

HARVARD ECONOMIC STUDIES, 74

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WESTERN  
PRICES BEFORE 1861

*A Study of the Cincinnati Market*

By Thomas Senior Berry

\$5.00

PUBLISHER'S NOTE

Although Mr. Berry has limited his study to the period before 1861, economists and business men will find in it many data applicable to the present and the immediate future. Students of the business cycle will be interested in its eclectic and empirical approach, which yields results conforming to none of the thought-patterns of leading theorists today. The account, which begins with the late 1780's, is divided into three Books, each of which provides a separate treatment of price materials. The geographical setting of Western price history is the chief interest in Book One. Book Two reviews the prices and production of important commodities, whether agricultural or industrial. In Book Three, general and group index numbers are matched with variations in population, currency and banking, sales of public lands, public and private investments, and other indicators of changes in the rate of Western development. In addition to the primarily economic data, there is much material to interest the student of early Western social and political history.

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RAILWAYS AND CANALS OF THE NORTHWEST, 1850

Liberty Hall, May 9, 1850

# WESTERN PRICES BEFORE 1861

A STUDY OF THE CINCINNATI MARKET

BY

THOMAS SENIOR BERRY

INSTRUCTOR IN ECONOMICS, DUKE UNIVERSITY



CAMBRIDGE, MASSACHUSETTS  
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TO MY FATHER AND MOTHER

## PREFACE

LIKE the French Revolution, the settlement of the American West will probably long remain a favorite theme among historians; and it is not exaggerating to say that the scope, rapidity, and implications of the westward movement well-nigh surpass portrayal on the printed page. The present account covers developments in the Middle West, speaking in terms of latitude, between the late 1780's and (quite arbitrarily) 1861 — a stretch of time during which Cincinnati, by virtue of her location, became the metropolis of a transplanted but vigorous civilization. The purpose is to illuminate a few dark corners in regional economic history by statistical method; and the approach — primarily inductive — is by way of prices. The latter are considered to include wholesale commodity prices, freight and interest rates, and quotations on bank notes so far as they are available and lend themselves to this type of analysis. Unfortunately, data on the prices of lands and wages of labor are so hopelessly inadequate that they are virtually omitted from consideration.

Strictly, a study of prices at the frontier might well move its locale along with the march of settlement; but questions of homogeneity would prove difficult of solution. This treatment has been localized to a great extent; and data pertaining to Louisville, Lexington, Pittsburgh, and several other points have been utilized principally to round out the information on Cincinnati, which is most incomplete in regard to the first and second tides of westward expansion (1785-1803, 1803-1821). Data on money and exchange, as well as rates of freight, apply almost exclusively to the Ohio center. However, it is felt that at least some of the more important conclusions may be extended to a good share of the West.

A study of prices lends itself to several methods of approach. An empirical verification of *a priori* laws of the market is sought by economic theorists, whereas statisticians paint a different picture by analyzing mathematical characteristics of the price structure. The geographer traces comparative changes of actual prices

in various markets, and the agriculturist tries to determine alterations in the purchasing power of farm products over other goods. Much valuable work has been done by those most interested in the relationship between the price level and the currency in circulation or production of precious metals; and students of the business cycle subject prices to whatever technique will best suit their respective purposes. As for the economic historian, he may pay most attention to the recorded course of general prices or may concentrate upon the behavior of a particular group of commodities, and commonly narrows his range to a single commodity.

The work here presented is essentially eclectic in its approach. An effort had been made to accommodate the needs of the specialist; but it is hoped that he will take pains to examine pages not explicitly classified within his field. Part I is concerned mainly with regional history, geography, and the development of transportation facilities, so far as these impinge upon commodity prices and rates of freight. The geographical setting of the price history of the West between 1785 and 1861 is the chief interest in Chapter V; and emphasis is placed therein upon developments which may reasonably be termed a price revolution. Furthermore, analysis of seasonal patterns suggests peculiar characteristics of the river economy. In Part II attention is centered upon leading industries, which are taken up one by one. It can be seen that the dominant line of interest changes from chapter to chapter. Chapter VI, for instance, explores the neglected field of metrology. The chapters on the leading agricultural exports — flour, whisky, and pork products — each aim to include a factual summary of developments as well as an analysis of the interrelationships between supply and market price. Chapter X — on the western salt trade — is probably least unsatisfactory to the student of economic history or the devotee of the problems of monopoly and competition. Part III, on the other hand, is directed almost entirely to those most engaged in the pursuit of monetary history and business annals. It is rather strictly chronological throughout. Comparison is drawn between index numbers of prices (general and special) and interest, exchange, bank credit, immigration, and other pertinent data so far as they are available. The commodity prices of New York and New Orleans are also employed as yardsticks. Finally, the material is mortared with allusions

to contemporary western experience in currency and banking, with special attention to the Cincinnati market.

The writer wishes to express his obligation to the International Scientific Committee on Price History, under whose auspices he began collecting western price data in 1932. The fundamental aim of the Committee — to gather price information and place it at the disposal of scholars — has been furthered in several ways. It has published a comprehensive summary and analysis of all American data from 1700 to 1861.<sup>1</sup> The results for some regions have been published independently; and a mass of price data — including “fluorographic” negatives of western newspaper prices-current — has been deposited in Baker Library of the Graduate School of Business Administration, Harvard University. It is only to be regretted that the western figures are not perfectly continuous and do not reach further into the recesses of time.

In 1937 this study was submitted to the Graduate School of Arts and Sciences, Harvard University, as a dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy. This phase of the research was undertaken under the direction of Professor E. F. Gay and finished under Professor A. H. Cole. Their patient yet stimulating guidance has been most deeply appreciated. The manuscript has since been revised so as to incorporate, *inter alia*, western data for the years prior to 1816 and comparable information on other markets throughout the interval under survey. The Research Council of Duke University has granted funds to aid in this revision and preparation for the press.

Many other persons have cheerfully given their coöperation. The field work could not have been accomplished without the help of Miss Eleanor S. Wilby and her staff of the Historical and Philosophical Society of Ohio; Drs. C. S. Brigham and R. W. G. Vail of the American Antiquarian Society; the late Mr. C. B. Galbreath of the Ohio Archaeological and Historical Society;

<sup>1</sup> Arthur H. Cole, *Wholesale Commodity Prices in the United States, 1700-1861* (1938). With Statistical Supplement (hereafter referred to as Volume II). The data in Appendix B below are for the most part complementary to this publication. See also Professor Cole's address: "American Research in Price History," *University of Pennsylvania Bicentennial Conference, Studies in Economics and Industrial Relations* (1941), pp. 87-98.

Mr. Henry S. Parsons of the Library of Congress; Mr. Louis H. Fox of the New York Public Library; Professor F. A. Pearson of Cornell University; Mrs. Jouett Cannon of the Kentucky State Historical Society; Miss Florence Dillard of the Lexington Public Library; Miss Irene Stewart of the Carnegie Library of Pittsburgh; and Mr. C. C. Myers, late Historian and Archivist of West Virginia. Material of special value was furnished by Mr. C. C. Dickinson, Mr. T. B. Stalnaker, Judge Joseph Kenna, and Dr. Roy Bird Cook of Charleston, West Virginia, and at various times assistance has come from Miss Ruth Crandall, Miss Althea MacDonald, and Mrs. W. L. Farthing, Jr. Professor Cole has kindly given permission for the reproduction of Charts IX, XXXIV, XXXIX, and XL, which originally appeared in his *Wholesale Commodity Prices*. Charts XXVI and XXVII were drawn by Mr. Earl R. Marsh, and Mr. Charles G. Chester, working under the auspices of the National Youth Administration, assisted with several others. My wife has done everything in her power to lighten the labor of "fluorographing" data in the field and preparing the manuscript.

The writer has ever felt free to call for advice upon Professors H. H. Burbank, W. L. Crum, Frederick Merk, and Edwin Frickey of Harvard University; George R. Taylor of Amherst College; and Calvin B. Hoover and Herbert von Beckerath of Duke University. Valuable suggestions have also been rendered by Professor B. U. Ratchford, who has read the entire manuscript, and by other colleagues, notably Professors J. J. Spengler, Bayrd Still, C. E. Landon, and Earl J. Hamilton, all of whom have read or discussed parts thereof. Without Professor A. P. Usher's encouragement the work would never have been completed in its present form. It is hardly necessary to add that the author is responsible for all errors of fact, thought, or opinion.

T. S. B.

*Durham, N. C.*  
*February 25, 1943*

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PART I  
THE CINCINNATI MARKET AND ITS  
SETTING

## ABBREVIATIONS

- CCC Cincinnati Chamber of Commerce, Annual Report  
CDG *Cincinnati Daily Gazette*  
CPC *Cincinnati Price Current*  
LH *Liberty Hall and Cincinnati Weekly Gazette* (title varies)  
WCA *Western Christian Advocate* (Cincinnati)

## CHAPTER I

### LOCATION AND EARLY INSTITUTIONAL DEVELOPMENT

THE MAGNIFICENT DEVELOPMENT of the Ohio Valley during the first half of the nineteenth century is a theme which has rightfully acquired an important place in American history. Here was established a glorious culture almost within the limits of a single generation. Although this book is primarily concerned with the early growth and price history of the Cincinnati market, it is fitting to call attention to a few salient facts bearing upon the extent of the spread of American agriculture, commerce — indeed, American life — in the Ohio region before the Civil War. The Treaty of 1783 and the Ordinance of 1787, the Louisiana Purchase and the Land Acts of 1800 and 1820, the successful application of steamboats upon western waters and the penetration of the interior by roads, canals, and railways, the panic of 1837 — such milestones are instantly recalled by all conversant with the story of the West; but, even so, we are prone to overlook the exact nature of the structure framed by these events.

In 1810 the aggregate population of Indiana, Kentucky, and Ohio (the three states encircling Cincinnati) was very nearly two-thirds of a million, or 9 per cent of the total population of the young nation. Forty years later the same area supported almost four million souls, which constituted over 17 per cent of the population of a somewhat larger country. Yet these three states accounted for less than 4 per cent of the total area of the states and territories in the year 1850. In a primarily agricultural nation, the leadership in farm production was rapidly preëmpted by this section of the West. Ohio, Indiana, and Kentucky were reported at the mid-point of the century to possess an astonishingly large proportion of the horses, sheep, swine, and neat cattle of the nation.<sup>1</sup> As a matter of fact, over one-sixth of the national

<sup>1</sup> According to the Census of 1850, these three states owned over 22 per cent of the horses, 28 per cent of the sheep, 23 per cent of the swine, and 15 per cent of the neat cattle.



wealth in live stock lay within this area. Furthermore, crop acreage had expanded in such degree that about 28 per cent of the corn and wool of the nation was produced in this district, as well as more than one-fifth of the wheat and maple sugar, one-third of the tobacco, and one-half of the hemp and flaxseed.

The state of Ohio, taken by itself, grew in population from 45,365 in 1800 (as a territory) to approximately two million half a century later, so that it was outranked in 1850 only by New York and Pennsylvania.<sup>2</sup> Ohio, although twenty-seventh in area (out of forty states and territories) was first in the production of corn; and it is to be remembered that the national corn crop was estimated to be worth as much as the wheat, cotton, and hay crops put together. Moreover, Ohio was also first in the output of wool and whisky; second in wheat and cheese; and occupied third rank in the production of butter, oats, and maple sugar.<sup>3</sup>

*Exports to New Orleans.* Further light upon the development of the principal granary in the western hemisphere is shed by figures on receipts from the interior at the port of New Orleans. These data, which are of peculiar value by reason of the fact that the Mississippi River remained an important outlet for many western exports until the middle of the century, are summarized by five-year periods in Table 1. They show that shipments of flour, pork, other hog products, and whisky increased at a tremendous rate during the period under review. But even these impressive totals do not tell the whole story: for one thing, considerable quantities of goods, particularly those shipped by flat-boat, were never counted by the Louisiana observers; and, much more important, a great and growing proportion of flour and wheat from the northern belt found shorter routes to the East via lake, canal, river, and railway. Indeed, direct shipments of flour and grain to New York, New England, and Europe followed at least ten distinct routes in the late fifties in sufficient quantity to warrant separate tally.<sup>4</sup>

<sup>2</sup> Ohio went from thirteenth place in 1810 to fifth in 1820 and fourth in 1830. She attained third place by 1840.

<sup>3</sup> In 1850 Ohio also ranked first in railway and second in canal mileage, and also second in pig-iron output and rail construction.

<sup>4</sup> In the latter fifties the aggregate receipts of flour and wheat at eastern terminals were roughly six times as great as those at New Orleans.

**TABLE 1**  
**AVERAGE ANNUAL RECEIPTS OF SPECIFIED PRODUCTS AT NEW ORLEANS FROM THE INTERIOR BY FIVE-YEAR PERIODS, 1810-1860**  
*(In thousands)*

	1810-12	1816-18	1821-25	1825-30	1830-35	1835-40	1840-45	1845-50	1850-55	1855-60
Hogs .....	3.6	1.0	....	....	....	....	....	....	....	....
Pork & bacon, casks and hogs- heads .....	....	.3	1.1	9.9	10.2	16.5	30.0	65.6	84.9	75.3
Pork & bacon, bbls. and boxes ..	7.5	12.1	12.4	36.9	76.0	124.2	259.1	416.7	294.9	261.2
Pork & bacon, bulk, pounds ...	990.8	901.8	725.8	966.8	4803.7	7214.4	7874.3	8789.4	10442.9	5720.5
Lard, reduced to kegs .....	6.1	10.9	26.7	91.1	181.9	223.1	638.4	1187.9	772.7	556.0
Lard oil, bbls. ....	....	....	....	....	....	....	1.4	6.8	14.7	12.3
Candles, boxes .....	.1	1.6	1.4	.4	.5	.3	2.9	23.9	55.5	85.3
Flour, bbls. ....	82.5	130.1	119.1	140.8	288.1	355.7	498.6	953.6	844.9	1200.2
Wheat, equiv. bbls. ....	5.1	6.4	....	....	.8	7.2	34.4	133.2	33.4	167.2
Corn meal, bbls. ....	.5	.4	3.6	2.4	2.1	3.9	5.1	31.4	1.7	.5
Corn in ear, bbls. ....	13.8	31.0	53.3	89.5	106.2	207.1	193.8	365.3	56.4	32.0
Corn, shelled, sacks .....	....	....	....	4.2	120.0	291.6	357.2	1291.5	1354.3	1440.2
Whisky, bbls. ....	7.0	7.0	16.1	28.3	34.1	43.0	81.1	125.2	136.1	158.2

Sources: *Moniteur de la Louisiane*, Jan. 19-23, Feb. 6-16, 1813. *New Orleans Price Current and Commercial Intelligencer*, Oct. 1, 1831; Sept. 1, Oct. 1, 1841; Sept. 1, 1851; Sept. 1, 1860. W. F. Switzler, *Commerce of the Mississippi and Ohio Rivers* (1888), pp. 191-92, 195-96, 200-202, 216-18, 1810-1811, Dec. 16-Dec. 15; 1812, Dec. 15-Dec. 31; 1816-1818, Jan. 1-Dec. 31; 1821-1836, Oct. 1-Sept. 30; 1837-1860, Sept. 1-Aug. 31.

*Cincinnati—Location and Early Growth.* Cincinnati was destined from the very beginning to become an important concentration center in the middle belt. The site of the village had been marked out by John Cleves Symmes in 1788, and the settlement of "Losantiville" was carried out by his associates towards the end of that year.<sup>5</sup> The village was located upon the principal east and west "highway" between the mouths of two streams draining fertile soil to the north (the Great and Little Miamis), and directly opposite the mouth of the Licking, which penetrated into Kentucky for a considerable distance. Furthermore, Cincinnati was favorably placed between Pittsburgh and New Orleans, between farms to the north and plantations to the south, at a point where the Ohio River took an abrupt turn in its course.

Largely owing to this location, Cincinnati attained and held the leadership of the central West between 1816 and 1861 as a place for the transshipment, packing, processing, and finance of exports. She also attracted manufacturing and wholesale trade in imported goods, and her position was secure so long as travel and commerce depended upon the river. The Ohio-Mississippi system, it will be recalled, remained a leading highway in the West until the Civil War. So far as exports were concerned, the opening of the Erie Canal in 1825 affected the corn area to a much smaller extent than the northern wheat belt, because the former lay within easy distance of the Ohio and the Mississippi and sent a large portion of its products to southern plantations and Latin America. As will appear below, the opening of the English market and the Pennsylvania Canal in the early forties deflected part of the export trade, especially in provisions, towards the East; but it was not until after 1850 that railway and canal competition brought superior facilities and freight-rate differentials which favored the shipment of flour and other leading articles from many points in the central West directly to the eastern seaboard.

Early development of the village was slow: the Censuses of

<sup>5</sup>The plans were drawn in Lexington in August 1788, but settlement did not commence until December 26 of that year. Filson, the Kentucky historian, is reputed to have suggested the name Losantiville; there is some difference of opinion as to whether the name was really used. According to Daniel Drake, General St. Clair instituted the use of the present name at the beginning of 1790. Charles Cist (*Sketches and Statistics of Cincinnati in 1859, 1859, p. 17*).

1800 and 1810 gave only 750 and 2,540 inhabitants, respectively. By 1820, however, the population had reached 9,602 and surpassed that of Pittsburgh; and each succeeding count revealed such a large increase that Cincinnati was the sixth city in the union in 1850. Her population at that time was to be compared with New Orleans and Boston.<sup>6</sup> In 1860 Cincinnati was still the most populous city west of the Alleghenies, with the single exception of New Orleans; but her margin over St. Louis and Chicago was declining rapidly.<sup>7</sup> The rate of Cincinnati's growth varied from year to year according to the ebb and flow in immigration, but there is only one enumeration or estimate on record which fell short of preceding figures. This occurred during the "memorable pressure" of 1833, when the number of inhabitants was reported to be some four hundred less than in the preceding year.<sup>8</sup>

The early settlers formed for the most part a racially homogeneous group. Daniel Drake, a prominent physician to whom we are indebted for a penetrating account of the village in 1815, found a "prevalence of the customs and manners of New England, over most of this state."<sup>9</sup> By 1840 Germans constituted 28 per cent of the male adult population. This percentage was slightly increased over the twenty years that followed, and in 1860 almost 49,000 residents were listed as natives of Germany. Irish immigrants, most of whom arrived after 1840, furnished the only other significant group in 1860. The proportion of male adults of Irish birth had been less than 7 per cent in 1840, whereas 19,375 persons of this nativity, or more than 12 per cent of the total population, were reported two decades later. Other foreign-born residents swelled the ratio in 1860 to over 45 per cent. As for Negroes, the number reported was not large, varying between 3 and 5 per cent of the total.

*The Housing Problem.* From all the early accounts, the principal social problem in Cincinnati appears to have been to find

<sup>6</sup>The Census of 1850 reported the following figures on aggregate population: Boston, 136,881; New Orleans, 116,375; Cincinnati, 115,436; and Pittsburgh, 46,601.

<sup>7</sup>The 1860 figures are: New Orleans, 168,675; Cincinnati, 161,044; St. Louis, 160,773; and Chicago, 109,260.

<sup>8</sup>Cist, *Cincinnati in 1841* (1841), p. 38.

<sup>9</sup>Daniel Drake, *Picture of Cincinnati and the Miami Country* (1815), pp. 26-29.

housing for its inhabitants. In 1815 it was reported that the ratio of ten persons to a dwelling was certainly no exaggeration,<sup>10</sup> and in 1850 the average was given as over eight. Acute housing shortages were reported not only in boom years but also in hard times such as the early twenties, the depression of 1834, and the "paralyses" of 1837 to 1840.<sup>11</sup> The picture in 1815 is of plain, two-story, unpainted frame dwellings. Not until twenty-five years later was it reported that the proportion of brick homes was rather large and that attention was paid to such architectural adornments as cornices and porches. In spite of congestion and the presence of transients, such as immigrants on their passage, canal and railway gangs, and the notorious rivermen, the early citizens did not find it necessary to occupy their thoughts to a noticeable extent with social problems. A Benevolent Society was formed in 1814 to erect a dispensary and workhouse for the indigent and to help transient immigrants not eligible for relief. A poor-relief tax was reported the following year; paupers, who were negligible in number, were offered annually to the lowest bidders. There were only twenty-four paupers "on the township" on the average during the depression year 1821.<sup>12</sup> But the proposal of a state hospital met warm opposition on the ground that it would be occupied to capacity by rivermen from all along the stream. As for crime, westerners felt more fear for bankers than for thieves in the early twenties; at least, complaints of the lack of a safe place for the deposit of funds did not help in the quest for bank charters. A decade later James Hall wrote:

Do any [western people] starve, are any houseless, or naked, or in prison for debt? These are unknown evils. . . . Are not life and property secure? Is there any to molest or make afraid, the man who sits under his own vine? We need not pause for a reply.<sup>13</sup>

The situation as to public health was not too propitious. Qualified physicians were scarce, and the common use of water from

<sup>10</sup> Drake, *op. cit.*, pp. 169-70.

<sup>11</sup> Cist, *Cincinnati in 1841*, p. 40. In 1841, as the West was slipping into a long depression, Cincinnati was building feverishly. Dwellings were rented while under construction, and contracts were signed months before tenants in occupancy were ready to move.

<sup>12</sup> *Western Spy* (Cincinnati), March 17, 1821.

<sup>13</sup> *Notes on the Western States* (1838), p. 200.

the river was a dangerous custom. Severe epidemics of cholera occurred, notably in 1832 and 1849.

*Early Charters.* On the first day of 1802 Cincinnati was incorporated by the territorial legislature.<sup>14</sup> Thirteen years later (January 10, 1815) the state assembly granted a more elaborate town charter to the rapidly growing community, according to which the geographical limits were confined to that part of fractional section number twelve lying north of the Ohio River and east of Mill Creek.<sup>15</sup> In the charter of 1815 (which was probably similar to others drafted in northern states during this epoch) provision was also made for the annual election of twelve trustees, three from each ward. These officials were to choose a mayor, recorder, clerk, and treasurer from their number and were also to constitute the town council. Legislative authority resided in the mayor and council, whereas the recorder presided over judicial matters. The council was granted the power to levy a tax on real property, along with other powers necessary for the administration of local government; and it is notable that a levy of a realty tax at a rate of over one-half of 1 per cent of valuations required the approval of the voters assembled in a meeting called for the purpose. Not the least of the council's powers was that "to establish and regulate markets, to fix, regulate and enforce the assize of bread . . ." (Section 7).

Cincinnati was declared to be a city by a charter passed by the state assembly on February 5, 1819.<sup>16</sup> The powers of the town council were transferred to a city council which was to include a president, a recorder, and the trustees. Furthermore, special provision was made for street assessments to be levied upon owners at the petition of at least two-thirds thereof. A mayor and three aldermen (all appointed by the council from the inhabitants) were to administer justice through a new city court of record, which was to have original civil and criminal jurisdiction. (The former was to be shared with the Court of Common Pleas.) Thus, the mayor's legislative functions were transferred to the president of the council, and the recorder's judicial offices to the aldermen (Sections 13, 14).

<sup>14</sup> Territorial Laws 194. 3 Chase 2231 (c. 1828).

<sup>15</sup> 13 Ohio Laws 60. 3 Chase 2234 (c. 1873).

<sup>16</sup> 17 Ohio Laws 175. 3 Chase 2236 (c. 1899).

*Business Structures and Land Values.* Buildings for manufacturing and commercial purposes increased so rapidly in number and size as to push the residential sections further and further away from the river. During Cincinnati's heyday the majority of business structures were built of brick to a height of three and four stories. Land values rose at an extraordinary rate. The town was laid out with "in-lots" and "out-lots"; and on January 7, 1789, the thirty original settlers drew for one of each. Several other lots were sold by the Symmes group at prices reported to be very low.<sup>17</sup> In 1796, although commodity prices were passing the crest of a wave, one-half of a desirable corner lot sold for only \$4.00. However, the appreciation of land slowly gathered momentum until 1805, when "a sudden influx of population" raised prices rapidly. Another spurt took place during the War of 1812; Drake found choice lots selling at \$200 per front foot in 1815, and inferior ones bringing from \$120 down to \$10 per foot, depending upon local advantages.<sup>18</sup> Drake, it may be remarked, ascribed the wartime advance (which amounted to between 25 and 50 per cent) wholly to heavy immigration, and his failure to associate it with a fall in the value of money may well have been due to his predilection for the theories of Malthus.

Charles Cist has traced a prodigious rise in the value of several central Cincinnati lots as far as 1859. Thus, Lot 113 in the original plan (one corner of Third and Main streets) was taken for \$2.00 in 1790 and sold for \$800 in 1804. A small slice from the corner went for \$2,500 ten years later, \$4,000 in 1817, and \$6,000 in 1819. The subdivision was sold and repurchased in 1828 for \$15,000, and a still smaller piece (only 20 by 26 feet) was leased in 1839 at an annual rental of \$2,000 (with an option to renew at a much higher rent).<sup>19</sup> Half of another corner lot, at Front and Main streets, was appraised at \$50,000 in 1859 (\$1,000 per front foot); it had been sold in 1796 for \$4.00.<sup>20</sup> It

<sup>17</sup> Ludlow, the surveyor, took as his fee a tract of 120 acres located seven miles from the center in preference to four out-lots and an entire block of in-lots (Cist, *Cincinnati in 1859*, pp. 14-17).

<sup>18</sup> Cist, *Cincinnati in 1859*, p. 151. Town lots measured 99 by 198 feet, with some exceptions.

<sup>19</sup> Cist, *Cincinnati in 1841*, pp. 266-67.

<sup>20</sup> Cist, *Cincinnati in 1859*, pp. 14-15.

is noteworthy that most of Cist's quotations apply to periods of inflationary speculation. That is, values were periodically deflated, as in 1821, when a general crash and liquidation took place; similar declines in land prices doubtless took place in 1802-1803, 1808-1810, 1833-1834, and 1840-1843. Nevertheless, the long-time appreciation of city land went on at such a high rate as almost to obscure the ups and downs now commonly termed cyclical fluctuations.

Lands in the outlying sections were seen to rise in value according to their distance from the center. In 1815 the four-acre "outside" lots within the corporation limits were selling for from \$500 to \$1,000 an acre.<sup>21</sup> Lands within a radius of three miles, if fertile and improved, brought between \$50 and \$150, according to distance and location. Within twelve miles the price ranged from \$10 to \$30 an acre, whereas more remote sites fetched from \$4.00 to \$8.00. Drake estimated that improvements raised the value from 25 to 100 per cent, and judged that fertile, cultivated land in the Miami country, taken as a whole, averaged \$12 an acre in value. These estimates, it should be borne in mind, were made at a time when speculation was rife; on the other hand, the region was only beginning to develop in 1815. The strength of this upward trend may be gathered from the fact that the Bank of the United States, which found itself in 1820 owning a large proportion of inflated Cincinnati real estate, managed to liquidate during the lean years without appreciable loss.

*Improvements in Local Transportation.* Connections between Cincinnati and its environs underwent several important changes, with a general effect towards broadening the area of the city's commercial influence. In the beginning, local trade was confined largely to the channels of the Ohio River and its near-by tributaries, for the highway trustees spread the federal land grants so thin that in 1815 there was not a single good road in the state.<sup>22</sup> At the same time attention was called to the need for a direct water route to Hamilton on the Great Miami River. The latter project (along with the Ohio Canal) was finally undertaken by the state in 1825 in the spirit of enthusiasm following the com-

<sup>21</sup> Drake, *op. cit.*, pp. 50-53. Symmes paid 66 2/3 cents per acre in his purchase of 1787, but public lands sold for \$2.00 between 1788 and 1820.

<sup>22</sup> Drake, *op. cit.*, p. 220.



pletion of the Erie Canal. The Miami Canal was finished to Cincinnati three years later (except for the junction with the Ohio River), and from the start performed a great service to the community in respect to the carriage of the export surplus from the interior and the return of groceries and manufactures. Although extended to Lake Erie by 1845, this waterway, like the Ohio Canal between Portsmouth and Cleveland, remained primarily a local carrier.<sup>23</sup> Another work of similar economic function — encouragement of commerce with the interior — was the Cincinnati and Whitewater Canal penetrating into Wayne County, Indiana, by way of Whitewater Creek. Begun in 1839, the work was prosecuted by an incorporated company aided by Indiana and Ohio. It was finished to Cambridge on the National Road in September 1845, handled a considerable amount of traffic during the remainder of that decade, but later suffered from railway competition to such an extent as to be abandoned in 1863.<sup>24</sup>

Cincinnati's first railway, the Little Miami, was originally designed for local traffic but soon became a necessary link in through connections with the East.<sup>25</sup> Finished piece by piece, it was opened to Xenia (sixty-four miles) in 1845 and was such a success that it was hastily extended to Springfield and points further north. The city itself was a leading subscriber, and the state of Ohio also held shares (sold at par in 1862).<sup>26</sup> The extraordinary profits of this venture naturally led to the exploitation of similar projects. One of these, the Cincinnati, Hamilton, and Dayton, was hurriedly built so as to open late in the year 1851; it declared a cash dividend of 4 per cent out of earnings in its

<sup>23</sup> See frontispiece above, and *History of the Ohio Canals* (1905), pp. 20 ff. Accredited to C. C. Huntington and C. P. McClelland, this valuable monograph contains annual data on the receipts of certain articles at the terminals. The Ohio canals, operated by a state board of commissioners, showed a net income of seven million dollars up to 1861; nevertheless, they were then turned over to private companies for a measly rental. Public sentiment had turned to railways.

<sup>24</sup> See frontispiece. CDG, Feb. 20, 1844, and July 30, Sept. 8, 1845; WCA, Aug. 16, 1848; Huntington and McClelland, *Ohio Canals*, pp. 38-39.

<sup>25</sup> For an impatient editorial on the abortive attempt to connect Cincinnati and Charleston, S. C., by rail in the mid-thirties, see CDG, Dec. 17, 1836.

<sup>26</sup> WCA, Jan. 19, Mar. 27, 1846. E. L. Bogart, *Financial History of Ohio* (1912), pp. 308-9. This was the only railway to repay the state for its original investment under the Act of 1837.

first nine months of operation.<sup>27</sup> By 1855 direct lines were in operation to Indianapolis, Lexington, and Danville upon which Cincinnati counted heavily to enhance her metropolitan position.<sup>28</sup> However, it turned out that some railways, such as the Ohio and Mississippi (completed to St. Louis in 1857), also drew certain classes of trade away from the Queen City.

In respect to highways, Cincinnati shared in the comparative backwardness of Ohio. In 1815 Drake reported that the roads to Dayton and Columbus were especially bad in the winter,<sup>29</sup> and the poor quality of the highways to the immediately surrounding country was a subject of perennial editorial comment. Eight years later it was confessed that "the roads have been gradually growing worse, in proportion as the traveling has become more frequent," and similar complaints were aired in 1827.<sup>30</sup> At the time when Kentucky was building macadamized roads such as the one between Lexington and Maysville, nothing effectual was being done on the northern side of the river. Ohio was too busy with canals to improve her natural roads and consoled herself that her trouble was due to "richness and depth of the soil."<sup>31</sup> In 1836 it appeared that "in winter, or in wet and frosty seasons of the year [the very times when hogs were due to arrive], the city is cut off from communication from every side; and is the worst, most difficult point to be approached of any of which we have any knowledge."<sup>32</sup>

Construction of macadamized roads into Cincinnati received considerable stimulus from the passage of the General Improvement Law of March 24, 1837. Turnpikes formed the keystone of the program outlined in this act,<sup>33</sup> and by 1843 a decidedly more favorable situation was reported:

At the present stage of the River, there are not many heavy operations in Groceries. There is a steady business doing at all the large

<sup>27</sup> CCC (1852), p. 5.

<sup>28</sup> For an elaborate report on the situation in August 1855, see CCC (1855), pp. 10-11.

<sup>29</sup> *Op. cit.*, p. 220.

<sup>30</sup> LH, Mar. 14, 1823; *Saturday Evening Chronicle*, Oct. 13, 1827.

