	359	396	407 ^g	...
Switzerland.....	190	212	203	215	246	261	369
Other Europe.....	1,129	1,037	509	717	741	630	...
Other countries.....	1,135	1,301	1,425	1,718	1,805	1,942	2,434
Canada.....	106	126	156	181	232	283	351
Argentina.....	213	282	316	392	380	380	418
Algeria.....	126	124	143	155	221	244	123 ^f
Union of S. Africa.	199	243	205	217	215	237	288
All other.....	491	526	605	773	757	798	...

* Data for 1909-23 from M. L. Bynum, *International Trade in Coffee* (U.S. Dept. Comm., Trade Prom. Ser. 37, 1926), pp. 34-35; for 1924-39 from successive issues of *International Yearbook of Agricultural Statistics*, which give net imports of net importing countries; and for the United States, from *Statistical Abstract of the United States 1941*, p. 771. Data are for calendar years as far as possible. Totals have been adjusted to secure data for the same countries throughout, with the exception of Europe, 1914-18. The subgroup "other Europe" included different areas prior to 1918; hence data are not comparable with those for later years. Dots (...) indicate that data are not available.

^a International Institute of Agriculture estimate.

^b Eight months.

^c Seven months, January-July.

^d Four-year average.

^e Two-year average.

^f Six months.

TABLE V.—COFFEE EXPORTS FROM BRAZIL AND OTHER COUNTRIES, AND IMPORTS INTO THE UNITED STATES, EUROPE, AND OTHER COUNTRIES, ANNUALLY FROM 1913*

(Thousand bags of 60 kg.)

Calendar year	Exports			Imports			
	World	Brazil	Other countries	World	United States	Europe (incl. U.K.)	Other countries
1913.....	19,333	13,268	6,065	17,647	6,507	9,961	1,179
1914.....	17,668	11,270	6,898	14,416	7,519	5,820	1,077
1915.....	23,152	17,061	6,091	17,078	7,993	7,827	1,258
1916.....	19,095	13,039	6,056	17,279	8,546	7,512	1,221
1917.....	16,094	10,606	5,488	16,490	9,580	5,521	1,389
1918.....	12,465	7,433	5,032	14,938	8,184	5,195	1,559
1919.....	22,322	12,963	9,359	20,213	9,457	9,574	1,182
1920.....	18,087	11,525	6,562	18,461	9,431	7,523	1,507
1921.....	19,931	12,369	7,562	20,277	9,875	9,016	1,386
1922.....	20,419	12,673	7,746	19,540	9,192	8,932	1,416
1923.....	22,038	14,466	7,572	20,657	10,457	8,570	1,630
1924.....	22,685	14,226	8,459	21,405	10,467	9,258	1,680
1925.....	21,361	13,482	7,879	20,745	9,524	9,628	1,593
1926.....	22,647	13,751	8,896	22,346	11,105	9,538	1,703
1927.....	24,060	15,115	8,945	22,949	10,736	10,335	1,878
1928.....	23,990	13,881	10,109	23,226	10,898	10,588	1,740
1929.....	23,865	14,281	9,584	23,862	11,107	10,837	1,918
1930.....	25,762	15,288	10,474	25,395	11,873	11,552	1,970
1931.....	27,933	17,851	10,082	26,939	13,073	12,076	1,790
1932.....	22,606	11,935	10,671	23,753	11,226	10,927	1,600
1933.....	26,320	15,459	10,861	24,588	11,893	10,950	1,745
1934.....	25,212	14,147	11,065	23,957	11,431	10,888	1,638
1935.....	27,013	15,329	11,684	26,327	13,189	11,248	1,890
1936.....	27,623	14,185	13,438	26,228	13,091	11,185	1,952
1937.....	25,253	12,123	13,130	26,396	12,786	11,582	2,028
1938.....	30,002	17,112	12,890	29,763	14,950	12,613	2,200
1939.....	.....	16,498	.....	29,184 ^a	15,083	11,667 ^a	2,434
1940 ^b.....	.....	12,097	.....	21,688 ^c	15,427	4,167 ^a	2,094
1941.....	.....	11,055	.....	.....	17,037	.....	.....

* Data from sources indicated in Appendix Tables III and IV. Dots (...) indicate that data are not available.

^a International Institute of Agriculture estimate.

^b Preliminary.