<sup>31</sup> W. D. Gallagher, "Ohio in 1838," *Hesperian*, I, 8-13 (May 1838).

<sup>32</sup> CDG, Dec. 16, 1836.

<sup>33</sup> Gallagher, *loc. cit.*

wholesale houses, on orders from the interior; and numerous large Wagons, laden with four to six thousand pounds each, can be daily seen leaving the city on the excellent McAdamized roads diverging in every direction. All our principal dealers laid in heavy stocks last spring, when both freights and prices were at their minimum point.<sup>34</sup>

This turnpike system was undoubtedly of great mutual benefit to the merchants of Cincinnati and their customers in near-by towns; nevertheless, it was hardly laid down before railroads preëmpted a good share of the local traffic.

*Development of Markets.* Marketing facilities in Cincinnati were forced to develop by the growth in volume of trade. Little is known about the situation in this respect during the eighteenth century, but it is presumed that most trading was done on the waterfront, the length and safety of which were matters of pride to the citizens. The need for better handling of agricultural exports led in 1803 to the formation of the Miami Exporting Company. Its founders, who obtained banking privileges in a forty-year charter, are known to have held meetings in July 1803 and October 1804 at which the prices of pork, beef, and a few other staples were settled for the season; but they deserted the commercial field in 1807 and opened a bank, the first one in the state.<sup>35</sup> An ordinance establishing and regulating markets was passed on August 28, 1818, by the town council, and steps were taken to use suitable buildings in the business section. These markets were evidently designed for the farmers of the vicinity — residents were forbidden to sell therein.<sup>36</sup> Three large market houses were reported early in 1819, each of which was open two days a week.<sup>37</sup> As warehouses and stores appeared in sufficient

<sup>34</sup> LH, Sept. 20, 1843.

<sup>35</sup> Drake, *op. cit.*, pp. 150-51. Louisville was the sole port of entry in the region between 1789 and 1799. From then until 1802 the upper Ohio was served by Columbia (adjacent to Cincinnati). In the latter year this district was divided between Cincinnati and Marietta, which arrangement lasted until all western customs were consolidated at New Orleans in 1807 (A. B. Hulbert, "Western Shipbuilding," *American Historical Review*, XXI, 721 [July 1916]).

<sup>36</sup> LH, Dec. 30, 1820. Another act of similar tenor was passed by the council on June 10, 1821, which was amended on February 9, 1825 (*Emporium*, Feb. 27, 1825).

<sup>37</sup> *Advertiser*, Mar. 2, 1819. See also B. Drake and E. D. Mansfield, *Cincinnati in 1826 (1827)*, p. 28.

number along the streets at a fair distance up from the river, a wholesale "store" market came into operation. Thus staples such as flour and whisky were bought and sold by that time in wholesale measure at the "wagon," the "river," or the "store." For a time the large stone Cincinnati Steam Mill on the waterfront dominated the grain (but not the flour) market, together with two grist mills in outlying sections. Hogs were sold in the open air near the packing houses during the winter season; and separate markets for staples also appeared at the Miami Canal landing during the thirties and at the station of the Little Miami Rail Road in the late forties.

Until 1839, when the Chamber of Commerce was organized, matters of common concern were considered by the town council or its committees, or by committees constituted from among the merchants themselves. When a town committee investigated questions of weights and measures early in the year 1822, it rendered a report strongly in favor of retaining the old English system, since it had long been employed in the West.<sup>38</sup> An ordinance embodying the findings of the committee was passed without delay.<sup>39</sup> A committee of merchants drafted rates of commission, storage, and tare which were accepted and published by the mercantile community in 1823.<sup>40</sup> Upon more than a few occasions the traders found it necessary to act in concert in reference to such problems as inspection of exports or acceptance of given currencies. Thus an alarming increase in the circulating medium at the end of 1838, due to an influx of individual checks and notes from unchartered institutions, brought about a meeting of the entire body of merchants and the publication of a joint statement in which unwanted currencies were singled out for mention.<sup>41</sup> A meeting was held in 1829 to consider the formation of a Chamber of Commerce for the dual purpose of settling disputes and establishing a reputation for the community in other

<sup>38</sup> The committee rejected the English hundredweight of 112 pounds without regrets, since it had "not been able to find that the custom has reached this country" (*Advertiser*, Feb. 19, 1822). See the chapter on weights and measures below.

<sup>39</sup> *Advertiser*, Mar. 26, 1822.

<sup>40</sup> *Advertiser*, May 31, 1823.

<sup>41</sup> Several such joint pronouncements were found necessary during the uncertain days of 1820-21 (CDG, Dec. 22, 1838).

sections. This attempt, together with several others which occurred in the immediately ensuing years, led to naught, but the Chamber was finally established in 1839.<sup>42</sup> A Committee of Arbitration and a Committee of Appeals were functioning by the early forties. Another important phase of the Chamber's activity was the Merchants' Exchange, instituted in 1846. This body quickly became the main center not only of physical activity but also of commercial information. By 1859 its six hundred members were seen daily to gather in a large hall of the Cincinnati college, there to transact business with each other and with strangers.

*Dissemination of Market Information.* The publication of current wholesale prices furnishes much information as to the character and activity of a market. Until shortly after the end of the War of 1812, lists of local prices appeared at very irregular intervals in the Ohio Valley prints.<sup>43</sup> Perhaps the nearest approach to a continuous series is a five-commodity prices-current (hemp, tobacco, flour, whisky, and bacon) which was published in the *Lexington Reporter* and the *Kentucky Gazette* between 1809 and 1811. Indeed, New Orleans prices-current were probably more common in Kentucky and Ohio newspapers until 1820 than those referring to local markets. That the behavior of the "down-river" market was of paramount interest to early settlers of the interior is also reflected in the frequency with which other New Orleans commercial intelligence was reprinted by the frontier journals.<sup>44</sup> Comparatively crude lists of local prices began to appear with some degree of regularity in the weeklies of Cincinnati, Lexington, Louisville, and Pittsburgh about the beginning of 1816. The quantity and quality of commercial information relating to Cincinnati developed *pari passu* with the growth and prosperity of

<sup>42</sup> *Western Tiller*, Nov. 20, 1829; Cist, *Cincinnati in 1841*, p. 49.

<sup>43</sup> In 1797 Lexington journals printed a list of prices to accompany a committee report on the subject, and monthly prices-current appeared in Frankfort during the last quarter of 1801. Cincinnati newspapers printed a very short prices-current in December 1813, and in the following April a similar list appeared in Pittsburgh. (*Kentucky Gazette*, Sept. 13, 1797; *Rights of Man or the Kentucky Mercury*, Sept. 27, 1797; *Guardian of Freedom* [Frankfort], Oct. 2, Nov. 6, Dec. 4, 1801; *LH*, Dec. 7, 1813; *Western Spy*, Dec. 11, 1813; *Mercury* [Pittsburgh], Apr. 20, 1814).

<sup>44</sup> See G. R. Taylor, "Prices in the Mississippi Valley preceding the War of 1812," *Journal of Economic and Business History*, III, 148-63 (Nov. 1930); and

the market. The tabular prices-current and "Review of the Market" became more elaborate and tended to demand more and more space in the general newspapers. A daily *Commercial Register* appeared at the end of 1825, and several letter-sheet prices-current were launched in succession between 1835 and 1842.<sup>45</sup> None of these ventures proved to be of long life, but an important development took place at the beginning of 1844 with the first issue of *Peabody's Price Current*. After several changes in title and sponsorship this weekly finally emerged as the *Cincinnati Price Current*, which enjoyed sectional leadership in its field for a large part of the century. An equally important innovation occurred in 1847, when the superintendent of the Merchants' Exchange began to render annual reviews of trade containing both price records and aggregates of shipments and receipts via river, canal, and railroad.<sup>46</sup> The presence of such a wealth of information has made it possible to construct the monthly index numbers of wholesale commodity prices upon which much of the discussion in later chapters is based.<sup>47</sup> Even discontinuous price information, such as that ranging over the troublous years 1821 and 1822, is highly revealing as to the disorganization of currency and trade then prevailing.

A certain degree of nonhomogeneity in wholesale price quotations over time is introduced by such a rapid growth of the market. That is, the expansion of trade encouraged specialization and evolution of a system of discounts. In the early years all quotations apparently pertained to wholesale transactions, of which at least a number were on a smaller scale than many retail sales in later periods. Even in flour, pork, and whisky—the great staples—individual transactions in the early days were comparatively small; whereas the dealings in such articles as iron, dry goods, and dyestuffs were of still smaller magnitude.

A. H. Cole, "Wholesale Commodity Prices at New Orleans, 1800-1861," in *Wholesale Commodity Prices in the United States, 1700-1861* (1938), I, 65-76.

<sup>45</sup> See Appendix A, below.

<sup>46</sup> A. Peabody, who signed the first two reports, resigned in 1849 as editor and publisher of the *Price Current* and superintendent of the Merchants' Exchange in order to go farther West.

<sup>47</sup> For an analysis of Cincinnati prices covering a later period see H. E. White, *An Economic Study of Wholesale Prices at Cincinnati, 1844-1914* (1935) and a summary thereof: *Wholesale Prices at Cincinnati and New York* (1935).

The growth of a respectably large home consumption, a thriving trade with country grocers, and a huge export and import trade brought a clearer division of merchants among the wholesale, jobbing, and retail fields. On the whole, the tendency of newspapers was to pay most attention to the large-scale market; but there were exceptions, such as salt and coal, for which both the "river" or "landing" prices on large lots and the higher "yard" or "store" prices were cited regularly. By 1850 the journals noted that "in the filling of small orders to the country or city trade, an advance of from three to five per cent. will be charged over these quotations."<sup>48</sup> The *Cincinnati Price Current* of 1849 supplied a special table of "Cincinnati Retail Jobbing Prices Current" in which prices ruled considerably more than 5 per cent above those of corresponding articles in the regular wholesale reports.

The lists of commodities in the price reports show that the market did not develop in all directions to the same degree. Indeed, it lost ground in some particulars. This is a reflection of the territorial specialization which was proceeding during the epoch under survey. For instance, cotton dropped out of the market after 1858, although dealings in cotton yarns appeared to increase in both quantity and variety. Indigo disappeared from the lists in 1846, to cite another example. As for wool, its frequent omission from reports in the late fifties was found to be due to a disposition on the part of dealers (specialists by this time) to keep transactions private.<sup>49</sup>

*Classification of Cincinnati Trade.* The complexity of the development in Cincinnati trade renders a classification of the various types of traffic desirable. This traffic may be divided into four departments: (1) that with the immediate trading area; (2) that with other points in the West; (3) that with New Orleans and the deep South; and (4) that with the eastern seaboard. In general, traffic in each of these departments proceeded in both directions, but it was not all directly reciprocal in nature. Many communities which sent their flour, whisky, and hogs to the Cincinnati market bought their groceries in Louisville or New Orleans and dry goods in New York, Philadelphia, or Baltimore.

<sup>48</sup> LH, Dec. 26, 1850; WCA, 1859.

<sup>49</sup> WCA, May 11, 1859.

Again, Cincinnati imported specialties from distant points in the interior, such as lead from Missouri, coal from Wheeling or the Youghiogheny, iron from Hanging Rock and the Juniata region, as well as salt from the western parts of Virginia, Pennsylvania, and New York. For the most part these goods were either distributed in the same form to the local area or processed and then shipped to this area and also to more distant points (e.g., agricultural implements to the upper Mississippi Valley, sugar mills to Louisiana). Of course, imports assembled from the immediate trading area made up the export traffic to New Orleans and the East, and conversely. Two other observations may be made in respect to this classification: (1) changes of a rather continuous nature proceeded within each department, so far as facilities of transportation, volume of traffic, freight rates and tolls were concerned; (2) they interacted upon each other and were accompanied by equally continuous changes in the constituency of the departments. Thus, the growth of the through export traffic to the South was necessarily parallel to an enlargement of the local import area; or, to give another example, the inauguration of through railways from the East had a first effect of expanding the local export area for such articles as dry goods and manufactures but a later and more permanent influence towards alienating a large part of that traffic from the Cincinnati market.

In later chapters we shall focus attention upon the experience of Cincinnati in each of these departments of trade. Among the agricultural products gathered from the immediate area to be shipped to distant markets, emphasis is laid upon leading staples such as flour, pork products, and whisky, to the virtual exclusion of a host of minor products. A list of these latter would include tobacco and hemp, butter and cheese, country sugar, flaxseed and linseed oil, ginseng, feathers, beeswax, tallow, and beans. As for the goods brought from the East or from the vicinity of New Orleans to be wholesaled to dealers as well as country merchants, the discussion turns largely upon dry goods, coffee, sugar, and cotton. The principal articles carried to Cincinnati from other points in the West for processing and distribution were coal, iron, and salt; and in this connection, finally, we shall endeavor to see to what extent a center of manufacturing developed.



## CHAPTER II

### EVOLUTION OF RIVER TRANSPORTATION

THE PROGRESSIVE improvement of transportation facilities and the decline in costs of carriage are rightly regarded as outstanding accomplishments of the nineteenth century. Perhaps in no other part of the world were these two phenomena more closely identified with the central line of growth than in the western United States. Our purpose here is to furnish a narration of these developments as background to the measurement of causes and effects as revealed through commodity prices, rates of freight, and the volume and direction of shipments. The data, though admittedly fragmentary, are deemed sufficient to permit a number of significant comparisons. We seek to compare early freight rates with later ones, whether export or import. Perhaps of equal interest is the relative behavior of rates overland and rates on the river, be it from season to season or decade to decade. The wholesale prices of agricultural export products in Cincinnati are matched as a group against prices of other commodities, and quotations of the leading articles are compared with contemporaneous prices of the same articles in New York and New Orleans. Furthermore, the presence of far-reaching developments in the facilities of transport may possibly be detected in changes in the relative value of heavy goods and light goods, and the introduction of trunk railways into an economy once largely dependent upon rivers makes it desirable to watch variations in the seasonality of commodity prices.

This, then, is the purpose of the four chapters to follow, sketched in broad outline. As for method, the writer has found it advisable to alternate between historical and statistical exposition and to bring in details in so far as they have been neglected hitherto and are thought necessary to provide the picture. Lest the treatment be regarded as an unwarranted digression from the principal theme, we may call to mind a few broad and relevant propositions. First, as already stated, the development of trans-

portation facilities occupies a central position in the story; most authorities agree on this point, and the present writer does not find reason to question it. Second, a study of freight rates is quite in order not only because of their influence upon commodity prices but also because they themselves constitute a very important form of price. Third, it is particularly worth while in this day and age, when rates have been so long under government control that they are apt to attract the attention of only a few specialists, to get a glimpse of their behavior in a situation approximating unregulated competition. Only in this way can one grasp the major implications of a policy aimed at the stability of transportation charges; and the inquiry is not untimely because the present trend is towards the extension of public control to all prices. The reader who is not interested in transportation *per se* is advised to hurdle this material as rapidly as his judgment allows.

The student of the business cycle may notice that in the present part emphasis is placed upon long-time trends and fluctuations from season to season, whereas the movements of prices and other data from year to year receive more attention in Parts II and III. Although the later sections are devoted primarily to the volume of production and to currency and banking, respectively, this arrangement was adopted for convenience of exposition and is not intended to minimize the role played by transportation developments in business cycles. Indeed, it will appear that the introduction of steamboats, canals, roads, and railways greatly influenced the tides of western settlement, and annual variations in their construction were intimately associated with prosperity and depression in the early West.

*Continuity of the Development.* The extension of traffic lines in the West took various forms, with a general tendency towards greater complexity, and the rate of growth was not precisely the same from year to year. Nevertheless, the growth was comparatively steady and cumulative. The familiar device of technological stages is not wholly accurate as an aid to description if only because the newer modes of travel and carriage supplemented the old instead of supplanting them. Thus, although the steamboat rendered the barge and the keelboat obsolete as vehicles of upstream traffic, it is equally true that the flatboat long continued to carry an important part of Ohio and Mississippi traffic

on through trips downstream, barges hauled coal and salt, and canalboats, wagons, and railway trains furnished and dispatched many of the cargoes loaded and unloaded at the Cincinnati wharf. Indeed, the construction of suitable wagon roads (as well as canals and railways) to the city followed rather than preceded the first application of the steamboat; furthermore, the roads, canals, and local railways of southern Ohio, Indiana, Illinois, and Kentucky appear to have served at first chiefly to feed the rivers and later on to supply both rivers and through railways (or mixed routes to the East) with traffic.

*The Triangular Trade.* The interregional trade of the United States during the early part of the nineteenth century has frequently been compared to a triangle. Goods from the East flowed to the West, whence products departed for the South, which supplied the East with cotton. The use of this symbol has much in its favor. Until the advent of the through railway from East to West shortly after the mid-point of the century the central Ohio Valley, at least, imported goods from the East much more valuable in the aggregate than the commodities sent directly to Atlantic ports. Furthermore, even while the river was at the height of its usefulness, shipments downstream greatly exceeded those upstream.<sup>1</sup> The development of the traffic in cotton (later, food-stuffs also) between the South and New England completes the figure. Like many generalities, however, the triangular flow fails to tell the whole story. Large amounts of flour and wheat were shipped directly to the East from the Great Lakes region, beginning in the mid twenties. Until the thirties a considerable portion of Ohio Valley flour and provisions was destined, not for the South nor Atlantic ports, but for the West Indies and South America. Furthermore, a large share of southern cotton was

<sup>1</sup>No data exist for upstream shipments. In 1835 a writer in the *Wheeling Gazette* estimated the value of downstream cargoes on the Ohio River as ten times that of upstream, with no allowance for flatboat shipments or floating lumber. This is probably an exaggeration. In 1843 the exports of the West via New Orleans were valued at \$120,000,000, the imports over the same route at \$100,000,000. More recent authority is to the effect that trade up the Mississippi failed throughout to keep pace with downstream traffic and that northern steamboat shipments never exceeded one-half the volume of southern. (Hall, *Notes*, p. 249; *Hunt's Merchants' Magazine*, IX, 99 [July, 1843]; E. R. Johnson, *et al.*, *History of Domestic and Foreign Commerce of the United States* [1915], I, 213, 242.)

bound for England, and the East was the immediate origin of many articles consumed in the South. Indeed, the East had successfully established its primacy in commerce, manufacture, transportation, and finance long before 1850. It is true that Pittsburgh and Cincinnati were able to develop the southern market for such heavy manufactures as pig iron and sugar mills, and sold the South a share of her implements and tools. However, the East acquired and retained complete ascendancy in such lighter manufactures of high value as textiles ("dry goods"). And, as geographical obstacles were overcome one by one, the flow of long-distance traffic became more reciprocal in character, as though along radii centered at the North Atlantic. The decade of the fifties, as will appear later, was clearly one of transition so far as trade relations between the East, the South, and the Ohio Valley were concerned.

*The Flatboat.* The current and depth of the river, coupled with the location of natural obstacles and resources, determined that the flatboat in one form or another should be the earliest solution to the transportation problem so far as western exports were concerned. Its success may be judged by the fact that it remained a very important vehicle for decades in essentially the original form and found itself enlarged and provided with steam power inboard and outboard. Students of western history are so familiar with this topic that it is not necessary to emphasize further the great importance of this individualistic form of long-haul export transportation in pioneer days. There are two points, however, which merit examination: (1) the fact that the flatboat not only survived but developed further during the age of the steamboat; and (2) the fact that the growth in flatboat traffic set powerful forces in motion which worked towards a solution of the import problem.

The vigorous survival of the "flat" is indicated in the available statistics on traffic, tonnage, and freight rates (the last-named are considered in a later chapter). In the early twenties steamboats carried only 20,000 out of an estimated total of 70,000 tons shipped down the rivers, and not much more than 10,000 tons annually ascended the falls at Louisville.<sup>2</sup> At that time it was estimated that some 5,000 flatboats arrived each year in New

<sup>2</sup> *National Republican*, Feb. 3, 1824.

Orleans, of which three-fifths passed the falls of the Ohio. Two decades later, the western rivers were thought to float about 4,000 of these craft, and the average burden had grown manifold. If the average burden in 1843 was from seventy to a hundred tons, the total flatboat tonnage must have been almost quadruple that of steam craft then in operation (to be sure, the capital value of the former was very small in comparison, and steamboats could each make several times as many trips per year).<sup>3</sup> During the commercial year 1853 no less than 5,880 flatboats arrived at the port of Cincinnati, and the large salt firm of Ruffner, Donnally, and Company employed scores of these craft, then capable of carrying five or six hundred barrels of salt.<sup>4</sup> Flats carried not only a great deal of the coal and iron destined for interior markets but also a respectable proportion of leading agricultural products. Thus, over the three years ending in 1852, Cincinnati exported 22 per cent of her flour, 12 per cent of her bulk pork, and 9 per cent of her whisky in this manner. It appears, however, that flatboat traffic suffered more from railway than steamboat competition during the later fifties. Corresponding figures for a three-year interval ending in 1861 are all less than 2 per cent.<sup>5</sup>

The early flatboats were sold at a sacrifice in New Orleans. In 1820 Faux found that those which left Zanesville carrying between a hundred and five hundred barrels of flour were sold for only \$16 on the average.<sup>6</sup> Four years later a Cincinnati observer complained that the craft brought only a "medium price, not sufficient to pay the wharfage with which they are charged." Thus, the investment of from seventy to a hundred dollars per boat was reckoned a complete loss.<sup>7</sup> In 1853, however, the salt

<sup>3</sup> *Hunt's Merchants' Magazine*, IX, 99 (July, 1843).

<sup>4</sup> At that time the company operated three steam boats between Kanawha Salines, Cincinnati, and other river points (CCC [1853], p. 7; Ruffner, Donnally, and Company Letter Book, West Virginia University Library).

<sup>5</sup> CCC (1852), p. 13; (1861), p. 50. Flatboat arrivals at New Orleans began to decline sharply after the commercial year 1847; 2,792 were recorded at that time, only 1,468 in 1852, and 541 in 1857. Of the latter, 119 were coal flats from Pennsylvania and 136 were hay flats from Indiana. (Frank H. Dixon, *A Traffic History of the Mississippi River System* [1909], pp. 14-15.)

<sup>6</sup> *Memorable Days in America* (1823), p. 341 (in Thwaites, XII, 18).

<sup>7</sup> *National Republican*, Feb. 3, 1824.

company mentioned above managed to secure as much as 75 cents and \$1.00 a foot in Cincinnati for the empty boats. This did not necessarily recoup the entire cost of construction, and the company found it advisable to tow flats upstream on several occasions.

The factors explaining the survival of the flatboat on western waters are not far different from those explaining its original development. It could negotiate tributaries barred to other craft and could descend the upper Ohio during dry spells when the channel was too shallow for all steamboats except those of the smallest draft. Furthermore, the upper reaches of the watershed were well supplied with timber of good quality for which a market existed at points further south and west. Again, the flatboat was especially suitable in the Ohio Valley because, as has been said, the traffic downstream was for some decades several times as large as that upstream. Indeed, the appearance of steam shipping may well have given a stimulus to flatboat traffic. In the first place, the lighter craft acted in some measure as feeders to the flow along the Ohio and Mississippi. Secondly, the problem of returning pilots and boatmen from New Orleans to the interior — at one time a formidable obstacle to shipping — was finally solved by the steamboat's reduction of both the fare and duration of the voyage.

*The Upstream Problem — Keelboat and Barge.* Very little is known about the imports of goods to the young West via New Orleans during the eighteenth century beyond the fact that the trade must have been exceedingly small if only by reason of the laborious and costly process of poling such a long distance against the current of the rivers. Furthermore, this arrangement did not solve the problem of transporting planters back to the interior after they had floated down to New Orleans with their produce.<sup>8</sup> Filson enthusiastically hailed the appearance of bateaux in 1784. These craft, manned by eighteen to twenty men, and capable of

<sup>8</sup>The long and painful return trip by land or around by sea must have operated to keep down the prices planters would accept for produce in the interior and to maintain a wide differential between prices at New Orleans and in Kentucky or Pennsylvania. See Morris Birkbeck, *Notes on a Journey in America* (1818), pp. 89-90; F. A. Michaux, *Voyage a l'ouest des Monts Alleganys, dans les Etats de l'Ohio, du Kentucky . . .* (1804), pp. 197-98.

carrying forty tons, could negotiate the voyage from New Orleans to the Falls in eight to ten weeks at a total expense of not more than five hundred pounds. This estimate is moderately low; but Filson forecasted with remarkable accuracy that by shortening the distance at bends in the river and introducing mechanical boats the cost would eventually be reduced 90 per cent.<sup>9</sup> The charge on two hundred tons of goods "to Kentucky or the Illinois" from the Gulf port shortly before 1790 was estimated at £11,250 in "provincial currency."<sup>10</sup> If this referred to "Virginia money," which was current in all Kentucky accounts until well into the nineteenth century,<sup>11</sup> the rate was equivalent to \$9.37½ per hundredweight.

Others report that the up-river barge traffic from New Orleans did not begin to supplement the stream of merchandise from Pennsylvania and Maryland until after 1803. It has been estimated that before 1817 some twenty barges (about one hundred tons each) made one trip a year down to New Orleans and back up to the Falls, taking at least a hundred days in the passage.<sup>12</sup> According to Burnet, "the introduction of this mode of navigating the Ohio and Mississippi was an epoch in the history of the West."<sup>13</sup> Propelled by ropes, sails, oars, and setting poles, as wind and water permitted, they succeeded in bringing about a

<sup>9</sup> Filson, impressed by the work already done by James M'Macken and Charles Rumsey, was certain that steamboats would be brought to "their highest improvement." Accordingly, he rejected his earlier assumptions that the mountain route was the best approach to the West and that western prices would remain high permanently. (*The Discovery, Settlement, and Present State of Kentucke* [1784], pp. 39, 45-56). Gilbert Imlay wrote a few years later in a similar vein (*A Topographical Description of the Western Territory of North America* [1792], pp. 105, 111, 115).

<sup>10</sup> Cited by Fitch in a letter to Robert Morris dated September 20, 1790 (J. L. Ringwalt, *Development of Transportation Systems in the United States* [1888], p. 17).

<sup>11</sup> See the Trotter Account Book (Lexington), in the Presbyterian Historical Society; the Wilkinson Papers (1790), in the Kentucky Historical Society; the Louisville Salt Works Ledger (1810) and the James Weir Ledger (1813-1815), in the Filson Club. Six shillings were equated to one dollar or \$3.33 to one pound.

<sup>12</sup> James Hall, *Notes on the Western Trade* (1838), p. 236, citing Morgan Neville; F. J. Turner, *Rise of the New West* (1906), p. 103.

<sup>13</sup> [Jacob Burnet], *Notes on the Early Settlement of the North-western Territory* (1847), p. 400. Burnet was a Cincinnati lawyer and business man of prominence.

noteworthy reduction in upstream freight rates and thus provided a great stimulus to traffic in this direction.<sup>14</sup> The project was such a success that it was continued "till the introduction of steamboats, about the year 1817."<sup>15</sup> The northbound cargo was probably confined for the most part to heavy and bulky commodities. In 1802 Michaux saw the first barges laden with cotton from New Orleans pass Marietta on their way to remote sections of western Pennsylvania and Virginia. Proceeding upstream by pole, they were making twenty miles a day. Merchants in Nashville and other western markets were also beginning to secure a portion of their groceries and foreign goods directly from the South by barge and keelboat.<sup>16</sup> Yet the entire tonnage on the Ohio and lower Mississippi during that era has been estimated not to exceed 6,500.<sup>17</sup>

Trade on the upper Ohio at the same time was handled by keelboats and flatboats. Neville estimated that the number of such craft which ran between Pittsburgh and Louisville probably fell short of one hundred and fifty. They carried thirty tons each, and made the voyage from Louisville to Pittsburgh in a month's time.<sup>18</sup> One early company, the Ohio Packet Boat Line, advertised freight, passenger, and mail service between Cincinnati and Pittsburgh at the beginning of 1794. Its four twenty-ton keelboats were planned to make the round trip in four weeks; insurance was offered at "moderate" rates.<sup>19</sup>

The upstream traffic in southern staples grew rapidly during

<sup>14</sup> "In wet seasons, if properly manned, they could make two trips, between Cincinnati and New Orleans, in a year. The increased quantity of cargo they carried, reduced the price of freight, . . . From that time, most of the groceries, and other imported articles used in the Territory, were brought up the river, by those barges; and as the price of freight was diminished, the quantity of produce was proportionably increased" (Burnet, *loc. cit.*).

<sup>15</sup> It was suggested and operated by two Cincinnati commercial houses, Baum & Perry and Riddle, Bechtle & Co. (Burnet, *loc. cit.*).

<sup>16</sup> Michaux, pp. 216, 218. The following was written by a Henderson, Ky., merchant on September 12, 1805: "We have received several arrivals from Orleans. Barges of from 35 to 45 tons, laden chiefly with groceries, &c. . . ." (Samuel Hopkins Papers, Kentucky State Historical Society).

<sup>17</sup> *Hunt's Merchants' Magazine*, IX, 99 (July, 1843).

<sup>18</sup> Hall, *Notes*, p. 236.

<sup>19</sup> Hall, *Notes*, pp. 223-24. Reprinting an advertisement in the *Centinel of the Northwestern Territory*, Jan. 11, 1794.



the War of 1812, even before the steamboat had been put into extensive service. Niles wrote in 1813 that "the trade of the Mississippi and its tributary streams is assuming immense importance. . . . *Pittsburg* and all the *western* country, is supplied with cotton, sugar &c. The latter would nearly, or quite, bear the cost of transportation from *Pittsburg* to Baltimore and Philadelphia."<sup>20</sup> Western newspapers showed a propensity to print New Orleans prices-current between 1810 and 1815 with the commodities divided into exports and imports, and it was not uncommon for them to quote the local price in terms of the New Orleans price plus a certain advance.<sup>21</sup> Zadok Cramer, probably the leading authority on the river developments of that day, ascribed this diversion of traffic to the war itself.<sup>22</sup>

*Other Types of Craft.* Besides barges and keelboats, other inventions were given early trials in an attempt to overcome the current of the river. At one time it was hoped that sailing vessels would furnish the solution to the problem, and around 1803 Pittsburgh, Wheeling, and Marietta supported extensive construction of ocean-going schooners, brigs, and other sailing ships.<sup>23</sup> But, although craft of this type were not without usefulness in

<sup>20</sup> *Niles*, IV, 359 (July 31, 1813). Niles was probably guilty "nearly, or quite" of exaggeration. Yet the statement is not so far from the truth if it be considered that the overland rate eastward from Pittsburgh was very low compared to the westward carriage cost. See Chapter IV, below. During the two months ended June 20, 1814, eight heavy barges arrived at Cincinnati from New Orleans laden with sugar and coffee (*ibid.*, VI, 360 [July 23, 1814]).

<sup>21</sup> Towards the beginning of 1815, cotton was priced in Lexington as six or seven cents above the New Orleans price (*Niles*, VII, 339-40 [Jan. 28, 1815]).

<sup>22</sup> "Products from the lower Mississippi were, also, now temporarily finding markets in the East by way of the Ohio and Pittsburgh, a keelboat reaching that port almost daily from the south during a large part of the period of hostilities" (C. H. Ambler, *A History of Transportation in the Ohio Valley* [1932], p. 79). The fact is also worthy of note that in 1812 the receipts of all kinds of goods at New Orleans from the interior fell off a great deal compared with the preceding year (*Moniteur de la Louisiane*, Feb. 6-16, 1813).