TABLE VI.—FACTORS IN THE WORLD COFFEE SITUATION, 1920-41*

Marketing year	Production					Calendar year	"Consumption" (world net imports)	Stocks			Coffee destroyed in Brazil	Prices			Average value of milreis (U.S. cents)
	World†	Brazil			Other countries			Total	World visible supply	Interior Brazil		Wholesale (N.Y.)		Retail roasted (U.S.)	
		Total	São Paulo	Other states								Santos No. 4	Manizales		
	(Million bags of 60 kg.)							(Million bags of 60 kg.)					(Cents per lb.)		
1919-20	14.0	7.5	4.2	3.3	6.5	1920.....	18.5	7.9	7.9	...	19.0	21.5	47.0	22.5	
1920-21	22.4	14.5	10.2	4.3	7.9	1921.....	20.3	8.9	8.9	...	10.4	15.6	36.3	13.1	
1921-22	20.7	12.9	8.2	4.7	7.8	1922.....	19.5	8.7	8.7	...	14.3	17.4	36.1	13.0	
1922-23	18.3	10.2	7.0	3.2	8.1	1923.....	20.7	5.9	5.9	...	14.8	18.8	36.9	10.2	
1923-24	24.2	14.9	10.4	4.5	9.3	1924.....	21.4	7.7	4.9	2.8	21.3	25.5	42.6	10.9	
Average..	19.9	12.0	8.0	4.0	7.9	Average.	20.1	7.8	7.3	...	16.0	19.8	39.8	13.9	
1924-25	24.3	14.6	9.2	5.4	9.7	1925.....	20.7	7.9	5.1	2.8	24.5	27.9	50.4	12.2	
1925-26	26.6	15.5	10.1	5.4	11.1	1926.....	22.3	9.1	4.6	4.5	22.3	28.5	50.2	14.4	
1926-27	26.4	15.8	9.9	5.9	10.6	1927.....	22.9	11.4	4.6	6.8	18.7	25.1	47.4	11.9	
1927-28	39.4	27.1	18.0	9.1	12.3	1928.....	23.2	18.7	5.2	13.5	23.2	27.3	48.2	12.0	
1928-29	26.1	13.6	8.8	4.8	12.5	1929.....	23.9	18.6	5.2	13.4	22.1	22.8	47.9	11.8	
Average..	28.5	17.3	11.2	6.1	11.2	Average.	22.6	13.1	4.9	8.2	22.2	26.3	48.8	12.5	

1929-30	40.8	28.2	19.5	8.7	12.6	1930.....	25.4	30.3	5.3	25.0		13.2	17.2	39.5	10.7
1930-31	29.4	16.6	10.1	6.5	12.8	1931.....	26.9	32.5	6.3	26.2	2.8	8.7	15.6	32.8	7.0
1931-32	41.3	28.3	18.7	9.6	13.0	1932.....	23.8	33.5	5.5	28.0	9.3	10.7	11.4	29.4	7.1
1932-33	34.0	19.8	15.0	4.8	14.2	1933.....	24.6	25.3	6.3	19.0	13.9	9.3	10.5	26.4	8.0
1933-34	42.9	29.6	21.8	7.8	13.3	1934.....	24.0	26.2	7.9	18.3	8.2	11.2	13.7	26.9	8.4
Average..	37.7	24.5	17.0	7.5	13.2	Average.	24.9	29.6	6.3	23.3	8.6	10.6	13.7	31.0	8.2
1934-35	31.5	18.2	11.7	6.5	13.3	1935.....	26.3	25.9	7.4	18.5	1.7	8.9	10.3	25.7	8.3
1935-36	36.5	20.9	13.5	7.4	15.6	1936.....	26.2	29.2	7.9	21.3	3.7	9.5	11.3	24.3	8.6
1936-37	42.6	26.4	17.8	8.6	16.2	1937.....	26.4	31.7	7.7	24.0	17.2	11.1	11.6	25.5	8.6
1937-38	38.6	23.5	15.9	7.6	15.1	1938.....	29.8	...	7.4	...	8.0	7.8	11.0	23.2	5.8
1938-39	37.8	23.1 ^a	15.6	7.6	14.7	1939.....	29.2	...	8.0	...	3.5	7.5	11.8	22.5	6.0
Average..	37.4	22.4	14.9	7.5	15.0	Average.	27.6	...	7.7	...	6.8	9.0	11.2	24.2	7.5
1939-40	37.6 ^b	21.9 ^c	15.8 ^a	6.1 ^a	15.7 ^b	1940.....	21.7	...	4.0 ^c	...	2.8	7.2	8.4	21.2	6.1
1940-41	36.7 ^b	20.9 ^c	14.0 ^a	6.9 ^a	15.8 ^b	1941.....	...	...	4.1 ^c	...	3.4	11.4	15.0	23.6	6.1

* Data on production and "consumption" from sources indicated in Appendix Tables II and IV; stocks (monthly averages) and destruction from text Table 10; prices from text Table 3, Federacion Nacional de Cafeteros de Colombia, and U.S. Bureau of Labor Statistics; exchange rates from Federal Reserve Board. Dots (...) indicate that data are not available.

† Data not equally comprehensive for all years. Averages computed from annual totals, as given in source cited, do not agree precisely with those shown in Appendix Table II, where adjustments have been made for missing data.

^a Official DNC estimate.

^b Estimated.

^c Stocks in the United States and Brazilian ports on July 1.

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