<sup>23</sup> This development began as early as 1792. One ship of 275 tons, the *Pittsburg*, passed Marietta while Harris was there in 1803, carrying 1,700 barrels of flour, and the rest of her cargo in flatboats. At that time, four sailing vessels all departed from Marietta within a day or two of each other (A. B. Hulbert, *Waterways of Westward Expansion* [1903], pp. 132-36; Thaddeus Mason Harris, *Journal of a Tour* [1805], p. 53, in R. G. Thwaites, *Early Western Travels* [1904-1907], III, 353).

floating export cargoes to the sea, they were so much better adapted to the ocean than the tortuous navigation of the western streams that they never returned.<sup>24</sup>

Even horse-power was applied by means of various devices. In the spring of 1808 Cuming encountered on the Ohio below Louisville a keel of forty tons propelled by two sets of paddles, one on each side, geared to a horizontal treadwheel which was kept in motion by six horses going round in a circle. The owner, one Brookfield, was making a return trip from New Orleans with a cargo of sugar which he was selling along the river. The strange craft was making about twenty miles daily against the current; and the voyage had already cost the lives of seven horses.<sup>25</sup> Nevertheless, the owner expected to set out from Louisville upon a second voyage to New Orleans as soon as he reached the former port. Again, Flint remarked as late as 1824 that it was common to see flatboats worked by a bucket-wheel and a horse-power, steamboat fashion. Indeed, every spring brought "forth new contrivances of this sort, the result of the farmer's meditations over his winter's fire."<sup>26</sup>

*The Steamboat.* During most of the period under review the steamboat was indeed the most versatile vehicle of western trade. It was useful not only for long-distance traffic to New Orleans and the East (as far as points above Pittsburgh) and between various points of the interior but also for carriage within the local area tributary to Cincinnati. Indeed, the steamboat became the exclusive carrier of upstream shipments of all descriptions after the early twenties and took a large share of the downstream cargoes from flatboats and barges. Canalboats and wagons were used in the central Ohio Valley mainly for short hauls — it was in Maryland, Pennsylvania, and New York that the absence of navigable streams made it necessary to employ them for through traffic. The earlier railways also participated in carriage to and from local points in the interior, thus tending to displace canalboats and wagons and to augment river traffic. The place of the river steamer in the economy is stated in the following terms

<sup>24</sup> Harris, p. 53.

<sup>25</sup> F. Cuming, *Sketches of a Tour* (1810), pp. 239-40. Francis Baily had noted a similar contrivance about twelve years before which was not so successful.

<sup>26</sup> Timothy Flint, *Recollections of the Last Ten Years* (1826), p. 105.

by James Hall,<sup>27</sup> a sober and experienced observer: "The introduction of steamboats upon western waters . . . contributed more than any other single cause, perhaps more than all other causes which have grown out of human skill, combined, to advance the prosperity of the west."

The first steamboats provide an excellent illustration of the nature of innovation. At least three inventors had experimented with moderate success during the late eighteenth century. Yet the *New Orleans* (or *Orleans*) did not undertake her first southward voyage from Pittsburgh until 1811. She pursued a highly lucrative trade in the lower Mississippi for two or three years thereafter, owing partly to a high level of freight rates and the extra stimulus to river traffic lent by the War of 1812. These latter factors, however, failed to bring more than three or four additional boats down the ways before 1815 (*Vesuvius*, *Buffalo*, *Comet*, and *Enterprise*).<sup>28</sup> In the spring of 1815 the *Enterprise* journeyed downstream to New Orleans and back to Brownsville (on the Monongahela), but attendant flood conditions furnished aid to the navigation of her deep hull. Her captain, Henry Shreve, relied on his experience in designing the *Washington*, the first boat combining a steam engine with a flat bottom. This craft made a highly successful trip upstream to Louisville in the spring of 1817 under more ordinary circumstances. Accordingly, many historical writers, though they do not all agree upon facts or reasons, have fixed upon the year 1817 as the date when the steamboat was a proven success upon western waters, and Henry Shreve is given more credit than other technical contributors of the period (on the strength of the *Washington*). Some suggest also that the voyage of 1817 convinced the public of the practicability of the steamboat. It was, so to say, the dawn of a new era in public opinion. Furthermore, it is known that boat-building proceeded upon a considerably larger scale in 1818 and 1819.

The choice of the year 1817 can only be arbitrary, albeit convenient. It is lamentable in that it suggests an abrupt break in the course of events. As a matter of fact, noteworthy improve-

<sup>27</sup> Hall, *Notes*, p. 216. Originally penned in 1835 or 1836.

<sup>28</sup> Niles reported the launching of the *Buffalo* at Pittsburgh early in 1814, but Hall listed the boat as built in 1816 (*Niles'*, VI, 320 [July 9, 1814]; Hall, *Notes*, pp. 232, 252).

ments in the construction and operation of steam craft took place long before and after 1817. It is almost a certainty that the idea of inserting a steam engine in a double-decked, flat-bottomed boat would have occurred to at least one of the many experimenters of the day.<sup>29</sup> The merits of a flat bottom were surely familiar to rivermen from very early days; at least, it was easily the most common type of craft on the Ohio and the Mississippi. As for general opinion, it is highly uncertain whether a substantial percentage of the skeptics were won over to the new invention in 1817. Men of a sanguine nature had had confidence in the future of the steamboat in the West for a generation, and a growing number were converted as improvement followed improvement. The *Enterprise* voyage of 1815 was the occasion of widespread comment and celebration.<sup>30</sup> Indeed, there is no contemporary evidence at hand indicating that the *Washington* aroused so much interest and approval.<sup>31</sup> On the other hand, many retained their skepticism for some years. As late as the summer of 1817 an immigrant grocer failed entirely to take the steamboat into account in his estimate of the time and expense necessary for the importation of stocks from New Orleans,<sup>32</sup> and in 1820 a promi-

<sup>29</sup> Henry Shreve, it should be mentioned, appears to have dedicated his life to western navigation; for many years he supervised the removal of snags from the channel and sought to insure the permanence of his work by felling trees along the banks (Hall, *Notes*, pp. 43-44).

<sup>30</sup> See, for instance, *Niles'*, VIII, 320 (July 1, 1815); *Western Spy*, June 16, 1815; *LH*, Aug. 28, 1815. *Niles'* looked for an immediate reduction of freight upstream from \$5.00 to \$3.50 per hundred. *Liberty Hall* cited the *Brownsville Telegraph's* prospectus of the Monongahela & Ohio Steam Boat Company with a complete tariff of rates to points as far up as Bridgeport, Pa. "The success of the *Enterprise* . . . is an earnest of what these boats can perform, and is an object worthy the attention of every inhabitant of the western country."

<sup>31</sup> It should not be overlooked that (1) the *Enterprise*, a very much smaller craft than the *Washington*, was lost in Rock Harbor (Shippingport) only a year after her successful voyage; (2) the latter boat made two New Orleans trips in rapid succession. These considerations may help explain why the 1817 voyage, performed in forty-five days altogether, "convinced the despairing public that steamboat navigation would succeed on western waters" (Hall, *Notes*, pp. 231-32). Zadok Cramer had confidence in the steamboat as early as 1810. The McKeever boat of 1805 is another link in the chain of developments (Hulbert, in *American Historical Review*, XXI [1915-1916], 723-33).

<sup>32</sup> Letter to *Eastern Argus*, dated in Cincinnati August 13, 1817. The undersigned, W. M., calculated thirty days for a trip down and one hundred days return,

nent western business man voiced doubt as to whether the new craft would be able to overcome dangerous river obstacles, particularly the falls of Louisville.<sup>33</sup>

The status of western opinion in 1815 is admirably summarized by Daniel Drake in a paragraph which includes a highly accurate forecast of the importance of the steamer on interior waterways:

*Vessels.* Flat bottom boats, keelboats, and barges are the vessels in which the commerce of this place [Cincinnati] has hitherto been carried on. The first will long continue to be employed in transporting heavy articles down the Ohio; but the latter, it is probable, will be in a great degree superseded by steam boats; of which two kinds are coming into use on the western waters. From these inventions the people on this river anticipate many substantial advantages, more, perhaps, than will be realized; but all must admit, that no country on earth, equally fertile with this, can be more benefited by such boats.<sup>34</sup>

*Annual Steamboat Construction, 1811-1862.* It will be noted in Chart I<sup>35</sup> that both the number and total tonnage of new steamers continued to grow until the start of the Civil War, although the rate of increase slackened perceptibly in the final decade. Pittsburgh, birthplace of the construction industry of the West, held first place throughout the period, although the Cincinnati and Louisville yards were generally active and many other river points launched an appreciable number of vessels.<sup>36</sup> A ready supply of good timber was a leading factor favoring the home industry.<sup>37</sup>

with a freight on incoming goods of five cents per pound (cited in Henry Bradshaw Fearon, *Sketches of America* [1819, 3rd ed.], p. 432).

<sup>33</sup> Letter of W. Steele to Governor Brown of Ohio, December 2, 1820, reprinted in John Kilbourn (compiler), *Public Documents Concerning the Ohio Canals* (1832), p. 30.

<sup>34</sup> *Picture of Cincinnati*, p. 148.

<sup>35</sup> These figures, taken from the 1880 Census (IV, 671-72) are not in complete accord with James Hall's data for 1811-1835 (*Notes*, pp. 252-63), Drake and Mansfield's for 1811-1826 (*op. cit.*, p. 73), or the records of the Cincinnati Chamber of Commerce for 1846-1860 (1860 Annual Report, p. 6). Fortunately the discrepancies are not large enough to vitiate our conclusions.

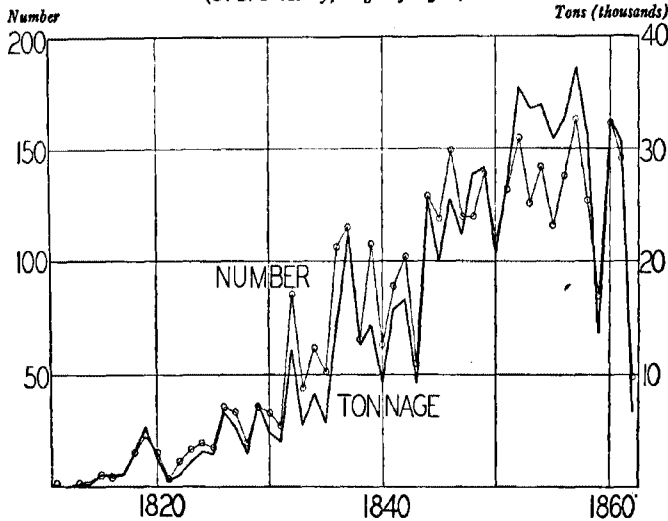
<sup>36</sup> According to the census, Pittsburgh accounted for 1,519 of the 3,599 steamboats launched on western waters between 1811 and 1862, whereas Cincinnati and Louisville sent forth 961 and 740 respectively. Up to 1835, New Albany, Brownsville, Wheeling, Marietta, Steubenville, and Jeffersonville were also leading centers of construction. See U. S. Census (1880), IV, 671-72; Hall, *Notes*, p. 263.

<sup>37</sup> Drake and Mansfield, *op. cit.*, p. 73.

The continued activity in the construction industry was partly due to heavy replacements and repairs, which were caused by the short life of equipment. James Hall's table of steamers (1835) includes a column labeled "How Destroyed," where it appears that many had sunk, others had been snagged, burnt, or "destroyed,"

CHART I

NUMBER AND TONNAGE OF STEAMBOATS CONSTRUCTED ON WESTERN RIVERS, 1811-1862  
(U. S. Treasury, Registry Office)



For data, see Table 1, Appendix B.

and a very large number had simply "worn out" within six years after they were placed in service. In 1829 Morgan Neville estimated that the average duration of a boat was four years and that the recent employment of locust timber would probably lengthen the average life by two years. Many accidents, it was held, were due to hard indifference in matters of care and upkeep. Boating was already regarded as a losing business with profit "only about six per cent. per year, on the invested capital," according to one owner's complaint. A few highly profitable craft had attracted so many others into the industry that tonnage was always larger than traffic demanded. Furthermore, owners were prone to cut expenses on the theory that maximum profits must be cleared while the boats were still afloat.<sup>38</sup>

<sup>38</sup> Hall, *Notes*, pp. 235, 240.

Despite these losses, however, total tonnage in operation continued to grow. In 1824 the western rivers harbored over 15,000 tons, of which about 8,000 were engaged in trade above the falls of the Ohio.<sup>39</sup> The grand total had expanded to 39,000 tons about a decade later.<sup>40</sup> By 1842 some 450 boats were in use and were thought to total 90,000 tons.<sup>41</sup>

Western steamboats varied in size between twenty-five and six hundred tons but were generally classified into two groups. The first of these, "the smaller class of boats," comprised vessels averaging about a hundred tons which were of particular value on the upper Ohio during months of low water. The larger boats, which averaged about three hundred tons, were considerably more efficient in the Mississippi trade. A variation in the total number of boats launched from year to year was accompanied by an equally wide variation in their average size. Tonnage data show that the first boats were comparatively large, those built between 1821 and 1835 considerably smaller, and that after the latter year a steady increase took place in the average burden.<sup>42</sup>

*Reduction of Running Time.* It is familiar to all that technical improvements made progressively greater savings of time possible. The *Enterprise* took twenty-six days to negotiate the distance from New Orleans to Cincinnati.<sup>43</sup> In 1818 the *James Ross* went from New Orleans to Louisville in sixteen days (running time, fourteen days).<sup>44</sup> In 1826 the *Belvidere* reached Cincinnati fifteen days after departing from New Orleans, with a running time of ten days,<sup>45</sup> and fourteen years later the *Queen of the West* made a round trip to New Orleans from Louisville in less than fifteen days.<sup>46</sup> In 1859 the record upstream voyage be-

<sup>39</sup> *National Republican*, Feb. 3, 1824.

<sup>40</sup> Hall, *Notes*, p. 238.

<sup>41</sup> *Hunt's Merchants' Magazine*, IX, 99.

<sup>42</sup> According to Hall's table, emphasis between 1814 and 1835 was on boats less than 175 tons. Of the new craft over the years 1833-1835, no less than 44 per cent were of the hundred-ton group. During the fifties the average tonnage of new vessels approached three hundred tons, according to the Census of 1880 and the data compiled by the Cincinnati Chamber of Commerce.

<sup>43</sup> *Western Spy*, June 16, 1815.

<sup>44</sup> LH, June 1, 1819.

<sup>45</sup> *Emporium*, Mar. 30, 1826.

<sup>46</sup> The outward voyage took four days and six hours; the return, six days and twelve hours (CDG, Mar. 23, 1840).

tween these two points was credited to the *A. L. Shotwell*; its time (4 days, 9 hours, and 19 minutes) represents a reduction of approximately 83 per cent from that of the *Enterprise* forty-four years earlier.<sup>47</sup> This premium on speed, it should be noted, resulted not only from a desire to save labor costs and other operating expenses but more particularly from the necessity of making full use of the capital investment during the life of the boat. As has already been suggested, the craft were subject to rapid depreciation. Furthermore, the number of trips per year to New Orleans, for instance, was limited above all by the weather and stage of the waters—this has always been a defect in river transportation. In 1835 six trips per season was calculated as a good average for larger boats; and the rate of freight downstream could not rise far above the flatboat level. Hence, there was a powerful incentive to add the revenue of another cargo or two per season. To some extent it was by making a large number of paying trips that the steamboat could justify its comparatively high capital investment. Furthermore, a faster boat undoubtedly had some advantage in competition for freight, although this factor was of more importance in the passenger department. Such factors as the perishability of the cargo or competition from more speedy forms of transportation were not of prime importance in the present connection.

*Cycles in Construction.* Short-time variations in boat construction along the rivers show a perceptible correlation with general economic conditions, and, since freight rates behaved in harmony with both variables, it is a fair interpretation that boat construction was in the main a passive factor in the situation. Indeed, the bulge in building in 1818-1819 to which reference has already been made was the first unmistakable sign of such cyclical fluctuations. Sales of public lands, commodity prices, volume of trade, and bank credit and circulation were all in a prosperity phase at that time. Steamboat freight rates, especially those upstream from New Orleans quoted in western currency, rose to a high point in early 1819 from which they were not dis-

<sup>47</sup> W. F. Switzler, *Commerce of the Mississippi and Ohio Rivers* (1888), p. 207. According to the incomplete records given therein, the greatest advance took place between 1828 and 1834, when the time from New Orleans to Louisville was cut from eighteen days, ten hours, to eight days, four hours.



lodged until late in the year. Owners were clearing fat profits until 1820,<sup>48</sup> but rates fell to a very low level in the following year in company with prices and traffic. Construction all but ceased. Recovery in prices, business, rates, and construction was slow thereafter (the 1819 figures on building were not exceeded until 1826). Similarly, production increased so rapidly during the late twenties that over eighty craft slid the ways in the single year 1832. This number fell 50 per cent in the following year, with a decline in the business outlook; moreover, the shipbuilding industry shared fully in the booms of 1836-1837 and 1839 as well as the recession of 1838 and the depression of 1840-1843. Finally, construction and freight rates both continued to respond fairly closely to alterations in shipping conditions during the forties and fifties (of which more below).<sup>49</sup>

The capital investment in river steamers, though somewhat smaller than that required for canals or railways, was sufficiently large to exert a considerable effect upon the western economy. In 1829 Morgan Neville estimated the original cost at \$100 and repairs at \$50 per ton on the 56,000 tons constructed during the preceding decade (35,000 were still in use). This yields a total capital expenditure of \$8,400,000 for an industry just getting under way. At the beginning of 1834 the same authority reckoned that the original cost had fallen to about \$75 per ton for the 39,000 tons then in service.<sup>50</sup> If the latter figure is applied to tonnage constructed during the fifties,<sup>51</sup> it appears that the total annual outlay in a boom year (1857) exceeded \$2,750,000, whereas

<sup>48</sup> Estwick Evans noted in 1817 that "the profits attending upon the business of steam boats upon the western rivers are almost beyond belief." He expected competition to lessen them momentarily (*A Pedestrian's Tour* [1819], p. 218; in Thwaites, VIII, 325). In the fall of the year 1819 two other travelers also complained of high rates and profits and looked for reductions. William Faux reported that the *Vesuvius* freighted \$47,000 on a single trip from New Orleans to Louisville, clearing 50 per cent net profit (Adlard Welby, *A Visit to North America* [1821], pp. 93-94; Faux, *op. cit.*, 200-203; in Thwaites, XII, 237-38; XI, 196-97).

<sup>49</sup> For a criticism of the idea that the shipbuilding cycle is an independent phenomenon, see J. A. Schumpeter, *Business Cycles* (1939), II, 533-35.

<sup>50</sup> Hall, *Notes*, pp. 235-37.

<sup>51</sup> Continued reduction in costs due to cheaper iron may well have been offset to some extent by more thorough construction. Thus, the 90,000 tons in use in 1843 (a depression year) were valued at \$80 per ton (*Hunt's Merchants' Magazine*, IX, 99).

the corresponding figure for a bad year (1859) was about \$1,000,000. Such amounts (and the differences between them) are decidedly large for the West of that period. At the same time, it is notable that average annual construction during the fifties was not much smaller than the total tonnage in service during the early thirties. If we estimate the total cost of tonnage constructed until the end of 1860 at \$75 per ton (679,395 tons according to the 1880 Census), the aggregate original investment is set at \$50,954,625. This latter figure, to be sure, is devoid of meaning in the sense that the capital was raised in small amounts over a fifty-year period and much of it was for replacement purposes.

It may be deduced from the foregoing discussion that river transportation assumed an economic form quite different from turnpikes, canals, or railways. The comparatively high risk and small capital per venture assured that the industry remained for the most part in the hands of individuals. A new boat of the three-hundred-ton class could be built for \$50,000 in 1850, and a small one for only \$5,000. Used boats were commonly bought and sold at heavily depreciated prices.<sup>52</sup> It was not until the latter part of the century that government aid was secured in any appreciable amount — and this for river improvements. The entrepreneurs, who formed a rather large number, undoubtedly secured a goodly portion of the requisite capital from private outside sources, especially in the early years; but once the river traffic had begun to expand, most of the investment was covered by past profits. Losses were borne in large part by the industry itself, either directly by the individuals concerned or through insurance companies. In some degree, of course, these losses were shifted to the shippers, but rates of freight, as will appear later, were allowed to seek their own level according to market conditions. Thus there are points of analogy between the river steamer and the ocean-going tramp steamer of a later day. There is, moreover, evidence of efforts on the part of western rivermen to avoid the shocks caused by excessive competition for freights.

*Marine Insurance.* It was several years after river shipping

<sup>52</sup> Ruffner, Donnally & Company sold the *Aurilla Wood*, a good-sized craft, for \$6,500 in 1853. For a good discussion of these phases of the subject see Louis C. Hunter, *Studies in the Economic History of the Ohio Valley* (1934), pp. 95 ff.

had become an established and flourishing enterprise before Cincinnati paid much attention to insurance. For a long time the only company in the West transacting this type of business was located in Louisville. It made large profits, and its stock rose to a high premium.<sup>53</sup> In 1819, it is true, the Cincinnati Insurance Company secured a charter from the state authorizing a capital of \$500,000 and giving a franchise to insure fire, life, and the transportation of goods, "provided that no part of the funds of the company be appropriated to the purpose of banking."<sup>54</sup> This firm did little business and went under in the "commercial derangements" of the immediately ensuing years. Nothing further was done until the beginning of 1826, when the Ohio Insurance Company was chartered with a capital of a quarter of a million dollars. The Cincinnati Equitable Insurance Company was organized on a mutual basis one year later. In addition, agencies for four eastern companies were reported in Cincinnati in 1827.<sup>55</sup> The fact that "regular" rates were published from time to time thereafter indicates that marine insurance facilities were not inadequate.<sup>56</sup>

*The Coal Barge.* Mention has already been made of the use of flatboats on the Ohio for the carriage of salt and coal. Strictly, the favored vehicle for coal was the barge, a somewhat larger

<sup>53</sup> Drake and Mansfield, *op. cit.*, p. 20. Reference is probably to the Kentucky Insurance Company chartered December 16, 1802. Since this concern readily took advantage of its privilege to lend money and issue bearer notes, it is also commonly held to be the first bank in the West (Mary Verhoeff, *The Kentucky River Navigation* [1917], p. 90, n. A; Reuben T. Durrett, *The Centenary of Louisville* [1893], p. 197).

<sup>54</sup> 17 Ohio Laws 168; c. 77, passed Feb. 8, 1819. The Assembly must have had the Kentucky Insurance Company and the Miami Exporting Company in mind, both of which entered the field of banking. The anti-bank feeling had not then reached its zenith, although Ohio was bothered with unauthorized banks and their circulation.

<sup>55</sup> Morgan Neville, secretary of the Ohio Company, wrote several articles for the *Western Monthly Magazine* which form the basis of much of our knowledge of the steamboat of that day. The four eastern concerns were the Protection Insurance Office and the Aetna Fire Insurance Company of Hartford, and the Traders' Inland Navigation Company and the United States Insurance Company of New York (Drake and Mansfield, p. 20).

<sup>56</sup> *Kentucky Reporter*, Dec. 12, 1827; *Cincinnati Chronicle*, May 16, 1840-Apr. 23, 1842; *True American*, Sept. 2, 1846.

and heavier craft.<sup>57</sup> Once the western river towns had begun to use coal in quantity, the problem arose of transporting the article from the mines developing along the upper Ohio and its tributaries. Credit for building the first steam tow boat on the river (the *Condor*) in 1836 has been given to the owners of mines at Pomeroy, Ohio. The first tow of coal barges from Pomeroy to Cincinnati occurred that year, and the practice was initiated of towing empty barges back to the mines. The *Lake Erie* was built at Pittsburgh a few years later, and a highly successful form of transportation was thus inaugurated. Steam was adapted to the task of carrying a commodity of especially large bulk and low value for a long distance. By 1859 all Kanawha and Ohio coal and nearly all the Pennsylvania product were sent to market by barge.<sup>58</sup> Within forty years the Ohio River had become the largest coal carrier in the world, and rates of freight had become astonishingly low.<sup>59</sup>

*The Louisville and Portland Canal.* The utility of the steamboat to the West was enhanced not only by the construction of more boats handling more freight per trip and making a larger number of trips per season but also by the removal of obstacles to navigation. To Cincinnati and the upper Ohio perhaps the greatest single obstacle to free and direct intercourse with New Orleans was the falls of the Ohio opposite Louisville. The rapids naturally operated against upstream traffic rather than downstream, affected larger boats more than flatboats, and were particularly dangerous (if not absolutely impassable) in time of low water. It was not until the problem of navigating against the current was solved to fair satisfaction that upstream traffic grew to sufficient dimensions to render an improvement at the falls necessary to further progress.

<sup>57</sup> An account of the coal traffic itself is contained in Chapter IX, below.

<sup>58</sup> The young railways proved utterly inadequate in cases of emergency and incapable of meeting the water rate when the river was in navigable stage (CCC [1857], p. 10; [1859], p. 16-17). L. C. Hunter found coal barges in use on the Ohio "about 1845" ("A Study of the Iron Industry at Pittsburgh before 1860," Harvard Ph.D. dissertation, 1928, p. 53).

<sup>59</sup> In 1876 the rate on coal from Pittsburgh to Louisville was 1¾ cents a bushel or 47 cents a ton. This was equivalent to 1/12 of a cent per ton-mile and included charges for the return of the empty barges. The rail rate was rarely as low as 1 cent a ton-mile and frequently was as high as 1¾-2 cents (Ohio Inspector of Mines, Annual Report [1877], 103).

At the same time, the eastern half of the Ohio Valley was becoming more thickly populated than the western. During the twenties the upper Ohio continued to chafe under the delays and charges occasioned by the falls. For many purposes the Ohio River was divided into two sections, with smaller packets stopping at Cincinnati and quoting freight rates only as far as Louisville and Pittsburgh. Citizens of the Miami country were confident that a canal would eventually be built with or without the consent of the merchants and wagoners of Louisville, since it was feasible to cut a canal on the Indiana side.<sup>60</sup>

It was not until the end of 1830 that a narrow little ditch between Louisville and Portland was opened to traffic.<sup>61</sup> Although tolls were collected during the first fifteen years of operation on over three million tons of cargo,<sup>62</sup> it did not result in complete unity of the river. The locks could accommodate no craft over a hundred eighty feet,<sup>63</sup> and the growth in through traffic to and from the South, accompanied by developments in boating technique, brought the employment of three-hundred-foot craft on the lower Ohio and Mississippi. Furthermore, the narrow brick waterway was frequently choked with mud in the springtime, the busiest shipping season. Thus, southbound steamers were obliged to discharge and reload cargo in 1840.<sup>64</sup>

<sup>60</sup> See, for instance, Drake, *op. cit.*, pp. 230-31; *Advertiser*, Nov. 10, 1818. The canal became a favorite topic for editorial comment in the early twenties.

<sup>61</sup> According to Timothy Flint, the first passage through the canal was made by the *Uncas* on December 21, 1829. The water in the Ohio was high enough only two months in the year, on the average, to permit a safe navigation over the rock ledges in the river, although shooting the chutes was common, especially by the smaller boats. Prior to 1830, large boats belonging upstream ordinarily were forced to wait all summer at Portland on a return trip from New Orleans (*History and Geography of the Mississippi Valley* [1832], I, 355). Hulbert found that the work was completed December 5, 1830; and the reports of the operating company reveal no traffic prior to 1831 (Hulbert, *Waterways of Westward Expansion*, p. 204, citing House Reports, 39th Cong., 2d Sess., Ex. Doc. 56, pt. 2, p. 323; see also LH, Feb. 12, 1846).

<sup>62</sup> LH, Feb. 12, 1846. The source is the twenty-first annual report of the Louisville and Portland Canal Company, whose annual figures show a steady growth in tonnage from the first year of operation. The toll for the ascent or descent of twenty-two feet (through five locks) was 50 cents per ton.

<sup>63</sup> *De Bow's Review*, XVI, 327-31, 416-20 (March-April, 1854), articles by N. W. Thomas, president of the Cincinnati Chamber of Commerce.

<sup>64</sup> WCA, Mar. 17, 1840.

Cincinnati staged a campaign in Congress in the early fifties in an effort to secure a larger canal; it was not successful.<sup>65</sup> The employment of larger coal barges and steam tugs was rendering the Louisville Canal even more obsolete. The federal authorities finally constructed a new and larger canal in 1872. River traffic was thereby given a new lease on life (it had languished since 1861 as a result of railway competition).<sup>66</sup> The maximum size of boats plying above and below Louisville was increased from six or seven hundred to seventeen hundred tons, and rates on coal, by that time the principal cargo, sank to as low as one-twentieth of a cent per ton-mile.<sup>67</sup>

<sup>65</sup> This campaign suggests that Cincinnati was vitally interested in southern trade despite the completion of through rail connections with the East (CCC [1852], p. 6; [1853], p. 5).

<sup>66</sup> Tolls were reduced to 10 cents per ton in 1874 and removed entirely six years later (J. Nimmo, Jr., *Report on the Internal Commerce of the United States* [1880], pp. 79-80; *ibid.* [1876], p. 42).

<sup>67</sup> CCC (1873), p. 57.

## CHAPTER III

### RIVER FREIGHT RATES

THE STUDENT of rates of freight on the Ohio and the Mississippi before 1861 is almost certain to be impressed by the extraordinary amplitude of their variations not only over the long run but also from year to year and month to month. In the present chapter the bulk of attention is given to rates from the interior to New Orleans and Pittsburgh, though rates upstream from Louisiana and by ocean to northern ports receive some consideration. Wherever possible the method has been adapted to the material at hand. So far as rates from Cincinnati (or Louisville) are concerned, it is impossible to do more than assemble fragmentary references dealing with the period up through the 1830's. One finds that quotations tended to decline, especially in the early twenties. As for the forties and fifties, regular monthly reports (when the river was open) make it feasible to note changes from year to year more accurately and to perceive a reversal in the downward drift of rates to the South. Furthermore, our insight into the shipping business at Cincinnati is aided by a monthly index for the years 1841-1860 and by patterns of seasonality for each of the two decades included in this interval. Emphasis is laid upon the effect of variations in the "stage" of the rivers upon the remarkable behavior of these rates; and other topics, such as open agreements among the boatmen and marine insurance premiums, are touched upon briefly. Precise information on return cargoes from New Orleans is so rare, comparatively speaking, that it is susceptible only to more or less laborious assembly. It gives the unmistakable impression that the charges on imports via the Mississippi dropped over 95 per cent during the half century beginning around 1795. For reasons explained later, the decline was most spectacular in the 1820's. Comparing import with export rates, the fall of the former was of altogether greater dimensions, and there is some evidence that it became even cheaper to ship upstream than down.

*The Rate Structure on Outbound Traffic.* The structure of steamboat freight rates from Cincinnati remained simple between 1815 and 1861 compared with railroad tariffs of a later day, but the tendency was towards a longer schedule of ports and commodities. In the mid twenties the favored ports of destination were New Orleans, Louisville, Wheeling, and Pittsburgh; and flour and whisky were given commodity rates (general merchandise was called "pound freight"). General rates were quoted to and from half a dozen ports in the uniform tariff evolved by shipping interests of the upper Ohio towards the end of that decade. Beginning some ten years later, or shortly before 1840, the standard form consisted of rates on flour, pork, whisky, pound freight, and occasionally lard to New Orleans, as well as a more limited schedule to St. Louis and Pittsburgh. Louisville had dropped out of the picture, probably because the Portland Canal encouraged through shipping. Additions to the tariff appeared from time to time during the forties, notably rates on bacon, bulk meat, and molasses to Pittsburgh and salt to St. Louis and Nashville. The number of ports expanded during the latter fifties to include Evansville, Cairo, Wabash River, Keokuk, and Memphis, and at the same time oil (lard oil) became a regular item of shipment to all ports. Stoves to St. Louis, cotton to Pittsburgh, and dry goods to various ports began to appear; and New Orleans rates specified horses, machinery, way freight, potatoes and onions, and empty barrels. In a few cases (such as machinery) the specific rate per unit of weight (generally a hundred pounds) exceeded the general rate, whereas the charges on barrels of staple articles (flour, pork, and whisky) were somewhat lower than the equivalent pound freights. All in all, the structure was comparatively consistent and showed practically no signs of discrimination as to port or commodity. It is probable that shipments were accepted at rates other than those published from day to day or week to week. However, the high measure of agreement among current newspaper reports and annual summaries in the Chamber of Commerce trade reviews, together with candid comment by observers like Aaron Colter of the *Western Christian Advocate*, indicate that the published rates give a faithful picture of the actual state of the market.

*New Orleans Rates, 1800-1861.* Viewed from a long range,



the rates on river shipments from Cincinnati and near-by points to New Orleans decreased to a remarkable extent before the middle of the century. They were fairly high until the depression of 1820-1822, declined drastically at that time, then drifted downward in a more gradual manner. Although complete information is not at hand for the entire interval, it is suggested that river charges responded in some measure to the inflation of the late thirties and shared in the ensuing depression. The 1850's were marked by an upward drift punctuated with ups and downs. Variations were of unusual amplitude in the middle of the decade, since extraordinary dry spells suspended river traffic for months at a time and raised rates to record heights. In general outline, however, rates to New Orleans behaved similarly to the prices of manufactured goods between 1816 and 1860.

In the absence of regular shipping lines, freight rates to the South were rarely published in the pioneer days. James Wilkinson, in his famous venture of 1789, proposed to charge his Kentucky associates a rate of 4/6 (75 cents) per hundred pounds on tobacco shipped from Louisville and six shillings (\$1.00) on shipments from the Kentucky River (Frankfort).<sup>1</sup> Michaux reported in 1802 that the flatboats which left Louisville in the spring-time each carried from 250 to 300 barrels of flour and cost about one hundred dollars; five men maneuvered the craft for thirty to thirty-five days on its way to New Orleans, and for these services the chief steersman was paid a hundred dollars, his helpers fifty dollars.<sup>2</sup> Hence, the shipping cost of a barrel of flour from Louisville figured between \$1.25 and \$1.60, with no allowance for losses, extraordinary expenses, and the value of the boat at the end of the voyage. Several independent sources between 1805 and 1812 point to a rate of a cent a pound on sundry articles from Kentucky to the lower Mississippi, which is equivalent to about \$1.50 per barrel of flour.<sup>3</sup>

<sup>1</sup> Reproductions of the original announcements are given in Verhoeff, *op. cit.*, p. 62. Wilkinson accepted the goods on consignment only, and shipped them at the owner's risk.

<sup>2</sup> *Voyage*, pp. 197-98.

<sup>3</sup> Note the following freight charges:

Henderson-New Orleans (general merchandise), \$1.00 per cwt. (Sept. 12, 1805).

Louisville-Natchez (bagging), 1 cent per pound (Aug. 28, 1808).

Frankfort-Natchez (whisky), ¾ cent per pound (Apr. 8, 1809).

The first known commercial freight-rate pertains to the spring of 1814, when it cost \$1.50 to ship flour from Louisville to New Orleans; this is practically equal to the rate from Cincinnati announced in October, 1815 (\$1.00 per hundredweight).<sup>4</sup> However, at the end of the latter year the charge from Louisville was reported in New Orleans to be 1-1½ cents a pound—a somewhat higher figure.<sup>5</sup> Downstream rates declined in succeeding years, though the movement was delayed to some extent by inflation. Thus Fearon noted towards the end of 1817 that merchandise could be carried from Louisville to New Orleans at rates from 75 cents to \$1.00 per hundred,<sup>6</sup> but three years later agitators for the Ohio Canal charged that the lowest flatboat rate on flour from the falls was \$1.25 per barrel. As with commodity prices, a drastic decrease then took place. By the spring of 1822 the steamboat rate (generally higher than the flatboat) was only 75 cents to \$1.00 *in depreciated currency*, and a Pittsburgh tariff, probably the first of its kind to be published, quoted \$1.25 for flour all the way from that port to New Orleans.<sup>7</sup> Thus, noteworthy reductions were evident after 1820, though exact comparison is rendered impossible by differences in currency as well as point of origin and season of the year.

In later years flatboats continued to charge a cheaper rate than steamboats on staple produce from Cincinnati to New Orleans, according to the scattered quotations available (the newspapers and commercial reports gave almost all their attention to the larger craft). The difference was generally reduced in the spring of the year, when high water enabled steamboats to travel

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Frankfort-New Orleans (hempen yarn), 1 cent per pound (May 27, 1809).

Shippingport-Natchez (gunpowder), 1 cent per pound (June 28, 1812).

Sources: Samuel Hopkins Papers, John W. Hunt Papers.

<sup>4</sup> *Niles*, VI, 171 (May 14, 1814); LH, Oct. 16, 1815.

<sup>5</sup> Torrey & Talman Letter-sheet Prices Current, Dec. 26, 1815. The published freight rates cited above may pertain to the maiden voyages of the early steam boats. The *Aetna*, fifth constructed, is reported to have loaded three hundred tons at Louisville for New Orleans late in 1815 at a cent a pound (Lewis and Richard H. Collins, *History of Kentucky* [1877], p. 361).

<sup>6</sup> *Op. cit.*, pp. 246, 450. Fearon's figures were in terms of English money.

<sup>7</sup> John Kilbourn, *op. cit.*, p. 30; *Lexington Reporter*, Mar. 28, 1822; *Statesman*, Mar. 23, 1822. The Louisville quotation (as of March 7-11) was approximately equivalent to 45 to 60 cents per barrel in Cincinnati money then current.

more regularly and to avoid paying tolls or drayage charges at the falls. There is also reason to believe that the margin tended to decline in a long-run sense until the early forties because steam rates were falling somewhat more rapidly.

The first river tariff published in Cincinnati (in the spring of 1824) gave the New Orleans flour rate as \$1.00 per barrel.<sup>8</sup> This represents a drop of about 33 per cent from the 1815 quotation cited above. Estimating from the figure on general merchandise, the New Orleans flour tariff was little more than 90 cents during the latter half of 1827, and dropped to 75 the following spring.<sup>9</sup>

Between 1829 and 1832 attention was focused upon the upper Ohio, perhaps on account of the barrier at the falls to which allusion has already been made. At any rate, competition brought charges from Cincinnati to Louisville to an extreme low: the rate on flour dropped to 15 cents late in 1828. This was the price agreed upon by "the owners, masters and agents of steam boats" for "flour and light barrels"; and its quotation continued for an interval of two years. The published rate was only 12½ cents during the first nine months of 1831, at the expiration of which the schedule dropped from sight; and according to editorial remarks the quoted rates were "not generally adhered to": i.e., freights were taken by many boats at a discount of 2½ to 5 cents from the regular tariff.<sup>10</sup>

It may be estimated that in 1831 the cost of transporting a "light barrel" from Cincinnati to the sea was between 50 and 60 cents, not counting insurance charges. This signifies a decline of 70 or 75 per cent from the 1815 rate; and it must not be overlooked that the comparative speed and safety of shipment by steam operated to reduce other costs. The construction of steamboats, it will be recalled, was proceeding at a rapid pace in the face of declining rates.

A through tariff to New Orleans began to appear in the Cincinnati newspapers with some regularity during the spring shipping seasons of 1838-1840. In 1838 the flour rate held to 50 cents during the second quarter; the following year it fluctuated be-

<sup>8</sup> *National Republican*, May 25; *Emporium*, June 3.

<sup>9</sup> The flour-barrel rate was figured at 50 per cent more than the charge on "pound freight" per 100 pounds (CDG, June 16, 1827-May 12, 1828).

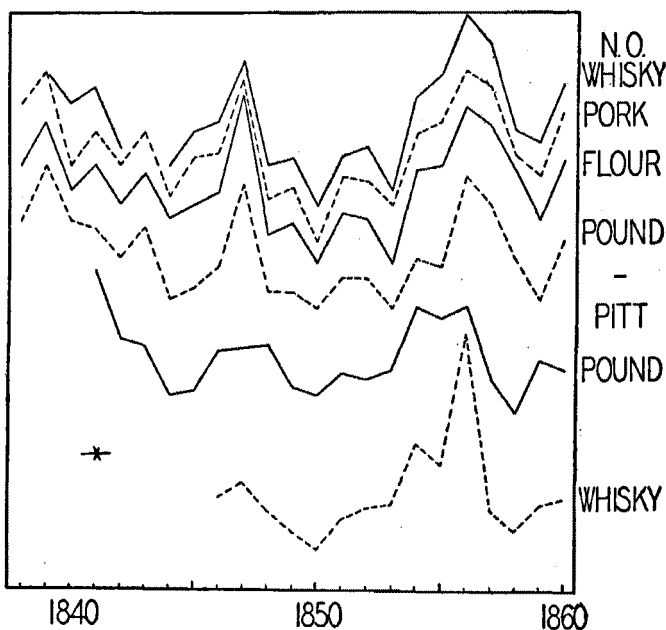
<sup>10</sup> *Cincinnati Chronicle*, Mar. 8, 1828-Sept. 17, 1831.

tween 50 and 75 cents; while in 1840 it dropped back to 38-50 cents (the rate was \$1.00 out of season). In other words, a high degree of annual variation and seasonality, so characteristic of the freight-rates of the forties and fifties, was in evidence before that time.

## CHART II

AVERAGE SPRING STEAMBOAT FREIGHT RATES ON FLOUR, PORK, WHISKY, AND POUND FREIGHT FROM CINCINNATI TO NEW ORLEANS, 1838-1860; ON WHISKY AND POUND FREIGHT FROM CINCINNATI TO PITTSBURGH, 1841-1860

(Vertical logarithmic scale, with Pittsburgh whisky rates at a lower level)



For data, see Tables 3-8, Appendix B.

Indeed, river transportation costs before the Civil War were subject to such wide and erratic seasonality that the latter is reflected even in annual averages. The monthly quotations for 1838-1860 have therefore been averaged for the spring quarter, and six series of this type have been plotted in Chart II.<sup>11</sup> The latter, it will be noted, include four classes of freight to New Or-

<sup>11</sup> The quarter was chosen to end in May except in cases where June was substituted for March.

leans (whisky, pork, flour, and pound) and two to Pittsburgh (pound and whisky). The New Orleans series reveal marked sympathy in their variations from year to year, though specific rates show a greater inclination to rise during the fifties than the series for general merchandise. On the other hand, the Pittsburgh series possess a greater degree of independence, notably in their comparative failure to rise during 1847 and to recover after 1857. The combination of a strong demand for transportation and an unusually low stage of water account for the remarkable peaks of all series in 1856. These data are of interest because they cover the epoch when the shipment of staples from the Ohio area to New Orleans reached its zenith and declined.

The average spring rate on flour to the Louisiana port during the twenty-three years was slightly under 46 cents (the year-round average for 1841-1860 was 65 cents); and though year-to-year variability has been minimized by selecting the spring quarter alone, the average deviation of the annual flour series was 11 cents, or 24 per cent of the mean. In some years (1848-1850) this rate approached 25 cents; in others (1839, 1847, 1856) it came close to 75 cents, and it is evident from the chart that the variability of other rates from year to year was of similar magnitude.

*Index of Export Rates, 1841-1860.* A monthly index of river rates on Cincinnati exports has been computed from the six series named above by using the unweighted arithmetic mean of relatives (Chart III). It has not been found feasible to eliminate seasonality due to variations in its timing and amplitude, and no chart of adjusted figures has been found to equal Chart III in informative value. Only one component series (New Orleans flour) has been included in the graph because the other New Orleans series showed a remarkable agreement in behavior from month to month and the Pittsburgh series were closely allied to the rate structure, albeit independent in some particulars.

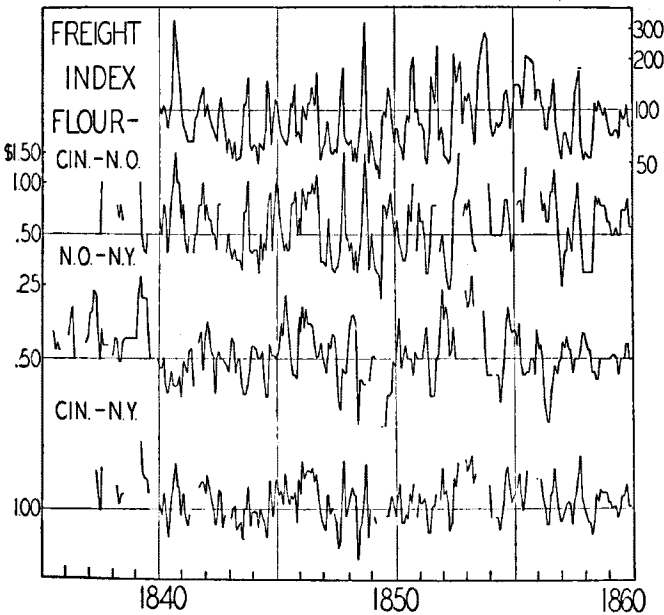
These river rates resemble world commodity prices in that there is room for doubt whether they assumed an upward drift around 1843 or 1850. If freight rates did participate in an upward swing early in the forties, they apparently lost most if not all the ground won by the middle of the century. The spring rates to New Orleans in Chart II favor 1850 as the low point, but

annual averages of the same series favor 1844. The original monthly data appear to indicate a decline to 1850, and yet experimental adjustments for seasonal variation yield results which are inconclusive.

It is notable that western steamboating was far from defunct

## CHART III

MONTHLY INDEX OF STEAMBOAT FREIGHT RATES FROM CINCINNATI TO NEW ORLEANS AND PITTSBURGH, 1841-1860. MONTHLY RATES PER BARREL OF FLOUR FROM CINCINNATI TO NEW ORLEANS, FROM NEW ORLEANS TO NEW YORK, AND FROM CINCINNATI TO NEW YORK VIA NEW ORLEANS, 1836-1860



For data, see Tables 2-3, 9-10, Appendix B.

during the 1850's, judging from the fact that rates from Cincinnati to New Orleans were increasing and new construction was also on the upgrade. This is remarkable in view of the situation in regard to river traffic taken as a whole: the receipts of flour and other important staples at New Orleans failed to increase during the decade. As a matter of fact, the downstream shipments from the Cincinnati area underwent a major decline. The world economic situation was improving, and, more particularly, the West

as a whole was undergoing a boom which we characterize below as the flow phase of the fourth tide of settlement. There were several specific elements in the situation, aside from the occasional scarcity of freight space due to prolonged suspensions of navigation. Although the through eastern railways, opened to Cincinnati in 1852, began to handle a progressively larger proportion of the exports from the Ohio area, they had not yet tapped the upper Mississippi and the region beyond to the same extent. A thriving river commerce was developing at new ports farther in the interior, which must have tended to support rates everywhere. Furthermore, there were certain products even in the Ohio Valley, such as whisky and provisions, which found a rising market in the South and in Latin America. These shipments could be carried most economically by the river boats, despite a rise in rates. There is also evidence, summarized in a succeeding section, that the Ohio River lines managed to suppress competition among themselves from time to time. Their efforts in this direction, it is presumed, resulted in somewhat higher charges than would have pertained otherwise; and the very fact that they succeeded at all corroborates other evidence that the supply of shipping space in Cincinnati was not excessive at that time.

*Ocean Rates to Northern Ports, 1836-1860.* Since a large and growing proportion of western staples found a market in the Northeast or in Europe during the forties and fifties, ocean shipping rates from New Orleans are of considerable significance. Monthly series have been constructed from quotations on flour and pork "to northern ports," which appeared regularly in the *New Orleans Price Current* beginning in 1836 and 1839, respectively (Chart III).<sup>12</sup> The ocean data, it may be shown, bear at least three points of resemblance to the river figures already discussed: (1) a propensity to change from month to month in almost erratic fashion; (2) a seasonality consistent enough to

<sup>12</sup> Beginning in November 1844, separate rates were quoted to New York and Boston. In general, the flour rate to the latter market was higher, the differential varying from zero to 25 cents per barrel. Rates on pork to the two centers had no consistent relationship: for some months they were equal, for others the Boston rate was slightly higher, and in a surprising number of instances the pork rate to New York exceeded that to Boston. However, the pork series has been omitted from Chart III and Appendix B because of its general duplication with the flour series.

warrant measurement; and (3) a strong similarity in the behavior of rates representing different commodities — here flour and pork only.

The general pattern of the ocean rates is also quite similar to that of river rates. One notes that the former were also high in the late thirties, that their decline thereafter was broken in 1840, that a low point was finally reached in 1844. Furthermore, there is a pronounced rise in 1846–1847, and a still deeper trough at the middle of the century. A recovery ensued which brought ocean freight rates to a very high level in 1854. The principal point of difference, so far as movements from year to year and decade to decade are concerned, was the failure of the ocean rates to rise in 1856. Even without this movement, however, it cannot be denied that ocean rates were higher in the late fifties than at the beginning of the decade. Thus, the charge on flour from New Orleans to New York varied around 50 cents in 1859 and 1860 — a figure to be compared with 30 and 40 cents for the greater part of 1849–1850.

A synthetic series of rates on flour from Cincinnati to New York has been secured by adding river rates to ocean rates timed about a week later each month. The resulting figures (the bottom curve in Chart III) do not pretend to portray the course of shipping costs over this route with final precision but are of particular interest for comparison with eastern canal and rail rates. The aggregate rates on flour by water were apparently highly variable from month to month, but seasonality was less well defined because of differences in the two component series. One notes the downward drift from 1838 to 1850 and a moderate stability in year-to-year behavior thereafter. Water rates were undoubtedly nominal for a good share of the time after 1854, judging from the traffic figures cited in a later chapter. Flour could be shipped economically from Cincinnati to New Orleans, to be consumed at near-by points or sent to Latin America. It could also be assembled at the Louisiana port from points on the upper Mississippi not yet serviced by rail, and sent to the North Atlantic or Europe. But the rail rate direct from Cincinnati to New York was low enough in the late fifties to discourage roundabout shipment from the former point to the latter. One notices no great margin between the two competing forms of



transportation so far as rates alone are concerned; nevertheless, the greater speed and flexibility of the railway, the saving on insurance, and the elimination of storage, drayage, and commissions at New Orleans must not be left out of account.

*Upstream Rates — General Pattern.* The general pattern of rates from New Orleans to Cincinnati (as compared with downstream) was characterized by a greater decline before 1830. Although an exact measurement of this decline is precluded by a paucity of data,<sup>13</sup> cyclical changes in costs, and differences in currency, it is strongly suggested that the rates on coffee, sugar, and other commodities sent up the Mississippi behaved not unlike the prices of imported goods at Cincinnati. In other words, exceptionally high rates prevailed until 1820, when a sharply downward course set in which was accelerated during the early twenties and partially arrested a decade later. A turn in the general drift finally came towards the middle of the century. The principal point of difference between upstream and downstream rates — as between the prices of imported goods and local manufactures — was that in each case the former declined to a greater extent, especially during the 1820's.

*Upstream Rates, 1804-1815.* Though charges on early keelboats and barges were very high compared with steamboat rates of a later era, the former compared favorably, weight for weight and distance for distance, with costs of carriage over the mountains. Mention has already been made of the barge rate approaching 10 cents a pound towards the end of the eighteenth century, but the ruling quotation from New Orleans to Kentucky during 1804 was only 6 cents.<sup>14</sup> In September 1805 the rate on groceries and sundries from New Orleans to Henderson was \$5.00 per hundredweight.<sup>15</sup> Between November 1805 and January 1812, according to regular quotations in New Orleans journals, the rate to the falls of the Ohio was also 5 cents per pound; but it ad-

<sup>13</sup>New Orleans journals omitted quotations on freight up the Mississippi, although they paid considerable attention to ocean rates to the North Atlantic and Europe.

<sup>14</sup>Quotations as of March 29, April 12, May 29, June 18, and August 15. The respective sources: *Kentucky Gazette*, (Frankfort) *Guardian of Freedom, The Union or New Orleans Advertiser and Price Current*. I am indebted to Dr. G. R. Taylor for these data.

<sup>15</sup>Samuel Hopkins Papers.

vanced to 7½ cents in February 1812.<sup>16</sup> Burnet estimated the ordinary barge rate from New Orleans to Cincinnati early in the century at \$5.00 or \$6.00 per hundred — a figure he found to be somewhat below the average charge for haulage across the mountains from the East.<sup>17</sup> In 1814 the upstream rate to Louisville was quoted at \$4.50 per hundredweight, or about 6 cents per ton-mile for the 1,545 miles.<sup>18</sup> At the same time the charge on New Orleans sugar to Cincinnati was 5 cents a pound.<sup>19</sup>

*Upstream Steamboat Rates, 1815-1819.* There is much evidence that the earliest steamboats continued to secure high prices for carrying goods up to the Ohio region. The tariff planned by the Monongahela & Ohio Steam Boat Company in 1815 set the charge to the falls at \$100 per ton of merchandise, and the rate from thence to Pittsburgh at \$35.<sup>20</sup> A few months later the *Aetna* succeeded in collecting a "low average" of 5 cents per pound to Louisville, heavy goods paying 4½, and light, bulky articles paying 6.<sup>21</sup> Later quotations for 1816 were: April, 4 cents; July, 4-5 cents.<sup>22</sup> Fearon found the latter to be the charge in the last months of 1817.<sup>23</sup> Jasper Lynch, reported to have been engaged in steaming after 1816, testified that the *Aetna* rates "continued uniform" and were not reduced until 1819.<sup>24</sup>

<sup>16</sup> *Louisiana Gazette; Orleans Gazette.* Quotations kindly furnished by G. R. Taylor.

<sup>17</sup> *Op. cit.*, p. 400.

<sup>18</sup> *Niles'*, VI, 171 (May 14, 1814). This was approximately six times the downstream rate between the same two points, according to the flour freight of \$1.50 per barrel then current.

<sup>19</sup> Smith & Findlay Accounts (May 12, 1814).

<sup>20</sup> LH, Aug. 28, 1815. According to one report, the *Aetna* could secure no freight on arrival in New Orleans. Shippers preferred to ship by barge at 8 cents a pound (L. and R. H. Collins, p. 361).

<sup>21</sup> This is the first instance of rate discrimination. The connection between rates and the stage of the rivers was already well established, as may be seen from the remark that the *Aetna* was prevented from loading a full cargo because of the low stage of the water (*Western Monitor*, Jan. 19, 1816).

<sup>22</sup> LH.

<sup>23</sup> *Op. cit.*, p. 246. The freight was given as 18s. to 22s. 6d. per hundred, and Fearon uniformly treated a dollar as equivalent to 4s. 6d.

<sup>24</sup> Ringwalt, *op. cit.*, p. 18. The rates were specified in the Louisiana charter to Fulton and Livingston (F. H. Dixon, *A Traffic History of the Mississippi River System*, p. 13).

Indeed, James Flint noted in March of the latter year that goods were carried to the Falls at a rate of  $6\frac{1}{4}$  cents per pound.<sup>25</sup>

Some rates quoted in New Orleans appear to have been considerably lower, possibly owing to differences in currency. As early as the beginning of 1816, letters from the South gave the freight to the falls as \$3.00 per hundred pounds,<sup>26</sup> and the ruling quotation in New Orleans from February to April 1819 was only 3-4 cents.<sup>27</sup>

Whatever may have been the exact rate on upstream carriage by steamboat before 1819, there is no question that the pioneer craft cleared enormous profits. Evans noted in 1817 that "the profits attending upon the business of steam boats upon the western rivers are almost beyond belief," and he expected that competition would lessen them momentarily.<sup>28</sup> This expectation was still being voiced by western travelers as late as the fall of 1819, when Welby and Faux both complained of high rates and profits and looked for reductions.<sup>29</sup>

*Upstream Rates, 1819-1823.* These prophecies were fulfilled almost immediately. Freight to Louisville were reported to have been received in New Orleans at the end of 1819 at  $\frac{1}{2}$ -2 cents per pound.<sup>30</sup> It is almost a certainty that the rates were nominal, since the general fall in values coupled with the closing of the river system by lack of water in the latter half of that year and by ice during the following winter had brought western trade to a standstill. In September of 1820 James Flint remarked that the "increase of craft, together with the decreasing quantity of

<sup>25</sup> *Letters from America* (1822), p. 138 (in Thwaites, IX, 164).

<sup>26</sup> LH, Feb. 5, 1816. Letters of Jan. 8. Only two weeks earlier (Dec. 26, 1815) Torrey & Talman reported the rate to both Louisville and St. Louis as  $4\frac{1}{2}$ -5 cents per pound.

<sup>27</sup> LH, Mar. 16-May 7, 1819. Quotations as of February 20-April 12. The rate on February 13 was  $2\frac{1}{2}$ -4 cents; on May 12, 3 cents (*ibid.*, Mar. 9, June 4, 1819). The James Ross arrived at Shippingport (at the falls) from New Orleans on May 24, 1819, with full freight taken at 3 cents, "and not two and a half as before published" (*ibid.*, June 1, 1819; *Pittsburgh Gazette*, June 11, 1819).

<sup>28</sup> Estwick Evans, *A Pedestrian Tour* . . . , p. 218 (in Thwaites, VIII, 325).

<sup>29</sup> According to the latter the *Vesuvius* freighted \$47,000 on a single trip from New Orleans to Louisville and cleared 50 per cent net profit (Welby, *op. cit.*, pp. 93-94; Faux, *op. cit.*, pp. 200-203; in Thwaites, XII, 237-38; XI, 196-97).

<sup>30</sup> *Louisville Public Advertiser*, Jan. 15, 1820.

goods imported, has lowered the freight from New Orleans to the falls of the Ohio, from six cents to two cents per pound. The rates paid by passengers, however, are not reduced in the same proportion."<sup>31</sup> During the following spring (1821) business was "extremely dull" at "1 a 1-2 cts." per pound; and in the same season of 1822 the quotation was only 1-1½ cents.<sup>32</sup> In early 1823 the rate was a flat cent per pound,<sup>33</sup> less than 20 per cent of the charges received before 1819. It is not to be wondered that steamboat construction was sharply curtailed for the time being.

*Upstream Rates after 1823.* A resumption of the construction of new and improved boats, together with the competition for return cargoes, prevented upstream rates from rising to any great extent until after the middle of the century, except in prolonged periods of very low water. The charge on general merchandise from New Orleans to Louisville or Cincinnati was given in June 1824 as 75 cents per hundred pounds.<sup>34</sup> In the same month of 1826 the freight on a barrel of flour from New Orleans to Louisville was quoted at \$1.75 per barrel — being roughly equivalent to \$1.15 per hundredweight.<sup>35</sup> The following year, while the river was in good condition, goods were carried all the way from New Orleans to Pittsburgh for \$1.00-\$1.12 per hundredweight.<sup>36</sup> Furthermore, it was noted in early 1828 that the rate on heavy articles to Louisville did not ordinarily exceed 50 cents per hundred; and that in spring months (when upstream cargo was "scarce") much was brought up at 37½ cents.<sup>37</sup> Two years

<sup>31</sup> *Letters from America*, p. 260 (in Thwaites, IX, 286). In the spring of 1818 there had been thirty-one steamboats on the Ohio and Mississippi; by September, 1820, there were sixty.

<sup>32</sup> *Louisville Public Advertiser*, May 26-June 2, 1821; April 20, 1822. The quotation in the *Louisiana Gazette* for May 12, 1821, on freights "to Kentucky" was ½-3 cents per pound.

<sup>33</sup> *Louisville Public Advertiser*, Feb. 5, 1823. It had been a bold prediction in 1815 that upstream shipping costs would reach as low as \$2.00 per hundred (Cist, *Cincinnati in 1841*, p. x).

<sup>34</sup> The Louisville rate is possibly overstated (*Emporium*, June 3, 1824).

<sup>35</sup> *Niles'*, XXX, 331 (July 8, 1826): "From the *Louisiana Advertiser*, of a late date."

<sup>36</sup> *Pittsburgh Gazette*, Mar. 23, 1827.

<sup>37</sup> Sen. Doc. no. 47, 20th Cong., 1st Sess. (1827/28), p. 13.

later the charge on foreign salt to Louisville averaged from 35 to 45 cents per hundred pounds,<sup>38</sup> but in 1839 the rate on the same article, to Cincinnati, was figured at 35 cents per bushel, approximately equivalent to 70 cents per hundred.<sup>39</sup> In a speech delivered about the middle of the year 1827 Lee White uniformly assumed the rate between Boston and New Orleans, or between the latter point and Louisville, *either way*, to be one-half cent per pound. Thus, the charge between Boston and Louisville was reckoned at only \$1.00 per hundred.<sup>40</sup> And Morgan Neville reported that instances occurred during the early thirties where goods were carried from Philadelphia to Cincinnati via New Orleans for a cent a pound.<sup>41</sup> Rates such as these represent a reduction of more than 90 per cent from the river rate in vogue before 1815.

*River Rates, Upstream and Downstream.* Though no data are available which refer directly to the course of river freights from New Orleans to Louisville or Cincinnati during the forties and fifties, there is plenty of evidence that upstream and downstream rates were more or less interchangeable during this period so far as general merchandise was concerned. Therefore, it is presumed that the characteristics imputed to downstream rates of these decades in another section apply also to upstream rates.

The final rapprochement between the two classes of rates took place in the latter half of the twenties. In 1814, as has already been related, the rate from New Orleans to Louisville was roughly six times as large as the freight in the other direction, but by 1824 this ratio had dropped to between 1.50 and 1.67 to 1 according to the charges between Pittsburgh, Louisville, and New Orleans on the one hand and Cincinnati on the other. Two years later the northbound rate between New Orleans and Pittsburgh was only one-ninth more than the southbound. And rates posted for the upper Ohio during the years 1828-1831 show no difference as to

<sup>38</sup> House Rep. no. 70, 21st Cong., 2d Sess. (1830/31), p. 40.

<sup>39</sup> Sen. Doc. no. 196, 26th Cong., 1st Sess. (1839/40), p. 50. This quotation refers to a somewhat longer distance, involving passage through the Louisville Canal; in addition, it applies to a year when all values were high.

<sup>40</sup> *Kentucky Reporter*, July 7, 1827.

<sup>41</sup> Hall, *Notes*, p. 239. This refers to the years 1830-1834. The *Ohio and Mississippi Mail Line*, a combination of owners to suppress competition, was formed in 1832 as a direct result of the huge spurt in building and the accompanying decline in rates and profits (Hunter, *Studies*, pp. 97-98).

direction where Cincinnati, Wheeling, and Pittsburgh were concerned (only the Cincinnati-Louisville rates continued to show such a difference). In later years Cincinnati newspapers gave single quotations on carriage to and from Pittsburgh, Maysville, Portsmouth, and Louisville (but not New Orleans).<sup>42</sup>

It is probable that traffic in bulky produce to New Orleans from Cincinnati and other up-river points developed so rapidly during the period from 1816 to 1850, in comparison with return traffic, that competition in the Louisiana port for cargoes was strong enough at times to reduce rates upstream somewhat below export rates. In particular, this appears to have been the case with the rate on imported salt. In 1841, as a matter of fact, it was reported that the rate from New Orleans to Louisville on all freight was occasionally as low as 15 cents per hundred and was somewhat lower than downstream rates.<sup>43</sup>

Granted that upstream and downstream rates were in general correspondence after 1835, it follows that the behavior of the former between 1816 and 1860 closely resembled that of the Cincinnati prices of imported commodities. That is, the latter were also high, though declining until 1819; in the latter year they began to fall somewhat more abruptly, and they fell still further during the twenties; the downward trend may have continued until 1845-1850 or thereabouts, with some interruption in the late thirties; and an upward movement probably set in shortly before the middle of the century.<sup>44</sup>

*Rate and Loading Agreements.* One of the incentives to suppress competition is to prevent declining prices from falling further or, if possible, to raise them to a "fair" level. It is therefore not surprising to find that western boatmen repeatedly attempted

<sup>42</sup> CPC, Oct. 23, 1846; Oct. 10, 1848.

<sup>43</sup> Although the trip to the South consumed only four or five days, compared with five to eight days return, cabin passage was also cheaper upstream — \$10 to \$15 (L. and R. H. Collins, p. 362).

<sup>44</sup> The assumption that rates up and down stream were treated more or less equally as the steamboat industry developed is also indicated by the testimony of Captain Sam J. Hale, long intimately connected with western river navigation, who reported that the prevailing rates of freight between Cincinnati and New Orleans, either way, were 30 to 40 cents per hundred pounds before the Civil War. By 1876 the boats were so much larger that they could profitably carry freight at 20 to 25 cents (J. Nimmo, Jr., *Report on Internal Commerce* [1876], Appendix, p. 115).

to form agreements of various kinds. The capacity of the industry was continually outstripping demand for its services, and general improvements in technique seemed to lag behind the reduction of rates of freight. The rate on a barrel of flour from Cincinnati to New Orleans over the entire period 1841-1860 averaged (arithmetically) only 65 cents — equivalent to little more than a third of a cent per ton-mile.<sup>45</sup> This average is not typical in that it presumes an equal amount of shipping each month of the year, whereas a large proportion of cargoes was sent during months of high water. As a matter of fact, 30 cents per barrel was a common quotation during the spring seasons between 1844 and 1854 — equivalent to less than one-sixth of a cent per ton-mile. Passenger fares were also low, according to the following comment by a contemporary:

Nowhere in the world is travelling so cheap as on our western rivers; the reason is, that there is no preconcertion among boat owners as to price, and there are almost as many different owners as boats, but to more than anything else probably is this owing, that they are freight boats. Freight is their chief dependence and they take passengers incidentally.<sup>46</sup>

It is an apt statement that "the annually increasing steamboat tonnage of this period (1835-1856) kept transportation costs at a minimum never reached before or since."<sup>47</sup>

One of the first associations among rivermen, the Western Navigation and Insurance Company, formed at Pittsburgh in 1819, proposed to provide more regular service with keelboats and barges and to "prevent the extreme fluctuations of freight rates which had characterized the previous seasons."<sup>48</sup> Its counterpart is found in organizations framed in the fifties to protect steamboating from approaching railway competition. Allusion has already been made to the abortive trial of a common tariff on the upper Ohio in the years 1829-1831. Since freight rates

<sup>45</sup> Eight barrels of flour are figured as the equivalent of a ton, according to usage in New Orleans in 1846. The distance is figured at 1,500 miles.

<sup>46</sup> *The United States Statistical Directory* (1847), p. 77. Quoted from L. C. Hunter, *Studies in Economic History*, p. 97.

<sup>47</sup> C. H. Ambler, *A History of Transportation*, p. 179.

<sup>48</sup> Hunter, *Studies*, pp. 97-98. The account which follows is largely drawn from this penetrating study.

continued to decline in 1832, it is no coincidence that the Ohio and Mississippi Mail Line, an association of sixteen steamboats trading to Louisville and New Orleans, was formed at that juncture. It has been termed "the first significant steamboat combination," but there is no evidence that it survived for any length of time.<sup>49</sup> As in the case of the Kanawha salt companies of the same era (of which more below), economic rather than legal obstacles defeated early river combinations.

Excessive competition was widely blamed for the rate situation in the late forties, and the approach of through railways appears to have furnished the necessary impetus to compel many of the boatmen to band together once more in common defense. In 1853 an association of steamboat captains was organized in each of the three leading ports on the Ohio.<sup>50</sup> The precise extent to which these bodies succeeded in affecting conditions is not known, but it is a matter of record that boats shipping from Cincinnati to New Orleans managed to practice loading in turn during the spring season of 1855. Rates were generally lower than in the preceding year, but it must be remembered that the river was exceptionally low for several months in 1854. Loading in turn was carried on in Cincinnati again in 1857, this time at comparatively high rates of freight. However, dissension on the part of one member started the downfall of the arrangement, and a decline in traffic after June of that year finished it.<sup>51</sup> The Cincinnati boatmen reorganized early in 1858, and, although our figures do not indicate a high rate structure at that time, it was reported that shippers were avoiding payment of the established tariff to New Orleans by making separate connections with Louisville. Smaller groups of boats traveling to St. Louis and Nashville concluded joint loading arrangements in 1858.<sup>52</sup> It would not be accurate to say that these combinations were primarily responsible for the rise in freight rates during the fifties, such as it was; but they may well have had a substantial influence in this direction. Perhaps their greatest value was in accumulating experience for later developments. Note that none of the arrangements succeeded in preventing rates from falling very low in springtime; and the Pittsburgh Marine Association, the strongest of its kind, judging

<sup>49</sup> Hunter, pp. 97-98.

<sup>50</sup> Hunter, p. 99.

<sup>51</sup> Hunter, p. 103.

<sup>52</sup> Hunter, pp. 103-4.



from the opposition it engendered, was apparently unable to restore rates on the upper Ohio to a parity with the New Orleans schedule towards the end of the decade.

"*Stage of the Western Waters.*" Fluctuations in the level of water in the Ohio and the Mississippi and their tributaries exerted a profound influence not only upon freight rates but also upon prices and trade of the interior. Although apparently seasonal in character, the partial and total suspensions of navigation were so unpredictable in timing and duration that their influence may not be confined to an annual cycle. A similar situation is met in the case of agricultural crops and prices.

Contemporary western journals contain countless references to suspensions of trade, with resultant effects upon receipts and prices. A sequence of low water, ice, and floods occasionally prohibited navigation for over six months at a time; and a rise perhaps moderate, perhaps extreme, was noted in the prices of commodities brought from a distance. The river reached a record low in the fall of 1819,<sup>53</sup> when no less than eighteen steamboats were laid up at Shippingport and Portland. The following winter was so severe that the entire river system froze over. It is little to be wondered that the craft were eager to resume operations after the ice broke at Cincinnati on March 6, 1820; they had been "embargoed for eight months, by the low state of the water, and by the ice. . . ." <sup>54</sup> A similar sequence of events took place in 1838, 1854, and 1856. All during the summer of the first-named year the Cincinnati market was "extremely languid" and "as dull as ever," because of the low stage of the river and consequently high freights.<sup>55</sup> As the summer wore into autumn, the river fell lower still. A hard winter was soon on its way, bringing a complete tie-up of the river and a dearth in the Cincinnati market, particularly of articles such as coffee, sugar, salt, tea, and pepper.

<sup>53</sup> LH, Oct. 8, 1819; *Niles'*, XVII, 64, 142 (Sept. 25, Oct. 30, 1819).

<sup>54</sup> *Pittsburgh Gazette*, Mar. 23, 1820. Note also the following report, dated at St. Louis February 16, 1820: "The Mississippi is once more open for navigation, the ice has completely left the river, and the water has raised [*sic*] sufficiently to permit the largest boats to come up to St. Louis. We anxiously look for the commencement of commerce for the season, in order that the distress of the times may be in some measure relieved" (*Louisville Public Advertiser*, Mar. 8, 1820).

<sup>55</sup> CDG, Aug. 1, 15; Sept. 7, 1838.

In the middle of February 1839 it was reported that "nothing interests our citizens more than the state of the Ohio."<sup>56</sup> Trade was picking up solely because the river looked good, although the *Robert Emmet* was forced to return from a projected trip to Louisville, finding the river choked fifteen miles below Cincinnati.<sup>57</sup> Essentially similar circumstances prevailed in 1854, when the suspension of navigation was accredited by most observers as a major factor in the acuteness of financial and commercial difficulties of that year. Direct rail connections with the East failed to remedy the situation. During the succeeding winter, Cincinnati was icebound from the sixth of December to the sixth of March.<sup>58</sup> The year 1856 witnessed another prolonged suspension of navigation, succeeded by a freeze of over two months' duration.<sup>59</sup> It has been stated that for more than two hundred days in 1856 no coal boat floated on the Ohio; and in November of that year it was a subject of comment that the banking situation was extremely favorable to an expansion of trade, but "the only obstacle in the way of an increased supply of currency is the continued suspension of navigation."<sup>60</sup> Added to the difficulties was the closing of the Louisville and Portland Canal for six weeks, which made through shipping more expensive, since goods had to be carted around the falls.<sup>61</sup>

The recital of such familiar facts lends understanding to the statement that the water in the channel between Pittsburgh and Louisville was measured to the fraction of an inch and reported daily, beginning about 1835. Such a reading was regarded as a barometer of trade in critical times and in this capacity exerted a noteworthy effect upon the fluctuation of prices from week to week and month to month. There was a direct relation between the stage of the river and the size of cargo a boat could accept. The latter, in turn, was a leading factor in the determination of freights from the supply side.<sup>62</sup>

<sup>56</sup> *Cincinnati Daily News*, Feb. 14, 1839.

<sup>57</sup> *Ibid.*, Feb. 11, 1839.

<sup>58</sup> Ambler, *History of Transportation*, 204.

<sup>59</sup> Ambler, p. 204. See also CDG, July 30, Aug. 6, 1856; Jan. 8-Feb. 19, 1857.

<sup>60</sup> Ambler, *loc. cit.*; CDG, Nov. 26, 1856.

<sup>61</sup> The canal was closed, presumably for repair, though lack of water may have been a contributing factor (CDG, July 30, Aug. 6, 1856).

<sup>62</sup> For instance in March 1840, "the river has continued to fall, and there is

It is impossible in this space to trace to our satisfaction the connections between the stage of the river, commercial conditions, and prices. However, two more instances may be cited briefly. In September 1849 (a year of cholera epidemic) it was reported that navigation had been resumed for the first time since early in June.<sup>63</sup> The whole outlook of trade was improved by the resumption; especially large upstream shipments of sugar, molasses, and coffee were already planned or consummated to take care of the depleted stocks. In the winter of 1851-1852, again, the interruption of shipping was held responsible for serious embarrassments to the merchants of Cincinnati, four of whom were compelled to stop payment at least *pro tempore*. The banks, although never in a more crippled condition, were striving to make liberal allowances to those needing extra accommodations by reason of the crisis.<sup>64</sup> In short, an understanding of the course of Ohio prices during the steamboat age, especially (but not entirely) as concerned their seasonal movements, cannot be had without taking variations in the stage of the river into account. Cyclical and "irregular" elements of the situation were also bound to be affected to a considerable extent.

*Measurement of Rate Seasonality.* Such irregularity in the behavior of the rivers from month to month and year to year is matched by irregularity in the variations of freight rates, and the measurement of a seasonal pattern for the latter cannot be carried to a desirable degree of precision. In the present instance the median-link-relative method has proved most generally satisfactory despite its inherent rigidity.<sup>65</sup> Patterns for the freight-rate index and its six component series have been compiled separately for the forties and the fifties, and data for the latter decade are also available on steamboat arrivals and departures at Cincinnati.

considerable difficulty in boats of two or three hundred tons going out with full freight. . . ." In the following month the river was "yet in good stage for the larger class of boats, which have been arriving freely; in consequence of which, we have to note a decline in freights to southern ports. . . ." (WCA, Mar. 17, Apr. 14, 1840.)

<sup>63</sup> CDG, Sept. 13, 1849.

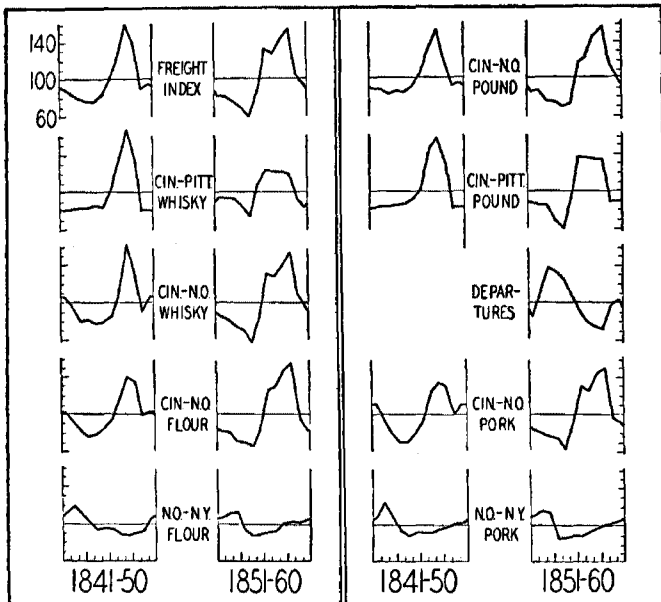
<sup>64</sup> LH, Jan. 1, 1852.

<sup>65</sup> The growth of interest in seasonality as an important type of economic variation is judiciously appraised by Wesley C. Mitchell in his foreword to Simon Kuznets, *Seasonal Variations in Industry and Trade* (1933), p. vii.

The significance of these measures (Chart IV) is enhanced by a high degree of similarity among related patterns and an equally high degree of inverse relationship between rates and traffic. It is true that faint differences in the behavior of commodity rates may be ascribed to individual seasonal requirements. Thus, the New

CHART IV

INDICES OF SEASONAL VARIATION IN WATER FREIGHT RATES FROM CINCINNATI AND NEW ORLEANS AND IN THE DEPARTURES OF STEAMBOATS FROM CINCINNATI



For data, see Tables 13-14, Appendix B.

Orleans flour rate rose somewhat more in the autumn than rates on pork or whisky, and the latter declined to a smaller extent during the winter season, when they were normally ready for shipment in large quantities. Nevertheless, such points of dissimilarity are submerged in general agreement. It follows that the supply of shipping services (as indicated by the departures of boats) was a prime factor in determining freight rates from season to season. Furthermore, flatboat competition was especially active in the spring, and high water not only rendered passage safer

for boats of larger classes but also made it possible for all craft to avoid the delay and tolls at the Louisville-Portland Canal. Demand for the shipment of pork and pork products, for instance, was passive for the most part, although at its peak, during the months between November and June, freight rates were low and declining; conversely, little pork remained to be shipped in the late summer, while freights were high and rising. In short, traffic

TABLE 2  
COMPARISONS OF THE INDICES OF SEASONAL VARIATION IN RIVER AND OCEAN  
FREIGHT-RATE SERIES  
(Kuznets Index of Similarity)

	1841-50	1851-60
Cincinnati freight index and		
New Orleans flour .....	.71	.85
New Orleans pork .....	.49	.90
New Orleans whisky .....	.59	.92
New Orleans pound .....	.77	.75
Pittsburgh whisky .....	.72	.53
Pittsburgh pound .....	.61	.67
Steamboat arrivals, Cincinnati .....	*	-.76
Steamboat departures, Cincinnati .....	*	-.88
New Orleans flour and		
New Orleans pork .....	.70	.89
New Orleans whisky .....	.61	.81
New Orleans pound .....	.48	.75
New Orleans-New York flour .....	-.72	-.46
New Orleans pork and		
New Orleans whisky .....	.53	.85
New Orleans pound .....	.32	.71
New Orleans-New York pork .....	-.22	-.56
New Orleans whisky and		
New Orleans pound .....	.46	.77
Pittsburgh whisky .....	.40	.55
Pittsburgh pound and		
Pittsburgh whisky .....	.88	.85
New Orleans pound .....	.75	.46

\* Data not available.

in the leading commodities tended to conform to the stage of the rivers.

In Chart IV the river rates on flour and pork to New Orleans are compared for seasonality with the ocean charges on these same commodities from New Orleans to New York. It appears that ocean rates, in marked contrast to river freights, were uni-

formly higher in winter than in summer. One may also note that, as with river rates, the similarity between series of ocean rates is higher for different commodities than for different periods of time. In other words, the flour pattern for the forties is more similar to the pork pattern of the same decade than to the flour pattern of the fifties.

*Measurement of Similarity and Amplitude.* The Kuznets Index of Similarity has been employed to ascertain the degree of agreement among the various patterns,<sup>66</sup> and the magnitude of the figures in Table 2 is in general keeping with impressions gathered from visual inspection. It may be emphasized once more that the river patterns are highly similar to each other (and dissimilar as a group to the patterns of arrivals and departures). Ocean rates, on the other hand, show a tendency towards an inverse relation to river rates where seasonality is concerned. Information on ocean rates, it is true, is limited to two commodities (flour and pork).

TABLE 3

AMPLITUDE OF THE INDICES OF SEASONAL VARIATION IN SELECTED RIVER AND OCEAN FREIGHT-RATE SERIES, AS MEASURED BY THE AVERAGE DEVIATION AND RANGE

SERIES	AVERAGE DEVIATION		RANGE	
	1841-50	1851-60	1841-50	1851-60
Cincinnati freight index .....	20.2	26.5	80	95
Cincinnati-New Orleans flour .....	15.4	26.3	63	88
Cincinnati-New Orleans pork .....	18.3	24.4	62	86
Cincinnati-New Orleans whisky ...	18.5	26.3	85	97
Cincinnati-New Orleans pound ....	16.8	24.0	68	87
Cincinnati-Pittsburgh whisky .....	23.2	15.8	85	51
Cincinnati-Pittsburgh pound .....	21.6	23.8	75	77
Cincinnati steamboat arrivals .....	*	11.5	*	35
Cincinnati steamboat departures ..	*	17.5	*	67
New Orleans-New York flour .....	8.6	7.7	30	26
New Orleans-New York pork .....	7.8	8.3	37	27

\* Data not available.

Table 3 shows that the various river patterns possess an unusual amplitude of variation, judged by the range and the average deviation. The index pattern, which represents data of a summary character, exhibits a range approaching 100 per cent, taking the average for the year as a base, and its high point in the autumn

\* Kuznets, *Seasonal Variations*, p. 282.

corresponds to quotations ranging from two to six times as high as spring rates (the data themselves are given in the appendix below). Moreover, average deviations are not far from 20 per cent. The ocean rates had an amplitude of an altogether lower order, according to these statistical measures.

*Changes in Seasonality.* Attempts to discover a consistent shift in the seasonal behavior of freight rates between 1841 and 1860 have not met with success, owing to the violent changes which took place from year to year. Nevertheless, the patterns relating to the forties and the fifties (Chart IV) do reveal several noteworthy points of difference.<sup>87</sup> In connection with the New Orleans series, the latter may be summarized as follows: (a) a tendency to seek a lower level in the winter and spring; (b) advance and exaggeration of the rise in June and July; (c) a postponement of the peak from September to October; and (d) a failure to rise in December and January during the latter decade. As for the Pittsburgh data, the chief alterations during the fifties were the leveling of the summer peak to some extent and the appearance of a drop in the spring, not unlike that observed in the New Orleans indices.

That these differences are significant is also suggested by Indices of Similarity (Table 4) which show that most of the series yield a lower figure, comparing decade for decade, than was noticed above in a comparison of the various series with each other for the same period of time. Thus, seasonality in the index appears to have changed least from the forties to the fifties; at least, its two patterns have the highest index of similarity (.61). But according to Table 2 these patterns were much more similar to contemporary ones representing other series, especially during the second decade.

It is quite certain that the general configuration of the seasonal patterns showed no propensity to disappear before the Civil War. On the contrary, the seasonality possessed a tendency to increase in amplitude (Table 3). To be sure, the peak in Pittsburgh rates tended to level off, but this does not detract from the conclusion that entry of trunk railways into competition for through traffic

<sup>87</sup> The reader is cautioned that the differences here noted are affected to some extent by interpolation during the fifties and by the trend-correction involved in the median-link-relative method.

during the fifties did not immediately result in ironing out the variability of Ohio-Mississippi river freight rates.

*Sequel.* The tariff on western rivers became so unstable during the years of the Civil War that the Cincinnati Chamber of Commerce despaired of rendering a weekly report.<sup>68</sup> "Prevailing rates"

TABLE 4  
COMPARISONS OF THE 1841-1850 AND 1851-1860 INDICES OF SEASONAL VARIATION  
FOR SELECTED RIVER AND OCEAN FREIGHT-RATE SERIES  
(Kuznets Index of Similarity)

Series	Index of Similarity
Cincinnati freight index .....	.61
Cincinnati-New Orleans flour .....	.57
Cincinnati-New Orleans pork .....	.46
Cincinnati-New Orleans whisky .....	.29
Cincinnati-New Orleans pound .....	.48
Cincinnati-Pittsburgh whisky .....	.41
Cincinnati-Pittsburgh pound .....	.47
New Orleans-New York flour .....	.20
New Orleans-New York pork .....	.56

were quoted to Pittsburgh, the lower Ohio, Memphis, St. Louis, Nashville, and to other points according to the military situation. Pound rates to the first-named port climbed each year of the war and reached 40 cents per hundred at the close of the commercial years 1864 and 1865. Thereafter, they settled to a norm of 20 cents and approached stability towards the end of the sixties. New Orleans rates were not quoted from the beginning of hostilities until August 1864, at which time they were extraordinarily high.<sup>69</sup> The pound rate to the mouth of the Mississippi settled to \$1.00 during the last year of the war, then declined until 1870, when it was stabilized between 25 and 30 cents. Contemporaneous pound rates to the lower Ohio and to St. Louis, on the other hand, showed no sign of losing their seasonality.<sup>70</sup>

A decade later, railway competition and rate agreements among the boatmen appear to have kept the rates to New Orleans and to

<sup>68</sup> CCC (1862), p. 11; (1863), p. 11; (1864), p. 13.

<sup>69</sup> The closing rates were: whisky and oil, \$5.00 per barrel; pork, \$4.00 per barrel; flour, \$3.00 per barrel; and pound freight, \$1.50 per hundred.

<sup>70</sup> CCC (1865), p. 13; (1866), p. 30; (1867), p. 25; (1868), p. 49; (1869), p. 94; (1870), p. 52.



Pittsburgh from varying to any extent. During the five years 1882-1886 the monthly rate on flour from Cincinnati to New Orleans changed only five times, and seasonality had finally disappeared. The Pittsburgh rate altered only four times during this same interval.<sup>71</sup>

*Insurance Rates.* Quotations on marine insurance indicate a general decline during the first half of the century in spite of the frequency of steamboat wrecks. Indeed, the rates on steamboat cargoes reached a lower level than those on shipments by flatboat. The latter, it will be recalled, were exposed rather more to the weather, as well as to accidents. Furthermore, the voyage downstream took about fifteen days longer in the floating craft.

As a matter of fact, insurance on flatboat shipments was unobtainable at reasonable rates during the early days.<sup>72</sup> The emergence of a corps of skilled pilots and hands helped to reduce losses, and the rate on cargoes from Louisville to New Orleans had fallen to 5 per cent by 1822.<sup>73</sup> As for steamboats, the rate from Louisville to other ports on the Ohio was 2 per cent towards the close of 1827. These two figures are, of course, not strictly comparable. However, there is evidence that both classes of rates had fallen about 50 per cent by the early forties, and that the flatboat charge was approximately double that on steamboat cargoes. Quotations from Cincinnati during the busy spring season varied between  $\frac{1}{2}$  and  $\frac{5}{8}$  per cent for steam and 1-2 per cent for flats, depending upon the cargo.<sup>74</sup> A good part of this decline occurred with the major depression, and it appears to have affected river rather than ocean shipping. Thus, the steam rate to New Orleans was  $\frac{1}{2}$ -2 per cent in the spring of 1840, which is to be compared with  $1\frac{3}{4}$ -2 $\frac{1}{2}$  to eastern ports. A year later the corresponding figures were  $\frac{5}{8}$  and 2-2 $\frac{1}{2}$  per cent. In November 1841, a first-class New Orleans rate was fixed at  $\frac{1}{2}$  per cent; the second-class ranged from  $\frac{3}{4}$  to 1. The rate from Louisville was also on a low level in the summer of 1846,

<sup>71</sup> W. F. Switzler, *op. cit.*, p. 461; Hunter, *Studies in Economic History*, pp. 100 *et passim*.

<sup>72</sup> Adlard Welby, *A Visit to North America*, p. 96 (in Thwaites, XII, 239).

<sup>73</sup> *Lexington Reporter*, Mar. 28, 1822.

<sup>74</sup> CDG, Feb. 20, 1844; LH, Oct. 18, 1843.

though charges on voyages to Atlantic ports mounted to 4 per cent, probably because of the war.<sup>75</sup>

Marine insurance rates, unlike freight charges, did not change from month to month, according to the quotations published in the *Cincinnati Price Current* between September 1848 and March 1849. It is notable that the rate on "tight casks" by flatboat remained exactly double the steamboat rate to New Orleans but that perishable articles paid a much higher premium on the smaller craft. The leading rates were as follows:

<i>By Steamboat</i>	<i>Per cent</i>
Cincinnati to New Orleans .....	$\frac{1}{2}$ - $\frac{3}{4}$
New Orleans to Cincinnati .....	1
To and from St. Louis .....	$\frac{3}{4}$ - $1\frac{1}{4}$
Louisville .....	$\frac{1}{4}$
Pittsburgh, Wheeling .....	$\frac{3}{4}$ -1
From eastern ports, via New Orleans .....	$2\frac{1}{2}$
<i>By Flatboat (New Orleans only)</i>	
Tight casks .....	1- $1\frac{1}{2}$
Other property .....	2-3
Hay and grain .....	5-7

Only minor changes occurred during 1849, according to the same journal. An interesting addition to the table was a rate on shipping from eastern ports via Lake Erie ( $\frac{3}{4}$ -1 per cent).

*Summary.* The rate structure on steamboat shipping from Cincinnati tended to develop in size and complexity, especially after 1840. Whereas only scattered quotations are available for prior years, the market reported regularly on several classes of freight during the forties and fifties. Flour, pork, and whisky were generally given specific rates to New Orleans, and whisky was commonly quoted to Pittsburgh.

Freight rates downstream underwent a long-range decline between 1820 and 1850 and recovered to some extent during the following decade. A common rate before 1820 was a cent a pound from the upper Ohio to New Orleans, whereas much shipping was done at 25 or 35 cents a hundred around the middle of the century. Flatboat rates were generally lower than steamboat, especially during the dry seasons of the year.

<sup>75</sup> *Cincinnati Price Current*, Sept. 1848-Mar. 1849, Feb. 1850.

Though comparatively few rates upstream from New Orleans are available, they indicate a decline of a much greater extent. In the 1790's one quotation was equivalent to more than 9 cents a pound; shortly before 1820 it had fallen to between 3 and 6 cents; in the late 1820's it was about one-half cent; and there is evidence that the rates on imported goods were equal to or lower than downstream charges in later years, owing to the fact that return cargoes were not easily secured. As for rates to Pittsburgh from Cincinnati during the 1850's, one notes a failure to rise to the same extent as downstream rates.

River freight rates were subject to wide movements not only from year to year but also from month to month. Both types of variation appear to have been due largely to changes in shipping conditions. Significant alterations in seasonality took place between the 1840's and the 1850's.

Beginning as early as 1819, shipping operators made several attempts to restore freight rates to former levels. None of the arrangements was successful or permanent, although the practices of loading in turn and respecting open rates were moderately successful during the 1850's.

Insurance rates also underwent a downward drift between 1820 and 1850, according to the few data at hand. There is evidence that this decline was at least 50 per cent. Premiums on flatboat cargoes tended to be at least double those on steamboats, and as late as 1850 the flatboat premium on items such as hay and grain was relatively very high.

## CHAPTER IV

### RATES OF OVERLAND FREIGHT

IN THIS CHAPTER the object is to trace the progressive effects of various internal improvements upon costs of carriage between Cincinnati and the East over more direct routes. Attention is first given to the westward traffic, since this was of primary importance to points on the lower Ohio and the Mississippi until the coming of the railway. The well-known story of the competition among New York, Philadelphia, Baltimore, and Richmond for the markets of the interior is considered in terms of freight rates, and emphasis is then laid upon the part played by these charges in the turn of the export stream towards the East.

*Westbound Rates before 1816.* Early pioneers of the central Ohio Valley region were compelled to pay such high rates of carriage westward over the mountains that the traffic was limited to those articles which were valuable in relation to their weight or bulk. For some time John Filson predicted that commodities would "ever be dear" in Kentucky because carriage from Philadelphia to the falls of the Ohio in 1784 was at least £1,600 on forty tons and western merchants were consequently accustomed to retail at "one hundred pounds per cent" advance.<sup>1</sup> In the same year Arthur Lee, a member of Congress, quoted the wagon rate from Philadelphia (or Baltimore) to Pittsburgh at 45 shillings per hundredweight—a figure not inconsistent with that just mentioned. Some months later it was given as sixpence per pound.<sup>2</sup> In the spring of 1791 one merchant paid the latter rate (50 shillings per hundred pounds) to Lexington from Philadelphia and Baltimore.<sup>3</sup> This was equivalent to 8  $\frac{1}{3}$  cents per pound

<sup>1</sup> Cf. *ante*. This rate, if in Virginia currency, was equivalent to \$6.67 per hundred (Filson, *op. cit.*, pp. 39, 46).

<sup>2</sup> If in Pennsylvania currency the first quotation was equivalent to \$6.00; the second, 6 $\frac{2}{3}$  cents (A. B. Hulbert, *Paths of Inland Commerce* [1921], p. 66).

<sup>3</sup> Morton Invoice, March 6, 1791 (Historical and Philosophical Society of Ohio). The Virginia-Kentucky scale is used (Imlay, *op. cit.*, p. 143).

and much higher than the figure given by Imlay. Writing in 1791 to advise prospective immigrants to Kentucky, the latter authority quoted a rate of 15 shillings from Alexandria to Redstone Old Fort on the Monongahela (the shortest route) and charges "in like proportion from Baltimore and Philadelphia." Furthermore, he estimated the common river freight from Redstone to Kentucky at only one shilling, although there was no regular commercial carrier and many boats gave emigrants and their cargoes free passage. In August 1794, Ormsby and McLaughlin, a Pittsburgh firm, paid 35 shillings on carriage from Philadelphia and 32s. 6d. on a load from Lancaster.<sup>4</sup>

Michaux reported in 1802 that the merchants of Lexington monopolized the trade of the Kentucky area and received their goods from Baltimore and Philadelphia by way of Pittsburgh and Limestone (Maysville).<sup>5</sup> Dry goods and light manufactured articles, some seven-tenths of which were of English origin, were hauled over this route in thirty-five to forty days; and, although frequently sold to Kentucky settlers for specie to be carried back East, they were commonly traded for readily marketable commodities at an advance of 18 to 20 per cent. Almost all western travelers before 1820 reported in similar vein and attested that prices of imported goods were especially high in the interior, partly on account of the high costs of carriage thither, and partly because of the wide margin of profit which western storekeepers were accustomed to figure in the trade.<sup>6</sup>

Michaux found the charge on goods from Baltimore or Philadelphia to Pittsburgh to be about \$6.00 per quintal, whereas it was only one or two dollars more from the latter point to Lexington.<sup>7</sup> In the following spring (April 15, 1803) Harris quoted the land carriage from Baltimore to Pittsburgh as \$4.50, or 50 cents per hundred pounds less than from Philadelphia.<sup>8</sup> Three

<sup>4</sup> Account book in the Library of Congress. The rates were equivalent to 4¾ and 4¼ cents, respectively.

<sup>5</sup> Michaux, *op. cit.*, pp. 58 *et passim*. See also William A. Leavy, "A Memoir of Lexington and Its Vicinity with Some Notice of Many Prominent Citizens" (MS, University of Texas Library), p. 159.

<sup>6</sup> See the cited works by the following: Birkbeck, pp. 36, 90, 128; Harris, p. 42; Evans, p. 269; Fearon, pp. 186, 230; and Faux, p. 332. Harris noted in 1803 that dry goods were comparatively cheap in Pittsburgh (Thwaites, III, 343).

<sup>7</sup> *Op. cit.*, pp. 58 *et passim*.

<sup>8</sup> Harris, *op. cit.*, p. 42.

years later, Cramer estimated the rate from the City of Brotherly Love to average about 6 cents per pound.<sup>9</sup> Morgan Neville wrote that "the old price of carriage of goods from the Atlantic seaboard to Pittsburgh, was long estimated at from five to eight dollars per hundred pounds,"<sup>10</sup> and Burnet was of the opinion that haulage over the mountains from the East in the early years of the century averaged more than 5 or 6 cents — the upstream barge rate from New Orleans at that time.<sup>11</sup> One small shipment, of which record is available, cost almost exactly 5½ cents per pound from Philadelphia to Pittsburgh in July, 1812.<sup>12</sup> However, in 1815 a Pittsburgh authority reckoned the charge for "weight dragged over the mountains at 10 cents per lb." and the carriage by this route as far westward as Louisville was figured at 11 or 12 cents at that time.<sup>13</sup> On the other hand, Birkbeck found that the freight from Philadelphia to Pittsburgh averaged only \$7.00 in 1816, although it was frequently up to \$10.00 per hundred-weight.<sup>14</sup>

The discrepancies among these quotations and estimates are not difficult to explain. Aside from the fact that they do not all pertain to exactly the same service and that some of the estimates were elaborated from memory years later, it may be noted that the wagon rates themselves fluctuated greatly from time to time not only with commercial and monetary movements but also according to a regular seasonal pattern. The latter type of variation appeared a leading characteristic of wagon carriage rates to Michaux, who noted it as early as 1802.<sup>15</sup>

However, all authorities agree that early land rates were so

<sup>9</sup> Cramer expressed a hope that the development of water communication with Lake Erie by way of French Creek would cut the freight from New York to Pittsburgh to about 3 cents, "which is one half less than is given from Philadelphia." The French Creek route had already received some usage, especially for the carriage of Onondaga salt to Ohio River points. (Cited in Hulbert, *Waterways of Westward Expansion*, 80.)

<sup>10</sup> Hall, *Notes*, p. 239.

<sup>11</sup> *Op. cit.*, p. 400.

<sup>12</sup> R. & J. Patterson account book. A trunk weighing 72 pounds bore a freight bill of \$3.88 when it arrived on July 10, 1812.

<sup>13</sup> As in 1802, the water freight came to only 1-2 cents per pound (*Commonwealth* [Pittsburgh], Oct. 21, 1815; *Western Monitor* [Lexington], Jan. 19, 1816).

<sup>14</sup> *Op. cit.*, pp. 29, 128.

<sup>15</sup> *Op. cit.*, pp. 63-64.

high as to constitute a large share of the charge from the East to Cincinnati and other points. The long distance over poor roads and the time consumed in the trek, costly though they were, do not entirely account for it.<sup>16</sup> Another factor was the traffic and exchange situation: i. e., so many more freights (and passengers) were hauled westward than in the opposite direction that many wagons returned empty. Occasionally return cargoes of Illinois furs or western ginseng were carried to the East, but the large majority of commodities exportable from the interior bore insufficient value in relation to their bulk and weight to pay for wagon transportation over such a distance.<sup>17</sup> In other words, the inbound freights of the wagons were generally forced to pay for the round trip.

*Westbound Rates of Wagon Freight, 1816-1823.* An extraordinary reduction in rates of wagon carriage from the eastern seaboard to the Ohio River took place between 1816 and 1823. There seems to be no question that immigrants used the roads leading from Baltimore and Philadelphia to a greater extent than ever, and also that large quantities of light articles, particularly dry goods, found their way to western markets through Pittsburgh and Wheeling. But, as in the case of the upstream river freights, it is difficult to measure and date the decline in the price of the wagoner's services, and doubt will remain as to how far this decline was due to improvement in the roads as opposed to deflation in the currency. Furthermore, reported rates differ rather widely according to sources and to the season of the year. Turner credited the National Road for a cut in land rates of about 50 per cent between 1815 and 1830<sup>18</sup> because the charge from Philadelphia to Pittsburgh fell to between \$4.00 and \$6.00 "a few years later" (than 1815) and to \$3.00 in 1823.<sup>19</sup> Apparently the rates held up pretty well until 1819, however, for Bradbury found it necessary in 1817 to pay between \$5.00 and

<sup>16</sup> In 1802 the distance from Philadelphia to Pittsburgh was figured at approximately three hundred miles, and the time necessary to traverse it at twenty to twenty-four days (Michaux, pp. 63-64).

<sup>17</sup> Michaux, pp. 63-64. Of course the relatively low export freight down the river to New Orleans was an important factor in this situation. See also Michaux, *op. cit.*, pp. 138-39; Cuming, *op. cit.*, p. 461.

<sup>18</sup> *Rise of the New West*, p. 100.

<sup>19</sup> *Ibid.*, p. 99. A new Chambersburg turnpike was built during this era.

\$7.00 per hundred, passengers or luggage; <sup>20</sup> furthermore, in the following July the total charge from Baltimore to Zanesville was no less than ten dollars,<sup>21</sup> and in the same month of 1819 one party of immigrants paid \$4.25 from Baltimore to Pittsburgh, while another was charged almost \$5.00 from the same seaport to Wheeling.<sup>22</sup>

The fall in wagon rates during the depression after 1819 was similar in magnitude to that undergone by commodity prices and river freights. At least, the Philadelphia-Pittsburgh rate was quoted at \$1.75 shortly after the beginning of 1822 and the Philadelphia-Wheeling at \$2.25.<sup>23</sup> The former amounts to only 25 per cent of the figure reported six years earlier by Birkbeck. *Niles'* noted at the beginning of 1823 that "the land carriage to Pittsburgh is now very moderate,"<sup>24</sup> and it is highly probable that charges from Baltimore were even more advantageous to importers and immigrants.

During the epoch when turnpikes were at the height of their usefulness, Baltimore and Pittsburgh were the points on the seaboard and the Ohio River, respectively, between which the cost of land carriage was consistently lowest. On the eastern end, Baltimore had scarcely any competition with Philadelphia so far as rates were concerned, while Pittsburgh was nearer to the Maryland market than Wheeling. The wagon data also show a seasonal variation of very high amplitude with the peak occurring in March or April and the low coming in the summer of the year.

In the fall of 1826 the charges from Philadelphia to Pittsburgh

<sup>20</sup> John Bradbury, *Travels in the Interior of America* (1817), p. 313.

<sup>21</sup> This was \$3.50 more than the rate from New Orleans to Zanesville via Shippingport (Hulme, *Journal of a Tour* [1828], p. 302. In Thwaites, X, 75).

<sup>22</sup> Nine people and three tons of luggage engaged for the Wheeling trip at a total charge of \$350. Passengers were rated at 150 pounds by many stage lines. (John Woods, *Two Years' Residence in the Settlement on the English Prairie* [1822], pp. 32-33. In Thwaites, X, 196-97.)

<sup>23</sup> It should be added that the Pittsburgh editor was drawing a comparison with Wheeling rates which was favorable to Pittsburgh (*Pittsburgh Gazette*, Feb. 1, 1822).

<sup>24</sup> *Niles'* observed that the steamboat trade of Pittsburgh was recovering rapidly from the depression and would benefit greatly from the reduction in wagon rates from the East (XXIII, 305 [Jan. 18, 1823]).



and Wheeling were up to \$3.00 and \$3.50 respectively,<sup>25</sup> but they declined about 40 per cent before the end of the year. In December the Pittsburgh rate was given as \$1.75-2.00,<sup>26</sup> and the quotation from Baltimore to the iron center was only \$1.37½-\$1.50.<sup>27</sup> The charge from Philadelphia was given as \$2.50 in the middle of 1827, but that from Baltimore was a full dollar cheaper.<sup>28</sup> A sizable differential in favor of Baltimore was also present in 1828.<sup>29</sup> And Pittsburgh tended to preserve a fifty-cent advantage over Wheeling for the land carriage, to be matched against a five-cent saving in downstream river rates usually enjoyed by the Virginia port.<sup>30</sup>

In 1831 Jonathan Knight, then chief engineer of the Baltimore & Ohio, stated the charge from Baltimore to Wheeling by way of Cumberland to be about 2 cents per pound, or about 17 cents per ton-mile for the 266 miles. At that time a wagon took fifteen days, averaging eighteen miles per day. The mean daily wage of drivers was 80 cents, and the cost of each horse, including harness and feed, was about 40 cents *per diem*.<sup>31</sup>

In contrast to steamboat quotations, the wagon rates advanced in the spring of 1829 and again in the spring of 1830.<sup>32</sup> This was due not only to the poorer condition of the roads at that time of year but also to a brisk demand for wagon freights on the part of purchasers who were anxious to have their goods forwarded.<sup>33</sup>

<sup>25</sup> *Pittsburgh Gazette*, Sept. 8, 1826. See also *Louisville Public Advertiser*, Sept. 23, 1826; and *Niles*, XXXI, 58 (Sept. 23, 1826).

<sup>26</sup> *Statesman*, Dec. 9, 1826.

<sup>27</sup> *Statesman*, Dec. 9, 1826. "The reduction of the rates of carriage from Philadelphia has caused a trifling reduction in prices of heavy groceries. Coffee we quote today at 16 to 17½ for good green." (*Ibid.*, Dec. 13, 1826.)

<sup>28</sup> It cost \$2.00 from Baltimore to Wheeling, or 50 cents more than to Pittsburgh (*Pittsburgh Gazette*, June 8, 1827).

<sup>29</sup> The January rates were as follows: from Philadelphia, \$2.50-\$2.75; from Baltimore, \$1.50 (*ibid.*, Jan. 11, Sept. 19, 1828).

<sup>30</sup> *Pittsburgh Gazette*, June 8, 1827.

<sup>31</sup> Knight used the long ton in his calculations, although wagon rates were uniformly quoted per hundred pounds. He had formerly been superintendent of the Cumberland road (Ringwalt, *op. cit.*, pp. 33-34).

<sup>32</sup> The rate from Baltimore to Pittsburgh in April 1829 was 2¼ to 2½ cents per pound; in March 1830, 2½ cents (CDG, Apr. 11, 1829; *Cincinnati American*, Apr. 5, 1830).

<sup>33</sup> *Baltimore Patriot*, Mar. 26, Apr. 9, 1836. The extra large demand for wagons

A fairly continuous monthly series of Baltimore wagon freights to the Ohio for the years 1834-1836 indicates three interesting facts: first, they were about on the same level, for corresponding months, as the rates between 1826 and 1830 (although the quotations reached as low as \$1.00 during the later period); secondly, as already suggested, wagon charges tended to rise sharply in the springtime; and thirdly, a lower though practically uniform differential of 25 cents was maintained in favor of Pittsburgh over Wheeling.<sup>34</sup>

*Baltimore's Prominence.* The various land and water routes were clogged during this era by a heavy westbound traffic, composed for the most part of immigrants and their belongings as well as commercial shipments of dry goods and other articles, the weight of which was a secondary consideration.<sup>35</sup> In 1817 Bradbury had advised immigrants headed for southern Ohio to land in Baltimore and take the Cumberland road to Wheeling, not only because the road was "much less difficult" than the Pennsylvania pike but also because of the ninety-five miles of dangerous river navigation thus avoided.<sup>36</sup> James Flint also showed a distinct preference for the more southerly route, partly because of the saving in tolls.<sup>37</sup> In the spring of 1836 it was

in the spring was also probably due in part to the carryover of goods from the winter. According to Bogart, goods were usually shipped to Pittsburgh during the summer, stored through the winter, and sent down the Ohio River the following spring (*Economic History of the American People* [1930], p. 350).

<sup>34</sup> The Pittsburgh rates, expressed in cents per hundred pounds, are as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1834	150	175	175	...	138	144	100	175	150	162	...	...
1835	...	...	250	225	150	125	150	150	150	150	125	138
1836	...	...	300	225	175	125	125	200	150	150	150	125

Rates from Baltimore to Wheeling were higher in every instance, the differential being 25 cents in all but a few cases (*Baltimore Patriot*).

<sup>35</sup> New England textile manufacturers and their wholesalers depended heavily upon the western market during the early nineteenth century; and figures on actual shipments indicate that a majority of the consignments of the Slater Company passed overland via Philadelphia or Baltimore as late as 1835. In 1836 Boston dealers despaired of attracting the western trade from Baltimore (C. F. Ware, *The Early New England Cotton Manufacture* [1931], pp. 90, 169, 186, 310).

<sup>36</sup> *Op. cit.*, p. 313.

<sup>37</sup> Flint, *Letters*, pp. 58, 74, 81 (in Thwaites, IX, 81, 98, 105). Thwaites expressed the opinion that the central Pennsylvania route was the "popular" one until the Baltimore Railway was opened to Cumberland in 1845 (*sic*) (IX, 64-65).

reported in Baltimore that a large proportion of the western shipments had been received from New York.<sup>38</sup> Moreover, the fact is not without significance that both the Cumberland Road and the Baltimore & Ohio were from the beginning subjected to such heavy traffic that the eastern links stood in dire need of repair — or rather renovation — even when extensions to the westward were hardly begun.<sup>39</sup> Thus Baltimore's rate advantage was apparently a significant factor in the routing of traffic.

*The New York Market.* A New York writer in the middle twenties, who exultingly recounted the rapid growth of that city at the expense of Philadelphia and Baltimore, ruefully conceded that the import trade of the Cincinnati region would long continue to flow from more southerly ports. However, he doubted "whether the transportation of all the merchandize carried from both Philadelphia and Baltimore across the mountains, at the rates now paid, amounts to \$300,000. . . ." <sup>40</sup> In 1827 the receipt of a bill of goods by a Cincinnati merchant direct from New York by way of the Erie Canal and the Chautauqua route attracted attention in western newspapers, probably by reason of its novelty.<sup>41</sup> But the status of the Manhattan market was inadvertently revealed by the remark that "it is therefore much cheaper and equally safe to take goods purchased in Philadelphia, for the western market by way of New York."<sup>42</sup> Nevertheless, it was reported in Pittsburgh at the end of 1826 "for the informa-

<sup>38</sup> *Baltimore Patriot*, Mar. 5, 1836.

<sup>39</sup> J. S. Young, *A Political and Constitutional Study of the Cumberland Road* (1904), p. 79; Milton Reizenstein, "The Economic History of the Baltimore and Ohio Railroad, 1827-1853," *Johns Hopkins University Studies in Hist. and Pol. Sci.*, XV, 332-33 (July-August, 1897).

<sup>40</sup> This sum was estimated as the interest necessary on the construction of the B. & O., which New Yorkers contemplated with trepidation. The writer pretended to favor the Chesapeake and Ohio Canal by reason of its practicability! The railroad, he judged, would not be executed by "the present generation" (*Kentucky Reporter*, Apr. 4, 1827).

<sup>41</sup> The rate from New York to Portland, N. Y., (9 days) was \$1.18 per cwt.; from the latter point to Cincinnati (14 days), \$2.00. It was estimated that this route was \$1.82 cheaper than overland from New York to Cincinnati by way of Philadelphia and Pittsburgh (*Kentucky Reporter*, Oct. 10, 1827, citing the *Western Tiller* [Cincinnati]).

<sup>42</sup> The rivalry between markets for trade frequently led to curious conclusions. A comparison was drawn not with the costs direct to the West from Philadelphia

tion of our Tennessee and Alabama friends who make their purchases in New York, that during the present year considerable quantities of goods have been transported from New-York to this city by the Erie Canal, the Lake, and from Erie to this city at \$2.37½ per 100 lbs. including all charges, and within 20 or 21 days." In addition, rates of inland transportation between Erie and Pittsburgh began to be quoted regularly.<sup>43</sup>

*Rates down the Ohio.* Once the merchant or traveler reached Pittsburgh or Wheeling, the whole territory along the Ohio River was open to him at rates rather low compared with the overland or canal charges he was compelled to pay from the seaboard. It is true that the upper Ohio was apt to be dry at the very season when the tide of migration and imports arrived at the river bank,<sup>44</sup> but ordinarily the rates from the head of navigation to Cincinnati, Louisville, and St. Louis were prevented from rising by the fact that the shipper could buy or build a flatboat, "ark," or keelboat if necessary.<sup>45</sup> Before 1816 the rate from Pittsburgh to points near Cincinnati appears to have been from 1 to 2 cents per pound.<sup>46</sup> But in July 1819 it cost only about 70 cents per hundred from Wheeling to Louisville, or one-seventh of the charge on the same cargo overland from Baltimore.<sup>47</sup> Three years later, in the spring of 1822, the steamboat rate from Pittsburgh to Cincinnati, almost precisely the same distance, was only 40 cents; to Louisville it was 50 cents and to St. Louis \$1.50.<sup>48</sup> In 1823 goods could

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but with those from New York by way of Pennsylvania (*Kentucky Reporter*, Oct. 10, 1827).

<sup>43</sup> The incoming rate was \$1.00 per hundred; the outgoing, \$.87½-\$1.00 (*Statesman*, Dec. 2-9, 1826).

<sup>44</sup> Countless migrants were held up both at Pittsburgh and Louisville for several months in 1818-19 (Flint, *Letters*, p. 74).

<sup>45</sup> In 1817 it was common to buy an ark of 25-30 tons for the accommodation of three or four families, for about \$75.00 (Bradbury, *op. cit.*, p. 316).

<sup>46</sup> In April 1813 a bill of general merchandise weighing 11,800 pounds was shipped from Pittsburgh to the Kanawha salt works for only 50 cents per hundredweight; two months later salt kettles were carried over the same route at a charge of \$7.50 per ton (Donnelly & Steele account book).

<sup>47</sup> The arrangement was \$50.00 for nine people and over 6,000 pounds of luggage. The boat also loaded about twelve tons of "store goods," seven of which were billed for Cincinnati and the remainder for Louisville. (Woods, *op. cit.*, p. 75; in Thwaites, X, 221.)

<sup>48</sup> Iron was shipped to Louisville at \$6.00 per ton (*Statesman*, Mar. 23, 1822).

be floated down to Cincinnati in flatboats for a mere 18 cents or shipped by keelboat for 45 cents.<sup>49</sup> Downstream rates on the upper Ohio also fluctuated widely according to the stage of the water; thus, the steamer rate to Cincinnati from Pittsburgh was up to 62½ cents in the fall of 1826 and dropped to 50 the following December.<sup>50</sup> But all during the years 1828–1830 the charge was held at 45 cents, and it stayed at 40 cents during the first nine months of 1831.<sup>51</sup> Heavy goods of Pittsburgh origin, such as iron or glass, were shipped in 1827 and 1828 at \$5.00 per ton — a rate about 50 per cent less than that on through shipments of dry goods.<sup>52</sup> In August of 1835 the downstream traffic was booming in spite of the low stage of the river. A favorable rise brought five steamboats and nine keelboats into Cincinnati upon a single day, loaded with eight hundred tons of cargo, mostly dry goods. The charge on most of these consignments from Pittsburgh was \$1.00, although some were shipped at 75 cents per hundred.<sup>53</sup> The extent of seasonality in steamboat rates between these two points was particularly noticeable in the winter of 1841–1842. Starting at \$1.12–\$1.25 in September, the price descended to 8–12½ cents in January before recovering to 12½–20 cents the following month.<sup>54</sup>

*Comparison with Mississippi River Route.* During the twenties and thirties the reduction in upstream river freights from New Orleans was so much greater than the decline of wagon rates that any article of unusual weight or bulk could be shipped

<sup>49</sup> Louisville freight was one-ninth more in each case (*Cincinnati Advertiser*, Aug. 16, 1823).

<sup>50</sup> *Pittsburgh Gazette*, Sept. 8, 1826; *Statesman*, Dec. 2, 1826.

<sup>51</sup> Wheeling rates were uniformly 5 cents lower. The tariff published in the *Chronicle* represented rates agreed upon by operators of steam craft above Louisville; rates actually secured were admittedly 2½ to 5 cents lower, and in times of low water the published rates were undoubtedly nominal. (*Pittsburgh Gazette*, Jan. 11, Sept. 19, 1828; *Cincinnati Chronicle*, Apr. 18, 1829–Sept. 17, 1831; *Kentucky Reporter*, Dec. 12, 1827.)

<sup>52</sup> The rate to Louisville was \$6.00 per ton, exactly the same as in 1822. This discrimination between "heavy" and "light" goods prevailed in river quotations from Pittsburgh for decades; it was markedly different from the Cincinnati rate classification discussed above. (*Pittsburgh Gazette*; *Kentucky Reporter*.)

<sup>53</sup> CDG, Aug. 28, 1835.

<sup>54</sup> Almost all the river freights available apply to the upstream shipment of goods, but these few rates from Pittsburgh were interpolated in the journals. The

more economically to Cincinnati from the eastern seaboard (or from Europe) by way of New Orleans. For instance, if 50 cents per hundred pounds were allowed for the ocean voyage from Philadelphia to New Orleans, the freight from the former port to Cincinnati in 1827 was not over \$1.00 if the river was in good condition. But according to the wagon rates then current it cost more than \$3.50 for the same service via Pittsburgh. In fact, owing to the relative cheapness of eastbound wagon carriage compared to the westbound, it would actually have cost less to ship heavy goods a complete circuit from Philadelphia around by New Orleans and Pittsburgh and return than to pay the charge for the westward overland carriage by the Pennsylvania road.<sup>55</sup> To be sure, the Erie and Cumberland routes furnished somewhat lower rates, but even the latter, apparently the cheapest of all during the twenties and thirties, could only occasionally afford carriage from tidewater to Cincinnati at a rate less than double the ocean-and-river charge.

*Overland Rates, 1837-1845.* The differential in favor of the New Orleans route appears to have been whittled away to practically nothing during the decade ended in 1845, because of a significant reduction in costs by more direct routes. Long- and short-time factors both operated to bring this about. The lull in immigration in the late thirties and early forties was accompanied by a general slump in business conditions which severely affected the import of goods—particularly foreign goods and luxuries—to the West. Furthermore, the completion of new facilities of transportation was executed in the face of a decline in traffic. The Pennsylvania system had barely been opened when the freight for Pittsburgh fell off so badly and rates fell so low that several transportation lines suspended entirely and others withdrew some of their boats.<sup>56</sup> The operators evidently

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series continued on an upstream basis in April with no change. (*Cincinnati Chronicle*, Sept. 18, 1841-Mar. 19, 1842.)

<sup>55</sup> According to the figures at hand, the round trip would have cost \$2.62½-\$2.87½ as compared to \$3.00. It must be added that this calculation makes no allowance for differences in insurance costs or in time, and such an allowance would naturally favor the land route. However, the point is simply to demonstrate the width of the spread between the inbound rates by weight via Pittsburgh and New Orleans.

<sup>56</sup> The first "voyage" from Hollidaysburg to Johnstown was made in October

maintained their rates at a low level during the succeeding depression. The B. & O. discovered upon its arrival in Cumberland in November 1842 that the wagon traffic on the road was disappointingly small and that through rates had to be cut 30 per cent in order to meet Pennsylvania competition.<sup>57</sup> In the early part of 1843, during the very depth of the depression, the Baltimore wagon rate to Pittsburgh was only 75 cents, but heavy articles and dry goods could be sent to Wheeling or Pittsburgh by the Cumberland railroad-and-wagon route for 70 and 80 cents, respectively.<sup>58</sup> The railroad cut rates so low that on one occasion of which there is record the wagon freight from Baltimore to Pittsburgh was 25 per cent less than from Cumberland to the same point.<sup>59</sup> It may also be noted that the Pittsburgh rate advantage — once 50 cents, later 25 cents — had disappeared for the time being. As for Philadelphia, no figures for those troublous months are at hand, but at the time of the opening of navigation two years later, when the rush of traffic was seasonally heavy and

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1834, but the complete system was not in operation between Philadelphia and Pittsburgh until the following year (A. B. Hulbert, *The Great American Canals* [1904], I, 206-8; *Cincinnati Daily Gazette*, June 21, 1837, quoting the *Philadelphia Commercial List*).

<sup>57</sup> In the Maryland charter of 1827 the maximum rates (toll and transportation together) had been fixed at 6 cents per ton-mile on all westbound freight and 4 cents on eastbound. During the thirties the legislature had granted an increase on all rates except that on flour (eastbound). (Reizenstein, *op. cit.*, pp. 17, 41, 56; Edward Hungerford, *The Story of the Baltimore & Ohio Railroad, 1827-1927* [1928], I, 188, 213-14.)

The tariff by classes published shortly after connection with Cumberland was as follows: 1st class (dry goods, hardware, paints, dyestuffs, etc.), 50 cents; 2nd class (groceries, glass), 40 cents; 3rd class (tobacco, wheat), 30 cents; 4th class (bacon, butter, coffee, fish, lard, pork, salt, whisky), 25 cents; flour, 60 cents per barrel. It was announced that the wagon rate between Cumberland and Wheeling would generally be 50 cents per hundred. Thus, the rate on dry goods from the seaboard to the Ohio River by this route would have come to a cent a pound. (CDG, Nov. 19, 1842.)

<sup>58</sup> *Cincinnati Daily Chronicle*, Feb. 16, 1843.

<sup>59</sup> The respective rates were \$1.25 and \$1.62½; they reflect an extraordinary demand for westbound wagons, not uncommon in the springtime; this demand apparently had shifted momentarily to Cumberland. Three weeks later the rates were more in a normal relationship: the cost by wagon to Cumberland was 35 cents on general merchandise, and from there to Pittsburgh 40 cents, to Wheeling 50 cents. (*Cincinnati Daily Chronicle*, Apr. 5, 1843.)

business conditions were greatly improved, the rate to Pittsburgh was only \$1.12½ on groceries, hardware, and drugs, and \$1.37½ on dry goods.<sup>60</sup> New York's dry goods began to reach Cincinnati that very year (1845) by way of the lately completed Miami Canal Extension (Toledo to Cincinnati); upon one such shipment the total charge came to \$1.25 per hundred, considerably less than half what it would have cost via the Pennsylvania Canal.<sup>61</sup> And beginning with April 1849, regular quotations by "steam" and "vessel" were reported on through shipment from New York of five classes of goods. The dry-goods rates were 110 and 106 cents per hundred, respectively, and did not vary for several months.<sup>62</sup>

*Connecting Rail Lines Completed in 1852.* The state of Ohio was honeycombed with railways between 1845 and 1860 (see frontispiece). Indeed, it led the nation in mileage constructed during the fifties.<sup>63</sup> All eastern roads strove to connect with Cincinnati, with the result that more and more of the interior was opened up. Cincinnati's first (local) line, the Little Miami, was opened for traffic in 1845 and was extremely profitable from the beginning.<sup>64</sup> By 1856 the city was a terminal for five railways and two canals. At first, the rails made through shipments with the aid of the Ohio River, Lake Erie, or the canals. Connections were opened to Sandusky in 1848 and to Cleveland (via Columbus) in 1851. The tempo was accelerated in 1852, and a race took place for the honor of announcing through-passenger service. In May the New York & Erie agreed to furnish passage to New York in forty hours with the coöperation of the Little Miami to Cleveland and a special steamer from that point to Dunkirk.<sup>65</sup> By August arrangements were made whereby the trip was made to

<sup>60</sup> This represents a drop of approximately 50 per cent from the lowest Philadelphia wagon rate available — that of Sept. 19, 1828 (LH, Mar. 20, 1845).

<sup>61</sup> By Toledo the total cost was \$82.88 for 7,072 pounds; another shipment by Pittsburgh cost \$170.62 for only 5,284 pounds (CDG, Oct. 3, 1845).

<sup>62</sup> Until September the other "steam" rates were as follows: crockery, 104; high toll heavy goods, 114; boots and shoes, 124; hats, caps, and straw goods, 154 cents per hundred. "Vessel" rates were slightly lower. (CPC, Apr. 18–Sept. 12, 1849.)

<sup>63</sup> E. L. Bogart, *Financial History of Ohio* (1912), p. 315.

<sup>64</sup> The Cincinnati and Dayton declared a dividend of 4 per cent out of earnings after nine months of operation (Bogart, p. 311; CCC [1852], p. 5).

<sup>65</sup> CDG, May 17, 1852; Paxson, *op. cit.*, p. 250.



Philadelphia and Baltimore in fifty-three hours, over the Little Miami, the Ohio & Pennsylvania, and the Pennsylvania Central; however, an overnight stop in Pittsburgh was necessary, and the last-named line was strictly not completed until December.<sup>66</sup> Towards the very end of the year, the completion of the Lake Shore railroad enabled the New York & Erie to advertise all-rail passage; the Pennsylvania line followed suit in February 1853.<sup>67</sup>

Other routes were opened in rapid succession, the principal ones being by Toledo (1853), by the Ohio and Indiana, and by the Baltimore & Ohio (1854). The last-named, via Wheeling, was omitted from the map of 1850. It was supplemented in 1857 by the completion of the Marietta and Cincinnati Railroad, which became a link two years later in another all-rail connection to Baltimore via Parkersburg, with Ohio River ferriage at that point.<sup>68</sup> Connections with points farther west were also rapidly completed, but no railway bringing Cincinnati into direct contact with the South was put through until long after the Civil War.<sup>69</sup>

*Through Railway Rates, 1852-1860.* It is apparent from the Philadelphia rates advertised in Cincinnati during the hectic year of 1852 that competition was bringing about reductions of the first magnitude and, secondly, that the river route from Pittsburgh

<sup>66</sup> CDG, Aug. 21, 1852; *Pittsburgh Gazette*, Nov. 30, Dec. 3, 1852.

<sup>67</sup> CDG, Dec. 27 [28], 1852; Feb. 14, 1853. The New York road sold tickets for the 39¼-hour passage for \$16.90, or 90 cents more than the first-class fare on the rail-and-steamer route. It also charged \$20.90 to Boston and \$19.90 to Philadelphia (via New York). The Pennsylvania charged \$16.30 to Philadelphia—a trip consuming thirty-eight hours, although a new route via Crestline and Wooster was expected to reduce this to thirty-four hours. Paxson's annual maps and tables of lines constructed in the years 1848-1859 provide an excellent picture of the development in Ohio and four other states of the Northwest. The map for January 1, 1850, differs in slight detail from our frontispiece so far as railways are concerned. (Frederic L. Paxson, "The Railways of the 'Old Northwest' before the Civil War," *Transactions of Wisconsin Academy of Sciences, Arts and Letters*, XVII, 243-74 [1912].)

<sup>68</sup> For a concise statement of the development of Cincinnati's rail connections with the East, see Sidney D. Maxwell's "Historical Statement" in J. Nimmo, Jr., *Report on Internal Commerce of the United States* (1880), Appendix no. 40, pp. 234-35.

<sup>69</sup> A railway between Covington (Kentucky city opposite Cincinnati) and Lexington was opened in the middle fifties, which played an important though ephemeral role in the traffic in wheat (CCC [1856], 11).

still retained such an appreciable advantage that it was preferred to a rail connection via Cleveland except in times of impassability. "Determined to retain the trade of Philadelphia in its accustomed channels," four firms domiciled in that center agreed in August 1852 to forward shipments to Pittsburgh for 60 to 70 cents a hundred (first and second class), which permitted dry goods to be carried all the way to Cincinnati at less than \$1.00 in times of good water. In comparison, through rates made possible by arrangement with Cleveland railroad lines amounted to \$1.30 and \$1.10 for first and second class, respectively.<sup>70</sup> The Pennsylvania Rail Road itself began to give through receipts to Cincinnati at slightly higher rates.<sup>71</sup> And in the February following, with the announcement in Cincinnati of through rail service between Pittsburgh and Philadelphia, a thoroughly new system of charges to either Philadelphia or Baltimore went into effect. Goods were divided into four classes, and winter rates were uniformly 25 cents higher than summer. Nevertheless, the general tendency was still downward.<sup>72</sup>

Overland rates to Cincinnati fell further during the fifties with the extension of trunk lines, but a slight recovery took place at the end of the decade. In July 1855 the Baltimore & Ohio (and associated companies) offered to carry first-class goods from

<sup>70</sup> CDG, Aug. 16, 1852.

<sup>71</sup> The charges were \$1.35, \$1.15, and \$1.00 for first, second, and third class, respectively. Yet the river was presumably used from Pittsburgh whenever possible, for it was stated that "during low water, goods will come at above rates via the Cleveland and Cincinnati Railroad, thus giving shippers the advantage of railroad speed at very low prices." The agents, Taylor & Odiorne, also reminded that they were still shipping produce and merchandise to Philadelphia and Baltimore by the above route, and giving "through tickets." (CDG, Aug. 20, 1852.)

<sup>72</sup> Between Pittsburgh and the East, the tariff of rates per hundred was as follows:

	<i>Winter</i>	<i>Summer</i>
1st class .....	\$1.00	.75
2nd class .....	.85	.60
3rd class .....	.75	.50
4th class .....	.65	.40

The classification of goods is worth noting: 1st class, dry goods, books and stationery, boots, shoes, hats and carpeting, furs and peltries, feathers, saddlery, etc. 2nd class, brown sheetings, drugs, glassware, groceries (except coffee), hardware, wool, etc.; 3rd class, butter in firkins and kegs, cotton (in winter), tallow, tobacco (eastward); 4th class, bacon, cotton (in summer), coffee, lard & lard oil (through), pork (fresh, in full carloads at owner's risk). (CDG, Feb. 14, 1853.)

New York to Cincinnati at \$1.30 (through rate) and third-class at 80 cents. Four years later the corresponding charges were \$1.12 and 57 cents.<sup>73</sup> River men undoubtedly found it difficult to meet such competition except under unusually good water conditions. Several tables of rates to eastern ports, by rail and rail-and-water, appeared in the Cincinnati newspapers of 1859-1860; and we shall assume that the first- and second-class quotations therein applied largely to westbound rather than eastbound traffic.<sup>74</sup> The tables indicate that: (1) published rates had become uniform according to destination and mode of shipment; (2) summer reductions were considerably smaller than those of 1853 cited above; (3) all-rail shipments were charged roughly 10 per cent more than rail-and-water; (4) ten-cent differentials on first-class freight prevailed between Baltimore, Philadelphia, New York, and Boston, in that order. The all-rail first-class rate to Baltimore was \$1.20 during the winter of 1859-1860 and declined to \$1.10 the following spring. However, a rate of \$1.25 was placed into effect on November 19, 1860. As for New York, corresponding figures were \$1.12 and \$1.40 for the summer and winter of 1859, compared with \$1.35 and \$1.50 a year later.

*Through Rates to the West, 1800-1860.* The outstanding characteristic of through western overland freights during the first part of the nineteenth century, therefore, appears to be the secular decline which was primarily, though not entirely, due to continued improvements in facilities; and if the latter could be taken into account in the measurement of freight charges, the movement would appear much greater in magnitude than is indicated by the rates themselves. This decline was accelerated at certain junctures — in particular, the depressions of 1820-1823 and 1840-1843 — and retarded during periods of prosperity; in this respect, wagon, canal, and railway rates behaved not dissimilarly to steamboat rates and the prices of manufactured and imported goods (Index B). However, the non-homogeneity essentially characteristic of land freights is a principal factor in their

<sup>73</sup> The 1853 summer tariff between Philadelphia and Pittsburgh was ostensibly still in effect in 1855, according to published announcements of the Pennsylvania Railroad (LH, July 16, 1855; June 16, 1859).

<sup>74</sup> WCA, Nov. 30, 1859; Feb. 1, May 2-9, Nov. 14-28, 1860.

continued reduction during the fifties, when commodity prices were moving generally upward.

The long-term movement between 1800 and 1860 may not be measured with a high degree of accuracy. Indeed, there was more than one such movement, since rates on different classes of commodities did not fall in the same degree. An approximation may be furnished, however, by estimating the direct rates from Baltimore to Cincinnati characteristic of each decade. The estimates are as follows:

<i>Per hundred pounds</i>					
1801-10	.....	\$7.50	1831-40	.....	\$2.00
1811-20	.....	10.00	1841-50	.....	1.25
1821-30	.....	2.50	1851-60	.....	1.05

*Beginnings of Direct Export to the East.* The network of Ohio canals, segments of which were thrown open to traffic as early as 1827, gave a powerful stimulus to local trade in flour, pork, whisky, and similar articles. Allusion has already been made to the Miami Canal, which carried large quantities of these items to the Ohio River at Cincinnati but was not extended to Lake Erie until 1845. The Ohio Canal, completed from Portsmouth to Cleveland in 1833, succeeded in draining the interior of Ohio at both ends, but was never a great success as a carrier of through traffic.<sup>75</sup> The principal northern route before 1845 was by river to Pittsburgh and over the Pennsylvania Canal. Pork products were the first commodities to follow this route in considerable quantities, according to figures on traffic and rates of freight.<sup>76</sup> That is, a specific rate on bacon by steamboat to Pittsburgh was quoted in the newspapers as early as 1838; at that time, the

<sup>75</sup> Wheat and flour tended to flow toward Toledo and Cleveland, the northern termini, whereas pork products were received in larger quantities at Portsmouth and Cincinnati, especially after 1841 (Huntington and McClelland, *Ohio Canals*, pp. 43, 175-81).

<sup>76</sup> According to Switzler, the Erie Canal diverted shipments of corn and wheat, whereas the Pennsylvania system took a larger variety of products, including "large quantities of lard, bacon, and other Western products" as well as some 20,000 hogsheads of tobacco (annually) and almost all of Pittsburgh's pig iron (*Commerce of the Mississippi and Ohio Rivers*, p. 211). Prices of cereals in northern Ohio rose as a direct result of the Erie and Ohio canals. Wheat was quoted on the lake shore at 75 cents in 1831; a short while before it had brought 31 cents. Improvement was still more noticeable at points in the interior. (*Niles'*, XL, 282 [June 18, 1831].)

spring quotation was 20 cents per hundred or 5 cents less than the charge on general merchandise.<sup>77</sup>

General I. J. Wistar, president of the Pennsylvania Canal Company in a later day, could find no *through* line in general use before 1837 "or thereabouts."<sup>78</sup> Pork and bacon rates were not quoted regularly from Cincinnati to Philadelphia and Baltimore until 1843; the charge during the summer varied between 75 cents and \$1.00.<sup>79</sup> The Pennsylvania route was economical for flour shipments only in special cases. In April 1840 the price of flour in Cincinnati reached the lowest point between 1834 and 1842, no less than \$2.36¼ below the simultaneous quotation in the East. It was commented that "the rate of transportation by the Pennsylvania route, from Cincinnati to New York, is *now* not equal to this difference," and that "the whole transaction will not average thirty days of time, so that . . . the shipper will now make *even on that route* the whole difference of exchange — 9 per cent."<sup>80</sup> Only three years later, however, attention was called to the fact that flour could be sent to New York by canal and railroad (via Pittsburgh and Philadelphia) for \$1.35 per barrel, merely 20 cents more than the rate by New Orleans. Besides being much more speedy (eighteen days instead of thirty-six) the new route was recommended especially for summer shipments. It was stated that the southern route offered a hazard to flour at that time of year as to be tantamount to a loss of market (the canals were also criticized because of the spoilage of pork by summer's heat).<sup>81</sup>

Rates to New Orleans by flatboat still enjoyed a decisive advantage at times over the direct route. In January 1844 the charge on bacon was only 20 cents down the river and 20 to 25 cents on the ocean, whereas the rate to eastern ports via Pittsburgh averaged 75 cents.<sup>82</sup> At the end of 1845 the profitable shipping

<sup>77</sup> A year later the bacon rate had risen to 30 cents, that on sundries to 37½ (CDG, May 16, 1838; *Cincinnati Daily News*, Mar. 23, 1839).

<sup>78</sup> J. Nimmo, Jr., *Report* (1880), p. 182.

<sup>79</sup> A rate of 87½ cents on pork to Philadelphia via Pittsburgh had been quoted in 1842; of this sum 75 cents covered the canal voyage (*Chronicle*, June 17-Aug. 12, 1843; LH, April 7, 1842).

<sup>80</sup> *Chronicle*, Apr. 4, 1840. (Italics mine.)

<sup>81</sup> *Chronicle*, Apr. 20, 1843; *Atlas*, Jan. 25, 1844.

<sup>82</sup> *Atlas*, *loc. cit.*

margin between Cincinnati and New York for flour had fallen to \$1.53. In itemizing costs the flatboat-and-ocean route was employed:<sup>83</sup>

Sale of Genesee flour in New York (Dec. 8) .....	\$6.50
Cost in Cincinnati (Dec. 13) .....	\$5.00
Freight to N. O. (flatboat) .....	.50
Insurance, 1% .....	.05
	<hr/>
	\$5.55
Freight to New York (Dec. 1) .....	.70
Insurance .....	.06
Expenses in New York .....	.06
Commissions, 2½% .....	.16
	<hr/>
	\$6.53
Result, loss per barrel .....	\$0.03

This calculation also indicates that the premium on flatboat insurance had fallen to a marked degree in twenty years' time and that freight charges constituted almost 80 per cent of the total shipping expenses.

With the completion of the Miami Extension Canal to Lake Erie in 1845, the flour rate to New York by this route was quoted (for the first time) at \$1.40. Quotations on pork, bacon, and lard were 62½ cents per hundred, including tolls.<sup>84</sup> The latter, it will be seen, represent considerable reductions from former rates. Nevertheless, the canals never made serious inroads into the trade in *barreled* pork. In 1846 there were cleared at Buffalo, Black Rock, and Oswego for eastern shipment only 71,516 barrels. Less than 20,000 barrels left Pittsburgh via the Pennsylvania Canal during the same year. In comparison the receipts at New Orleans for the year ended August 31, 1846, totaled over 369,000 barrels besides a considerable quantity of meat packed in other containers.<sup>85</sup> As for flour, the great demand for export in 1847 resulted in a clogging of all routes to the East, and rates rose to some extent. However, the rate to New York by "canals and

<sup>83</sup> CDG, Dec. 15, 1845.

<sup>84</sup> *Commercial*, Oct. 18–Dec. 13, 1845.

<sup>85</sup> U. S. Commissioner of Patents, *Annual Report* (1847), pp. 579, 647; Switzler, *Commerce*, p. 216.

lakes" (Miami and Erie canals) settled to record lows in 1848 and 1849, when it began to show a definite advantage over the river rate. The corresponding figures characteristic of each year were as follows: 1845, \$1.40; 1846, \$1.30-\$1.35; 1847, \$1.53; 1848, \$1.10-\$1.15; 1849, \$1.10.<sup>86</sup>

*Railway Competition after 1850.* The transportation situation became more complicated during the fifties as available routes and classes of service were multiplied. Western staples were sent to Atlantic ports by all routes, at fluctuating rates of freight. It is clear that the canals acted jointly with the rail lines, that the latter absorbed a larger and larger share of the traffic, and that the Mississippi route definitely lost ground, especially in time of low water. Severe droughts in 1854 and 1856 tied the rivers up for such long periods as to damage steamboat traffic in flour and certain other products beyond recovery. At such times the railbound traffic was so heavy that some westerners were afraid to ship by train.<sup>87</sup>

The business men of Cincinnati fully sensed that they had arrived at the crossroads of western commerce at the end of the forties, and began to record each export as to mode and direction of travel. Steamboat shipments were classified as to New Orleans, to other down-river ports, and to up-river ports; and separate figures were also collected for exports by flatboat and by canal or railway. The remarkable shift in the currents of trade of the central Ohio Valley appears to advantage in Table 5, where the shipments of leading agricultural products by river to upstream ports are lumped with those by canal or railway for three-year periods at the beginning and end of the fifties. According to these data almost all Cincinnati flour, barreled pork, and whisky went downstream before 1852 (separate figures were not collected for wheat until later in the decade). Bulk meat was the only item of which the larger part went to the North and the East. The picture is decidedly different at the right side of the table. Direct shipments of all products expanded many fold; and although only slightly more than a third of Cincinnati's pork in

<sup>86</sup> CPC, May 29-Aug. 7, 1846; Switzler, *loc. cit.*; WCA, July 5, 1848; CPC, Apr. 18-Sept. 12, 1849. Rates via the Pennsylvania route were much higher in 1847, according to Nimmo (*op. cit.*, pp. 84, 235).

<sup>87</sup> CDG, Nov. 19, 1856.

barrels, corn, candles, and whisky went over the newer routes, almost all her flour, wheat, lard, lard oil, and bulk pork (now largely packed in boxes) had found new ways to new markets.

*Rail Rates to the East, 1850-1860.* The rate structure of the fifties provided for four classes of goods and one commodity (flour); and since the fourth class included fresh pork, bacon,

TABLE 5

EXPORTS OF FARM PRODUCTS AND DERIVATIVES FROM THE PORT OF CINCINNATI TO UP-RIVER PORTS AND VIA CANALS AND RAILWAYS FOR THE PERIODS 1850-1852 AND 1859-1861 (YEARS ENDED AUGUST 31), TOGETHER WITH THE PERCENTAGES OF TOTAL EXPORTS

COMMODITY	1850-52		1859-61	
	No.	Per cent	No.	Per cent
Flour, bbls. ....	37,601	3.3	1,197,992	80.4
Wheat, bushels .....	....	...	896,084	93.7
Corn, sacks .....	48,297	37.2	71,970	34.5
Whisky, bbls. ....	104,431	15.0	376,829	37.2
Pork & bacon, hhds. ....	34,334	34.4	82,130	57.6
Pork & bacon, tierces .....	39,105	50.8	60,916	58.1
Pork & bacon, bbls. ....	32,444	7.2	141,985	42.0
Pork & bacon, boxes .....	....	...	48,588	82.9
Pork & bacon, lbs. ....	6,547,540	53.0	1,482,662	86.5
Lard, reduced to kegs .....	214,774	22.3	950,811	80.3
Lard oil, bbls. ....	28,743	42.3	108,867 *	74.7 *
Candles, boxes .....	64,513	21.2	195,201	36.4
Beef, tierces .....	1,923	7.5	7,892	96.4
Beef, bbls. ....	4,437	7.6	15,906	29.0

Source: Cincinnati Chamber of Commerce, Annual Report (1852), p. 13; (1861), p. 50. The remainder of the exports were sent to New Orleans, to other down-river ports, and "by flat boats."

\* Includes a small amount of linseed oil.

lard, and lard oil, its rate, together with that on flour, was of prime importance to Cincinnati shippers. Butter, tallow, and tobacco were included in the third class, but, according to the Pennsylvania tariffs of 1853 and 1855, the first and second classes included no important articles of export. The differential between each class and the succeeding was from 20 to 35 cents per hundred depending upon the length of the haul; and a barrel of flour was for practical purposes equivalent to two hundred pounds fourth class. Towards the end of the decade anonymous tables appeared containing rail and rail-and-water rates to Boston,



New York, Philadelphia, and Baltimore. In 1859 and 1860 the premium on all-rail rates over rail-and-water was in most cases 5 cents per hundred; and the differential between eastern ports was proportional to the class-rate (roughly 10 per cent). For fourth-class shipments the latter was also generally about 5 cents (on first-class goods it came to 10 or 15). Thus, in 1860 (May) the all-rail charge to Boston, fourth-class, was 55 cents; to New York, 50; to Philadelphia, 45; and to Baltimore, 40. Revisions continued each spring and fall; and the extent of elevation in the autumn was particularly noticeable in 1856 and 1857. We shall focus attention here upon fourth-class and flour rates.

As with river rates and commodity prices, the general level of rail rates to the East rose considerably during the early fifties, declined after 1857, and rose a little at the end of the decade. In 1850 the New York rate on provisions had fallen to 50 cents, and it went to 45 in 1851 (summer rates), "the lowest rate at which freight has ever been carried." The average time had been reduced to twenty days, considered "remarkably prompt."<sup>88</sup> The upward turn was well under way two years later, when the summer rate on flour was quoted at \$1.10 (5 cents higher than the canal rate). This represents an advance of over 20 per cent. The winter rail rate on produce was reported so high at the end of 1856 that a large quantity went down the river in spite of high steamboat rates.<sup>89</sup> Again, as the canals closed in 1857, the flour rate by rail was announced at \$1.75. In the spring of 1859 the ocean rate on this commodity from Cincinnati to New York had fallen to 60 cents; and De Bow attempted to encourage New Orleans by pointing to the wide differential between shipping costs to Liverpool via New York and New Orleans, since the rail rate was still very high.<sup>90</sup>

Rate wars waged by the four trunk lines appear to have brought sharp reductions in 1858. In June 1859 the all-rail flour quotation to New York was published as only 88 cents, which

<sup>88</sup> LH, May 16, 1850; June 12, 1851.

<sup>89</sup> Pork to New Orleans was quoted at \$1.00 a barrel; and carriage from there to New York was 70 cents (CDG, Dec. 16, 1856).

<sup>90</sup> De Bow used \$1.75 as the rail rate. Although the route was not named in connection with the 60-cent rate it was presumably the water route (CDG, Apr. 21, 1859; Switzler, *Commerce of the Mississippi and Ohio Rivers*, pp. 211-12).

represented an advance since they had "patched up peace again." The charge was raised to 95 cents in August and \$1.15 during the following winter. Corresponding rates for the summer and winter of 1860 were \$1.00 and \$1.25, respectively (for fourth-class rates deduct 50 per cent).<sup>91</sup> The summer rail-and-water rate was 90 cents in the summer of the same year, and it will be recalled that twenty years earlier — at a time when commercial affairs were rapidly receding — the charge was estimated as something less than \$2.36¼. Even the lowest direct rates, it is to be admitted, were considerably higher than favorable flatboat quotations of the era or rail rates of later decades,<sup>92</sup> but only part of the river traffic could qualify for the lowest rates, owing to the exigencies of trade and the perishability of cargoes. Furthermore, successive reductions in rail time were diminishing the risk of loss and reducing insurance rates, and commissions and storage expenses at New Orleans were saved by shipping directly. The time of arrival could better be predicted, and both the railway and telegraph made possible a narrower and safer margin of profit. Furthermore, since the new facilities were available in practically all kinds of weather, seasonal patterns of prices and trade were profoundly affected.

It appears, to summarize, that the general pattern of direct rates to the East between 1840 and 1860 differed from that of river rates to New Orleans in that the former had a more consistently downward slope. So far as year-to-year variations are concerned, there was apparently less difference between the two types of charge. Both were high around 1847, declined to a low point some three years later, rose during the early fifties, declined after 1857, and recovered to some extent thereafter. In seasonal pattern, finally, rail rates were characterized by a differently timed and much milder type of movement.

*The Telegraph.* The development of facilities of communica-

<sup>91</sup> LH, June 16, 1859; WCA, Aug. 10, Nov. 30, 1859, and Feb. 1, May 2, Nov. 14, 1860.

<sup>92</sup> Eastbound rail rates to New York declined so much after 1872 that the low points in the spring of 1884 and one year later were only a small fraction of the rates quoted before the Civil War. For instance, grains were carried in bulk at 13 cents per hundred during the later period, and flour at 26 cents per barrel. (CCC [1870-1890].)

tion between Cincinnati and the seaboard paralleled that of transportation, and markets responded to information as well as to the impact of actual purchases and sales. One of the milestones in communication was the "magnetic telegraph" or "lightning line," which was extended to the West with comparative rapidity since the cost per mile was low. The first line (Baltimore to Washington) had hardly been laid in 1844 when plans were under foot to reach New York.<sup>93</sup> Pittsburgh was connected with Philadelphia before the end of 1846, and negotiations immediately commenced towards a line down through Cincinnati and Nashville to New Orleans. A direct connection with Baltimore via Cumberland was also proposed, but the first dispatches received at Cincinnati in August 1847 came through Pittsburgh.<sup>94</sup> The People's Telegraph Company, formed for the purpose, finished the construction to New Orleans late in the following year, and litigation ensued between this organization and Amos Kendall's line between Washington, Savannah, and New Orleans.<sup>95</sup> The importance of the new service for the transmission of commercial intelligence was appreciated in Cincinnati, although it was noted that its value would be more fully realized "when the present lethargy in the markets shall have been succeeded by the activity and energy of another season."<sup>96</sup>

<sup>93</sup> R. S. Cotterill, *The Old South* (1936), pp. 224-25; WCA, May 9, 1845.

<sup>94</sup> WCA, May 9, 1845, and Aug. 27, 1847; LH, Aug. 26, 1847.

<sup>95</sup> Cotterill, pp. 224-25.

<sup>96</sup> LH, Aug. 26, 1847.

## CHAPTER V

### PRICES AND TRANSPORTATION

NOTABLE CHANGES in both the price level and the price system of the West accompanied the momentous developments in transportation and communication outlined above. These changes, some of them long familiar to contemporary writers and later commentators, include: (1) a rapprochement between interior prices and those at the seaboard, particularly the northeastern seaboard; (2) a displacement in the western price structure tantamount to a complete revolution; (3) a shift of the terms of interregional trade in favor of Ohio Valley agriculturists; and (4) progressive alterations in the seasonality of Cincinnati commodity prices.

New statistical material makes it possible to go somewhat further in a quantitative analysis of these phenomena than has been the case heretofore. In the first place, we may compare general index numbers of commodity prices at New York, Philadelphia, New Orleans, and Cincinnati. Secondly, we have individual commodity-price series for the same four markets. Thirdly, the Cincinnati series have been grouped so as to permit a comparison between export produce and other articles, mainly imported and manufactured goods. And, finally, patterns of seasonal variation have been worked out so as to show to what extent price seasonality changed in timing and amplitude. The analysis begins with the general index numbers.

*General Price Levels, 1788-1817.* Let us begin with a consideration of the period before 1816 — an epoch when the first and second tides of agricultural settlers were pushing the frontier from the Appalachians to the Mississippi (of which more below). Account books of the backwoods merchants, supplemented by occasional references in local journals, yield sufficient material (fourteen commodity series) to construct annual index numbers comparable with a series of twelve-commodity index numbers for Philadelphia (Chart V).<sup>1</sup> Both series of data have been arranged

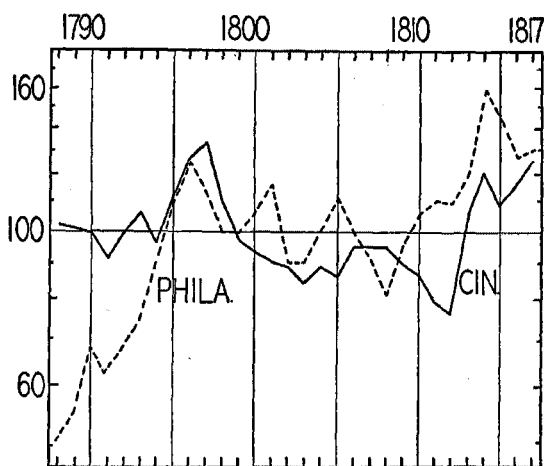
<sup>1</sup> The methods of constructing these two series are not identical, nor are the series

so as to cover the period 1788-1817. It appears that Ohio Valley prices were subject to outside influences even at such an early date, despite the well-known difficulties encountered in trading with the world and in securing a satisfactory currency. In particular, attention is called to the manner in which both price levels

CHART V

UNWEIGHTED ANNUAL INDEX NUMBERS OF WHOLESALE COMMODITY PRICES IN PHILADELPHIA AND THE OHIO VALLEY, 1788-1817

(Base: 1788-1817 average)



For Cincinnati data, see Table 15, Appendix B. For Philadelphia data, see Bezanson, *op. cit.*, I, 396, Table 45. Original base, 1741-1745.

soared in 1795-1796, declined for some years after 1797, and rose after 1812 (these movements receive more treatment in a later chapter).

It can readily be seen, however, that the connection between interior and seaboard was far from rigid and that the former region experienced a rather more stable price level than the latter. Extremely high prices for articles such as iron, salt, and tea kept the western index numbers far above Philadelphia in

included. Seven of the latter (beef, corn, flour, pork, salt, sugar, and wheat) are common to both sets of calculations, and the unweighted mean of price relatives was employed in each case. For details on method see Appendix A below, and Bezanson, Gray, and Hussey, *Wholesale Prices in Philadelphia* (1936-1937), I, 293, 300.

the years 1788-1794. Prices were still rising in the West at the end of 1797 although they had long been falling at the seaboard. The gyrations accompanying war and peace after the turn of the century appear not to have appreciably affected the interior, and it was not until after 1812 that western values ceased to decline. Furthermore, the Ohio Valley price level was only moderately high in 1814 (seaboard prices of some articles, notably salt, were exceptionally high at that time) but rose sharply after the end of the war. It is difficult to point to any consistent lag of the West behind the East during this early period because of such diversity in general behavior; it is safe to state, however, that in such first-magnitude movements as those of 1793-1797 and 1810-1817 there was a lag measuring somewhat more than a year in length.

*General Price Levels, 1816-1860.* Taking a later interval (1816-1860), weighted general indices of monthly prices in New York, New Orleans, and Cincinnati show agreement with each other to a surprising degree, considering that they were compiled more or less independently (Chart VI).<sup>2</sup> Indeed, such a high measure of agreement is a basis for confidence in the very concept of a price level, in view of regional disparities soon to be noticed in the behavior of individual price series. The number of the latter common to all three centers is high if it be taken into account that each series was tested upon its own statistical merits.<sup>3</sup> A more lengthy discussion of the similarities and differences among the general indices in respect to behavior from year to year is reserved for later chapters, but it is pertinent here to observe the manner in which they approached each other in timing. Cincinnati prices lagged the greater part of a year in

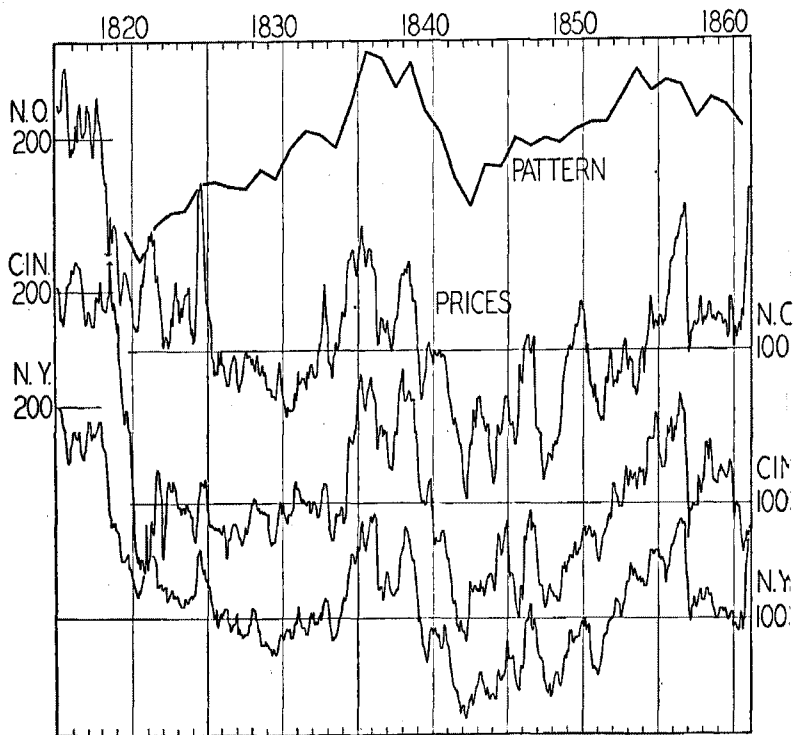
<sup>2</sup> Each of the indices represents data for shorter periods converted to a common base (1824-1846). The New York index, which has a somewhat different system of weighting, was constructed by A. H. Cole; the New Orleans by G. R. Taylor. On the Cincinnati index see Appendix A. Methods and sources of all three are summarized in A. H. Cole, *op. cit.*, I, 65-88, and in W. B. Smith and A. H. Cole, *Fluctuations in American Business, 1790-1860* (1935), pp. 58-60, 143-68.

<sup>3</sup> Of the twenty-one Cincinnati series for 1816-1825, sixteen were used in the New York and New Orleans studies. Twenty-four of the thirty-seven Cincinnati series for 1824-1846 were employed in the New Orleans index (1815-1842) and twenty-one in the New York index (1815-1845). Of the fifty Cincinnati series for 1846-1860, thirty-three were used in the New Orleans computations of 1843-1861 and twenty-eight in the New York indices for 1843-1862.

### CHART VI

WEIGHTED MONTHLY INDEX NUMBERS OF WHOLESALE COMMODITY PRICES IN NEW YORK, NEW ORLEANS, AND CINCINNATI, 1816-1861 (BASE: 1824-1846 AVERAGE).  
 PATTERN OF ANNUAL ECONOMIC VARIATION IN THE OHIO VALLEY,  
 1820-1861 (1820 = 100)

(Vertical logarithmic scale at different levels)



The general economic pattern is discussed in Chapters XIII-XV and in Appendix A.  
 For New York data, see Smith and Cole, *op. cit.*, pp. 143-68. For New Orleans and Cincinnati data, see Cole, *Wholesale Commodity Prices*, I, 178-79, 185. For Cincinnati data (1861 only), see Table 55, Appendix B.

their decline in 1819-1820, but they were only three or four months behind the seaboard markets in the turning-point of 1839 and reacted simultaneously at the time of the panic of 1857. "Apparently the country was becoming more closely tied together economically, and price changes in one region tended to be reflected quickly in other areas."<sup>4</sup>

One fruitful approach to the problem of regional price levels in the United States is to measure the mean monthly disparity from their average; and by use of this method A. H. Cole has found that the divergence among three indices (New York, Philadelphia, and Charleston) expanded greatly between 1758-1765 and 1808-1821 and contracted to an even greater extent by 1830-1842. The disparity was smaller still by 1848-1857, another period of cyclical disturbance. Similarly, with five general indices of commodity prices (including New Orleans and Cincinnati) it was discovered that agreement among the various regions was much closer in 1830-1842 and 1848-1857 than in 1816-1821.<sup>5</sup>

The present procedure is to average New York (Cole's own index), New Orleans, and Cincinnati—three series fairly homogeneous in character—and measure the average monthly deviation from this average by five-year periods (Table 6). The summary results (absolute figures) indicate that rapprochement among the regional price levels did not proceed along a single line of trend but rather tended to rise and decline according to the tempo of the times. One notes, for example, the wide disparity characteristic of both 1816-1820 and 1821-1825, and the great change which took place between 1821-1825 and 1826-1830. As a matter of fact, the latter quinquennium shows an average deviation lower than any other (2.7 per cent). During the thirties and forties the spread increased with rising prices and narrowed during years of depression; but agreement improved during the fifties, although prices were advancing steadily. Moreover, it is certain that the average difference was considerably smaller during each successive period of high prices (1816-1820, 1836-1840, 1856-1860).

The relative data in Table 6, obtained by dividing the deviations by the composite index numbers, make allowance for the fact that the size of the latter varied from period to period to a

<sup>4</sup> Cole, *Wholesale Commodity Prices*, I, 94.

<sup>5</sup> Cole, I, 95. These New York figures were compiled by Warren and Pearson.



goodly extent. Even with this allowance, however, the picture is not greatly different. One is impressed, for example, with the fact that the coefficient for 1821-1825 is the largest of all (9.4 per cent), whereas that immediately following is the smallest (2.9

TABLE 6

GENERAL INDEX NUMBERS OF PRICES IN NEW YORK, NEW ORLEANS, AND CINCINNATI, 1816-1860. AVERAGE DEVIATIONS FROM THE MEAN AND COEFFICIENTS OF VARIABILITY, BY FIVE-YEAR PERIODS. AVERAGE MONTHLY DEVIATIONS FOR EACH SERIES, WITH PERCENTAGES OF THE CORRESPONDING MEANS

PERIOD	COMPOSITE INDEX	A. D.	V	NEW YORK		NEW ORLEANS		CINCINNATI	
				Deviation	Per cent	Deviation	Per cent	Deviation	Per cent
1816-20	177.8	13.6	7.6	14.0	7.9	12.9	7.3	13.9	7.8
1821-25	110.7	10.4	9.4	4.9	4.5	12.2	11.0	14.0	12.7
1826-30	95.2	2.7	2.9	2.8	2.9	2.3	2.4	3.2	3.4
1831-35	102.4	4.2	4.1	2.5	2.5	5.9	5.8	4.2	4.1
1836-40	120.9	6.2	5.2	5.0	4.1	5.2	4.3	8.5	7.1
1841-45	81.2	3.0	3.7	2.0	2.5	3.3	4.0	3.8	4.7
1846-50	86.1	4.9	5.6	3.6	4.1	6.0	6.9	5.1	5.9
1851-55	101.8	4.7	4.6	3.9	3.9	6.8	6.7	3.3	3.2
1856-60	115.5	4.3	3.7	4.4	3.8	4.6	4.0	3.8	3.4

per cent). As for later periods, the data rise and fall instead of moving in a consistent upward or downward direction.

So far as price levels (rather than individual commodity values) are concerned, several forces other than transportation had much to do with timing and direction. In particular, regional currencies were disposed to spread out during intervals of inflation and speculative fever and draw together after liquidation; and only by consideration of this fact can it be explained that the mean monthly disparity among seaboard centers was found by Professor Cole to be much wider in 1808-1821 than it had been in 1758-1765. The high disparity for 1821-1825 shown in Table 6 was due to a wide difference in both timing and amplitude of the decline in prices after the panic of 1819. The West suffered a most severe depression at that time, and currency and prices fell later and further in this region than at the seaboard. Similarly, the sudden rapprochement of regional price levels which occurred later in the twenties coincided with a stabilization of local currencies and interregional exchange rates. These relationships were upset once more by the inflation of the latter thirties and

resumed only after the liquidation of many banks during the early forties. By the second half of the fifties, however, the markets were in such close relation to each other that rises and declines were communicated to the various price levels almost instantaneously.

Since the "mean monthly disparity" or average deviation reveals nothing about the behavior of prices in one particular market as compared with others,<sup>6</sup> we have included in Table 6 the deviations for each of the three markets under analysis. The precise meaning of these data may best be grasped by allusion to Chart VI. Taking the period 1816-1860 as a whole, the New York index numbers are found to have been closest to the average for a majority of the time, whereas the New Orleans and Cincinnati figures show an approximately equal, and higher, degree of independence.<sup>7</sup> Table 6 and Chart VI also show that the Cincinnati index was the most independent of the three before 1825 and the least so after 1850; and, furthermore, that its behavior tended to become more closely aligned with New York rather than New Orleans. It may be noted that, with some exceptions, the deviations of each market are of comparable size with those of the other two. That is, a high average deviation indicates that all three markets were spreading out, and conversely.

The conclusion is irresistible that general index numbers provide no clear and accurate picture of the workings of transportation developments on prices even if figures for various markets are more precisely comparable than the ones employed here. Regional currencies and credit and differences in the behavior of leading commodities, such as cotton in the South and flour and hogs in the West, are complicating factors which defy disentanglement. It does appear, nevertheless, that price levels tended to approach each other at least in the timing of their movements. Furthermore, it is entirely possible that many of the diversities

<sup>6</sup> The path-breaking analysis of F. C. Mills abstracts from both commodities and regions. See his *The Behavior of Prices* (1927), especially pp. 161-94. Criticism of this feature of the work is voiced in R. T. Bye, *An Appraisal of Frederick C. Mills' The Behavior of Prices* (1940), pp. 35 *et passim*.

<sup>7</sup> This may be due in part to mechanical differences in the construction of the index numbers. In particular, none of the weights employed in constructing the New York index is large relative to the others, whereas cotton receives a preponderant weight in the New Orleans calculations.

among price levels which — as will appear below — appear to correspond more closely to differences in regional speculation, bank credit, and currency, may be linked indirectly to developments in transportation. That is, in so far as the latter were active factors in cyclical booms characteristic of this period, they were responsible for a recurrent tendency towards disagreement. For example, the speculation in land and commodities most characteristic of the late thirties raised Cincinnati prices out of touch with New Orleans and New York (Chart VI); and the change in fundamental conditions which was bound to accompany the projection and completion of canals, railways, and turnpikes was certainly not an unimportant factor in the boom itself. According to this interpretation, an improvement in transportation between two markets may bring about a temporary enlargement of the divergence of the price levels concerned, since speculation attendant upon such an improvement may well be more extensive in one of the regions than in the other.

*Individual Commodities — Interregional Comparisons.* In an analysis of regional prices, emphasis may dwell upon absolute differences between quotations on the same (or similar) commodities in the various markets. In his study of geographical variation A. H. Cole has worked out for six commodities the annual averages of monthly quotations at five-year intervals between 1790 and 1860; and a graphical comparison shows that Cincinnati price trends were notably different from the others. One notes the relative appreciation of wheat, rye, and mess pork in the West between 1816 and 1860 (earlier data were not available), and the relative decline of rice and molasses in Ohio (Cincinnati tar prices were not included in the analysis).<sup>8</sup> Furthermore, the same writer has inquired into the responsiveness of various markets to price changes; and on the basis of reductions in the mean deviations of link relatives from their corresponding averages he has concluded that at least for flour, mess pork, and cotton a definite tendency towards closer timing was present between the twenties and the mid-point of the nineteenth century.<sup>9</sup> It is well stated that "by and large, the prices at western and southern points pertaining to the surplus commodities of such regions tended to

<sup>8</sup> Cole, I, 103.

<sup>9</sup> Cole, I, 98.

move toward the levels established by the larger consuming areas — a phenomenon for which improvements in transportation and communications undoubtedly were responsible.”<sup>10</sup>

*Ohio Valley and Philadelphia, 1786-1815.* Before 1816 the prices of individual commodities showed less agreement, comparing Philadelphia with the West, than the index numbers compiled for corresponding dates. In Table 7 the West-East price differentials for eight commodities are summarized by five-year periods. Salt is the only article whose price in the Ohio Valley showed an unmistakable tendency to approach its price in the East, and this development, it should be noted, was caused by improvements in manufacture and transportation within the former region — foreign salt had not yet begun to penetrate into the interior. Median annual western prices of flour, wheat, and corn are notable for their relative stability. Of particular interest is the fact that these commodities — later to become favorite items of export from the Ohio Valley — were not much cheaper in the West than in the East before 1795. In other words, the price differentials increased to a large extent until 1801-1805, largely because western prices declined to the level of the early nineties and eastern quotations failed to do so. Comparable data on whisky are not available, but here also one can detect a similar situation — indeed, western prices were above eastern until the nineteenth century was well under way. Furthermore, the differentials on flour, wheat, and corn remained comparatively large until 1815 and showed no inclination to decrease in a long-term manner.<sup>11</sup> As has already been mentioned, the price of salt in the interior steadily decreased relative to that at the seaboard (the sudden drop in 1811-1815 was due to a sharp wartime appreciation along the coast at the very time when the Kanawha salt works were opened to commercial production on a large scale). As for iron, sugar, and coffee, there are definite signs that western prices were comparatively low at the very end of the period, but it is difficult to trace a uniform trend in that direction between 1786 and 1815.

*Cincinnati, New Orleans, and New York, 1816-1860.* The average differentials between Cincinnati monthly prices and those

<sup>10</sup> Cole, I, 103.

<sup>11</sup> For roughly comparable data on flour and wheat for 1816-1860, see Table 10.

TABLE 7

OHIO VALLEY AND PHILADELPHIA WHOLESALE COMMODITY PRICES. AVERAGE ABSOLUTE DIFFERENCES BY FIVE-YEAR PERIODS, 1786-1815

	Flour (bb.)	Wheat (bu.)	Corn (bu.)	Whisky (gal.)	Iron (lb.)	Salt (bu.)	Sugar (lb.)	Coffee (lb.)
1786-90 .....	\$-1.69	\$-.55	\$-.16	\$..	\$.13	\$2.55	\$.15	\$.33
1791-95 .....	-1.80	-.91	-.16	..	.09	2.41	.13	.11
1796-00 .....	-3.20	-.82	-.31	.14	.08	2.78	.01	.23
1801-05 .....	-4.20	-1.17	-.44	.04	.04	1.61	.07	.09
1806-10 .....	-3.06	-.76	-.30	-.09	.08	1.37	.09	.23
1811-15 .....	-3.12	-.92	-.37	-.04	.05	.03	-.06	.18

On source of Philadelphia data see note to Table 10 below.

On source of Ohio Valley data and methods of computation, see Appendix A.

Minus sign (-) preceding figures indicates that the average price was lower in the Ohio Valley than in Philadelphia.

at New York and New Orleans after 1816 present a wholly different picture (Table 8). Let us begin with six western products — flour, wheat, whisky, corn, mess pork, and lard. Two facts are immediately noted: (1) the average Cincinnati price was lowest in every case (i.e., all the differentials are positive); and (2) the western and eastern prices steadily approached each other. Perhaps the most striking difference in price trends occurred in the case of lard, where the average differential between Cincinnati and New York declined over 91 per cent between the first and last five-year periods. On closer examination it appears that a large part of this decline took place in the early twenties and the first half of the forties. The average differential between Cincinnati and New Orleans also declined until the late forties but showed a definite increase during the fifties. This turn in trend, it may be added, was sufficient to raise the average price of lard in New Orleans slightly above that in New York.

*Gradual Improvement of Cincinnati Pork Prices.* Table 8 also shows that after the War of 1812 western prices of mess pork were far less than those in either New Orleans or New York. A barrel of meat averaged over \$7.50 more in New Orleans than in Cincinnati over the interval 1816-1820; and it was worth some \$2.00 more in New York than in the southern port. However, both absolute and relative differentials shrank steadily with the passage of time, and the rise of Cincinnati quotations was considerably greater in relation to those of the East than to those of New Orleans. By the latter half of the forties mess pork brought only \$1.06 per barrel, or 11 per cent, more in New York than in Cincinnati, whereas the corresponding New Orleans spread was \$1.31, or 14 per cent. During the late fifties the South and East offered an average premium over the interior amounting to only about \$1.25. Indeed, the margin approached the vanishing point on several occasions between 1858 and 1860, and, as in the case of lard, the price averaged less in New York than in New Orleans.

*Price Differentials and Routes of Traffic.* The fairly definite changes which took place in the interregional price system correspond to changes in the direction of western commerce during the period under review. In the early part of the century the price of pork in the West was very low, relatively speaking, except in particular years of decline when a drop in the East or South

**TABLE 8**  
**CINCINNATI, NEW ORLEANS, AND NEW YORK WHOLESALE COMMODITY PRICES. AVERAGE ABSOLUTE DIFFERENCES BY FIVE-YEAR PERIODS, 1816-1860**

	LARD (lb.)		MESS PORK (bbl.)		FLOUR (bbl.)		WHEAT (bu.)		CORN (bu.)		WHISKY (gal.)	
	N.O. -Cin.	N.Y. -Cin.	N.O. -Cin.	N.Y. -Cin.	N.O. -Cin.	N.Y. -Cin.	N.O. -Cin.	N.Y. -Cin.	N.O. -Cin.	N.Y. -Cin.	N.O. -Cin.	N.Y. -Cin.
1816-20 .....	\$.051	\$.048	\$7.57	\$9.53	\$2.16	\$2.84	\$..	\$.86	\$..	\$.48	\$.088	\$.009 *
1821-25 .....	.027	.031	2.81	4.46	2.37	2.81	..	.72	.59	.39	.095	.081
1826-30 .....	.024	.026	2.41	4.18	1.75	1.78	..	.57	.59	.36	.069	.055
1831-35 .....	.017	.025	2.03	3.48	1.29	1.43	..	.52	.64	.38	.056	.042
1836-40 .....	.014	.020	2.67	3.11	1.66	2.02	..	.60	.49	.42	.082	.030
1841-45 .....	.006	.011	1.66	2.25	.61	1.37	.08	.37	.14	.30	.025	.051
1846-50 .....	.005	.010	1.31	1.06	.60	1.68	.11	.45	.20	.36	.021	.067
1851-55 .....	.006	.007	1.24	1.56	.59	1.36	.11	.65	.16	.31	.030	.062
1856-60 .....	.007	.004	1.27	1.18	.63	.28	.18	.47	.21	.27	.032	.044

Source of price data: A. H. Cole, *Wholesale Commodity Prices in the United States, 1700-1861*, Statistical Supplement, pp. 174-356.

\* 1817-1820 average.

occurred early enough to wipe out the spread or even to render it a negative quantity.<sup>12</sup> Mess pork was usually at its highest value in Charleston, South Carolina (one of the five markets for which data have been collected), although New York and Philadelphia were frequently on top. New Orleans occupied a shaky position midway between Cincinnati and the rest. It must be emphasized that this system of comparative values was far from crystallized on account of the diversity of movement among various markets. As has already been pointed out, however, improvement of Cincinnati prices between 1820 and 1850 was greater in comparison with the East than with New Orleans. Before 1835 New Orleans prices also increased in relation to those in New York; but after that date the two were at approximate parity. This evidence points to the same general conclusion as the trade figures cited in a preceding chapter: that the opportunities for profit by shipment from Cincinnati to the Atlantic seaboard *via New Orleans* shrank until they approached a vanishing point. The only pork commerce left to New Orleans was that proceeding to other points in the South, to the West Indies, and (under favorable circumstances) directly to Europe.<sup>13</sup>

<sup>12</sup> This happened in 1839 (third quarter), 1840 (fourth quarter), 1845 (September–November), 1852 (third quarter), and 1857 (October). See Cole, *op. cit.*, II, 110 ff.

<sup>13</sup> The average annual exports of pork and lard from New Orleans to specified destinations for the triennia 1845–1847 and 1858–1860 (years ended August 31), together with percentages of the total, were as follows:

To	PORK (thous. bbl.)				LARD (thous. keg)			
	1845-47		1858-60		1845-47		1858-60	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
N. Y., Boston,								
Phila., Balt., ..	189.9	83	44.9	50	423.9	59	161.9	33
Charleston & other coast- wise ports . . . .	11.6	5	37.6	42	22.4	3	27.1	6
Cuba . . . . .	.9	1	2.0	2	108.8	15	203.8	41
Other foreign ports	25.6	11	4.8	5	167.4	23	97.7	20
<b>TOTAL . . . . .</b>	<b>228.0</b>	<b>100</b>	<b>89.3</b>	<b>100</b>	<b>722.5</b>	<b>100</b>	<b>490.5</b>	<b>100</b>

The great shrinkage of the export trade to north Atlantic ports would be still more apparent if the single years 1844–1845 and 1859–1860 were compared. During the latter twelvemonth, less than 3,000 barrels of pork and 55,000 kegs of lard were



*Extent of Improvement of Cincinnati Flour Prices.* It is clear from Table 8 that Cincinnati flour prices, like those of pork and lard, improved steadily between 1816 and 1860 in comparison with prices in the larger markets. Cincinnati made its greatest gains in comparison with New York before 1835 and after 1850, whereas the rise in relation to New Orleans, though great prior to 1835, came to an end about the middle of the forties. Over the period 1816-1820 the net average spread from Cincinnati to New Orleans was \$2.16 and to New York \$2.84 per barrel. Corresponding figures for 1856-1860 are 63 and 28 cents, respectively. The absolute spread tended to fluctuate directly with the course of prices from year to year. In 1836-1840, years of high prices, the average differential between Cincinnati and New York expanded from \$1.43 to \$2.02, compared with the preceding quinquennium, and a similar increase took place in 1846-1850.

The average premium of New York flour over Cincinnati during the latter half of the fifties was so small (28 cents per barrel) that, in view of the known eastbound traffic and rates of freight between these two centers, there is some doubt as to the homogeneity of the data under review. It appears that the New York specifications and quotations were both erratic. "Superfine" is the grade for which most American price series were compiled, but the New York quotations apply to "Genesee" in 1851 and 1852, to "Genesee fancy" in 1854, to "State" in 1855, and to a nondescript article during the rest of the decade. During the years 1851-1853 the New York market maintained a quite uniform premium over Philadelphia, New Orleans, and Cincinnati (in that order), but it gyrated in an unusual fashion all during 1854. Furthermore, the behavior of the New York series at the beginning of 1855 is contrary to all the others, and the quotation thereafter, though it is manifestly closely correlated with other simultaneous data, is relatively much lower. Hence changes in

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sent from New Orleans to New York, Boston, Philadelphia, and Baltimore combined. Sources of the data: *De Bow's Review*, XXV, 566 (Nov. 1858); XXVII, 479 (Oct. 1859); XXIX, 784 (Dec. 1860); IV, 392 (Nov. 1847).

After the Civil War northern railroads preempted the provisions traffic almost entirely. In 1880 (year ended June 30) Portland, Boston, New York, Philadelphia, and Baltimore exported provisions to the value of \$121,559,373, while New Orleans exported only \$95,472 worth (Nimmo, *op. cit.*, p. 58, App., p. 219).

grades appear to have been an effective factor in influencing the size of the average differentials.

It is probable, in view of these apparent shortcomings in the New York data, that a comparison of Cincinnati with Philadelphia possesses considerably more significance (Table 10, below). During the period 1816-1840 there was little difference between New York and Philadelphia so far as the western market was concerned. However, the Philadelphia price averaged only \$1.14 per barrel more than Cincinnati during the forties, and \$1.12 in the first half of the fifties. In the final quinquennium the average differential was 70 cents — much more than the New York figure but only 7 cents higher than the New Orleans figure for the same interval.

Such a narrowing of the spread necessitated ever more accurate reckoning of the price position of the various markets by speculators and traders. Shipments were frequently brought to a standstill during periods of falling prices, since a decline generally appeared first in the East. Demand for eastern export continued during the spring of 1840, however, even though falling prices were smothering speculation. Much flour was shipped "to make exchanges," which at that time yielded premiums of 9 per cent at New York, 3½ per cent at Philadelphia, and even 2 per cent at New Orleans.<sup>14</sup> It also appears that during the late fifties the speculators rarely failed to anticipate (and exaggerate) a rise in the local price, whether due to a rise in the East or to a reduction in freights to the outside world. During this period there was a steady complaint in Cincinnati that eastern prices did not warrant shipment, and the chronicles contain many allusions to heavy losses on the part of speculators.

*Factors Accounting for Differentials.* The diversity of flour prices in their *cyclical* behavior in leading United States markets before the Civil War may well be ascribed in large part to the differences in local currencies characteristic of that era. Regular fluctuations in the exchange markets within the year may also be called to account as factors exerting a certain though small influence upon *seasonal* differences in the spread of prices among the distant markets. A prime influence in this latter field, how-

<sup>14</sup> *Chronicle*, Apr. 11, 1840.

ever, was the cost of transportation, which underwent great seasonal changes in accordance with the stage of the river. As for the *secular* improvement of Cincinnati flour prices in relation to the seaboard, the evidence consistently points to a repeated reduction of the cost of transportation as the governing factor. The gradual appreciation of western currency in terms of eastern must have worked to maintain or even to widen the price spread, other things remaining the same. On the other hand, the fact that traffic in flour (later flour and wheat) grew to such an enormous extent and preserved its same general direction of movement fits in with the cost-of-transportation explanation; and the latter is reinforced by the circumstance that successive reductions in price margins between Cincinnati, New Orleans, and New York were synchronized rather closely both with reductions in the costs of carriage among these centers and with changes in the route pursued by flour and wheat in their movement from the interior to the outside world.

*Regional Wheat Price Comparison.* A long-range comparison of Cincinnati wheat prices may best be made with Philadelphia because New Orleans data are not available for years prior to 1840 (except for 1818-1820) and the New York series is not continuous (see Tables 8 and 10). As might be expected, we find a relatively small measure of short-run agreement before 1840; although a cyclical wave was common to both series, Cincinnati was on the whole much more variable than Philadelphia.<sup>15</sup> Agreement tended to improve after 1840. Secondly, the margin between Cincinnati and Philadelphia during the earlier years was relatively greater than that between flour prices in the same market. Thus, the average western price (78 cents) bore a ratio of only 45 per cent to the Philadelphia quotation (\$1.72) during the years 1816-1820, and the figures for the two succeeding quinquennia are 39 and 50 per cent, respectively.<sup>16</sup> The mean absolute

<sup>15</sup> For instance, Cincinnati wheat prices dipped in 1829-1830, rose in 1831, and fell again in 1832-1833. None of these movements was evident in Philadelphia. The rise of 1835-1836 was much greater in the West, as were also the rise in 1841-1842 and the sharp drop in the summer of 1846. Yet Philadelphia rose much more suddenly in 1821, reaching a sharp peak in late 1823 which is missing from Cincinnati data (Cole, II, 110 ff.; see also Bezanson, *op. cit.*, II, 248).

<sup>16</sup> Corresponding ratios for flour prices are: 1816-1820, 63; 1821-1825, 52; 1826-1830, 68 (per cent).

spread during the first five-year period was also very wide (94 cents a bushel). However, Cincinnati quotations climbed at such a rate after the depression of 1821-1822 that the Philadelphia premium shrank to a small fraction of its former size, whether in a relative or an absolute sense. By the latter half of the thirties, Cincinnati wheat prices averaged 59 per cent of Philadelphia; two decades later the figure rose to 79 per cent, and the rate of increase was fairly well maintained throughout the entire period. As for the absolute spread between the two markets, the decrease was particularly noticeable during the early twenties and the first half of the forties; in the last quinquennium on record, the figure is only 29 cents a bushel (\$1.37-\$1.08). This represents a decline of slightly less than 70 per cent during the eight five-year periods. Signs of the enlargement of direct trade in wheat are readily apparent.

*Corn and Whisky.* Space does not permit extensive discussion of the regional behavior of the prices of other important western products. It may be seen in Table 8, however, that the corn price differentials declined in a manner similar to those on wheat. The trade in whisky, which became an integral part of Cincinnati's economic life, is considered at greater length below, but it may be said here that, compared with other markets, Cincinnati whisky prices acted in general in a manner not notably different from flour, pork, lard, and other processed commodities. It appears that, from a secular point of view, the trend of spirits prices at the seaboard from 1822 to 1860 was so very nearly horizontal as to render any other characterization quite hazardous. The relative position of the markets was very similar to that in respect to other western products: that is, Charleston tended to be dearest and New York prices to equal those in Philadelphia at a somewhat lower level. Before 1840 New Orleans quotations fluctuated from month to month comparatively violently, but after that date they fell in line between Cincinnati and the north Atlantic markets. Cincinnati was generally on the bottom, but the spread to other markets was subject to the same types of changes as those discussed above. Over the long run it tended to diminish rather more in a relative sense; in the middle twenties eastern whisky was worth approximately 50 per cent more than Cincinnati whisky, but thirty years later the premium had shrunk

to about 20 per cent. The year-to-year agreement among the various markets was comparatively close on the whole; in particular, the correspondence was noticeable among Cincinnati, New Orleans, and Charleston.

*Feathers and Ginseng.* From the few western products normally shipped to the East which "came in small packages" — that is, value was fairly high in relation to weight — we have selected feathers and ginseng for price comparisons. The five-year average differentials between Cincinnati and Philadelphia (Table 10) show, first, that the margin was considerably greater (in absolute sense) on these articles than on flour, wheat, and similar articles, if all are reduced to a pound basis; and, secondly, that the former items were somewhat exceptional in their general behavior. Thus, one perceives no gradual reduction in the differentials nor indications of a sudden reduction in the mid twenties. In the case of feathers, it is true, the differential does narrow in the latter thirties and expand with the depression of the early forties. However, the peculiar activity of ginseng prices at the time of the war between China and Great Britain appears to have aided in preventing a similar reaction. All in all, it seems improbable that the regional price-differences characteristic of these two commodities underwent any sizable reduction at all within the confines of the period 1816–1860. The more notable changes apparently affected heavy commodities to the greatest extent.

*Imported and Manufactured Goods.* In respect to coffee, sugar, pepper, salt, iron, nails, and many other articles brought from a distance, the Cincinnati market occupied a position which was very different from that already discussed. In Tables 9 and 10 comparisons are made of average prices by five-year periods between Cincinnati, New York, New Orleans, and Philadelphia. It will be seen that for most of these commodities Cincinnati was uniformly the dearest market between 1816 and 1860, whereas in connection with the rest the relationship was not so simple. Of the former group, coffee is a good example; of the latter, bar iron.<sup>17</sup>

*Coffee.* In general, coffee prices were lower in Philadelphia than elsewhere. Furthermore, the rapprochement among simultaneous

<sup>17</sup> Monthly price data for five markets covering the period 1816–1860 are given in Cole, *Wholesale Commodity Prices*, II, 174 ff.

**TABLE 9**  
**CINCINNATI, NEW ORLEANS, AND NEW YORK WHOLESALE COMMODITY PRICES. AVERAGE ABSOLUTE DIFFERENCES BY FIVE-YEAR PERIODS, 1816-1860**

	COFFEE (lb.)		SUGAR (100 lbs.)		RICE (cwt.)		BAR IRON (ton)		NAILS (100 lbs.)		COTTON (lb.)	
	Cin. - N.O.	Cin. - N.Y.	Cin. - N.O.	Cin. - N.Y.	Cin. - N.O.	Cin. - N.Y.	Cin. - N.O.	Cin. - N.Y.	Cin. - N.O.	Cin. - N.Y.	Cin. - N.O.	Cin. - N.Y.
1816-20 .....	\$.160	\$.179	\$10.33	\$6.98	\$...	\$7.67	\$90.01	\$114.38	\$7.54	\$7.21	\$.062	\$.070
1821-25 .....	.074	.074	3.89	1.52	2.30	2.25	26.91	40.20	1.74	.92	.020	.014
1826-30 .....	.026	.036	2.64	1.59	2.03	2.37	21.87	43.44	.83	.80	.004	.013
1831-35 .....	.018	.029	2.33	1.60	1.72	2.18	17.79	38.69	.59	.67	.001	.004
1836-40 .....	.013	.028	2.66	1.82	1.84	2.76	32.77	45.36	.73	1.34	.013	.001
1841-45 .....	.012	.018	1.04	.68	.80	1.34	- 2.86	31.27	.34	.72	.002	.002
1846-50 .....	.013	.015	.97	.42	.82	1.63	-19.27	18.78	.09	.42	.004	-.009
1851-55 .....	.016	.016	1.27	.67	.51	1.37	-33.17	15.75	-.01	.35	.008	-.013
1856-60 .....	.015	.015	1.69	.61	.54	1.31	-57.90	9.95	.07	.43	.010	-.002

Source of price data same as in Table 8.

Minus sign (-) preceding figures indicates that the Cincinnati average price is lower than the seaboard price.

TABLE 10  
CINCINNATI AND PHILADELPHIA WHOLESALE COMMODITY PRICES. AVERAGE ABSOLUTE DIFFERENCES BY FIVE-YEAR PERIODS, 1816-1860

	Feathers (lb.)	Ginseng (lb.)	Glass (box)	Lead (lb.)	Mackerel (bbl.)	Salt (bu.)	Shot (lb.)	Flour (bbl.)	Wheat (bu.)
1816-20 .....	\$.016*	\$...	\$1.46*	\$.034	\$17.09*	\$...	\$.031*	\$-3.15	\$-.94
1821-25 .....	-.058	-.123†	-1.63	.015	5.17	.354	.002	-2.79	-.68
1826-30 .....	-.082	-.095	-.29	-.002	3.89	.598	.006	-1.74	-.53
1831-35 .....	-.077	-.101	-.25	-.001	2.83	.402	.004	-1.50	-.50
1836-40 .....	-.041	-.195	-.14	-.004	5.51	.329	.005	-1.97	-.63
1841-45 .....	-.056	-.111	-.12	-.007	2.21	.181	-.002	-1.14	-.33
1846-50 .....	-.045	-.065	.34	-.005	2.19	.134	-.004	-1.14	-.36
1851-55 .....	-.061	-.094	-.29	-.002	3.07	.094	.003	-1.12	-.37
1856-60 .....	-.057	-.074	-.59	-.000	2.72	.102	.004	-.70	-.29

Source of Philadelphia price data: Anne Bezanson et al., *Wholesale Prices in Philadelphia, 1784-1861*, pt. II, pp. 77, 86-87, 117, 141, 187, 191, 201.

\* Average for 1819-20.

† Average for 1824-25.

Minus sign (-) preceding figures indicates that Cincinnati average price is lower than Philadelphia price.

quotations in various markets represents a reduction in the West relative to the East and South. Prices were decreasing at all points until the late forties, when an upward trend set in, but western values declined to a greater degree. The average Cincinnati-New Orleans differential shrank from 16 to 1½ cents per pound between the first and the last five-year interval; and the East-West differentials sank in much the same manner. A large part of the decline in both absolute and relative price spreads occurred within the limits of a single five-year interval: 1821-1825. In 1820 coffee averaged 24 cents or 86 per cent more in Cincinnati than in New York, whereas the average margin was only 1.6 cents or 8 per cent in 1825. In succeeding years agreement among the various markets was decidedly close from a month-to-month or year-to-year point of view, and absolute spreads tended towards stability. Since the end of the era was characterized by rising prices, the *relative* Cincinnati premium over seaboard markets progressively declined.

*Sugar.* The relative behavior of the Cincinnati sugar "currency" was not far different from that of coffee. Prices in all markets pursued a definitely downward trend between 1816 and the early fifties, when an upward movement began. But Cincinnati values fell (and later rose) at a considerably greater rate than the others. From 1816 to 1820 sugar was unusually expensive in the West, costing \$20.50 per hundredweight, or 102 per cent more than in New Orleans. Prices in New York, Philadelphia, and Charleston were quoted at various levels in between.<sup>18</sup> But the price in the Ohio Valley undercut that in Philadelphia by 1823, that in Charleston by 1827, and approached the New York level in the early forties. New Orleans figures, it is true, stayed on the bottom throughout, but the margin between this market and Cincinnati underwent important changes both absolutely and relatively, the greatest absolute decline occurring in the early twenties (from \$10.33 to \$3.89). By the latter forties the spread was under a cent a pound (\$5.73-\$4.77), or less than 10 per cent of its size a quarter century previously. The relative margin also shrank — to about 50 per cent in 1823, to 40 per

<sup>18</sup> The premium over Philadelphia during the same five-year interval was \$5.19 (34 per cent); that over New York was \$6.98 (52 per cent). For the monthly data upon which these averages are based, see Cole, *op. cit.*, II, 174 ff.



cent four years later, and to 20 per cent in 1842. The trend then assumed an upward direction.

Again similar to coffee, sugar in Cincinnati revealed peculiar behavior at certain junctures. It rose sharply in the winters of 1819-1820 and 1838-1839, and failed to decline in 1854, undoubtedly on account of tie-ups in shipping.<sup>19</sup> But such events were ephemeral in character: the long sweep was of more lasting significance. Changes in the routes of trade in coffee, tea, sugar, and the other "groceries," it should be added, accompanied the secular alteration in price relationships. Consideration of this traffic is reserved for a later chapter.

*Salt.* Comparison of Cincinnati with seaboard salt prices is facilitated by the availability of a continuous series of Turks Island quotations in the Philadelphia market (Table 10).<sup>20</sup> Perhaps the most significant point of difference between regional prices of the West Indian article is, once more, a long-range decline in the absolute and relative spread. Thus, the average western quotation for the period 1826-1830 was \$1.10 per bushel and the corresponding Philadelphia figure was only 50 cents.<sup>21</sup> This represents an average margin of 60 cents, or 120 per cent of the seaboard price. The spread declined steadily during the two following decades and reached its lowest point (for a five-year interval) during the period 1851-1855. At that time the seaboard and interior average prices were 35 and 44 cents, respectively. In the remaining half of the fifties the absolute spread showed a slight increase; and since average prices continued to decline (24 and 34 cents), the relative premium on Cincinnati also increased — from 27 to 43 per cent.

Kanawha salt was the leading variety in the Cincinnati market; and its price after 1820 came closer than the Turks Island price to matching the Philadelphia salt series in long-range movement

<sup>19</sup> Molasses declined sharply in 1854, reaching the lowest point over the whole period. The bullish tendency of both sugar and molasses in 1856 may be ascribed to both the shortness of the crop and the impairments of shipping, not to mention the speculative turn of events.

<sup>20</sup> Bezanson, *op. cit.*, II, 187-91. The various grades of the Liverpool article commonly quoted in New York and New Orleans (by the sack) do not easily lend themselves to comparison.

<sup>21</sup> Lack of data for Cincinnati renders it impossible to compare simultaneous quotations on Turks Island salt for earlier periods.

if not in year-to-year variations. That is, the price of domestic salt in the West was much higher before 1820; indeed, the average quotation (\$1.46 per bushel) was 125 per cent more than Turks Island in Philadelphia (65 cents). However, the sudden decline shortly thereafter brought Kanawha salt approximately to the same level as the seaboard article, and later deviations from the common norm on the part of interior markets are identifiable with freedom or restriction in production or sale by successive Kanawha salt companies. Treatment of this phase of the interregional problem is also deferred to a later chapter.

*Cotton, Rice, and Mackerel.* Of other imports on which comparative data have been worked out, rice (Table 9) is like coffee and sugar except that the margin between Cincinnati and New Orleans persisted — or rather increased — during the latter half of the period as compared with the spread between Cincinnati and New York. As for mackerel, the extremely wide differential between Cincinnati and Philadelphia in 1819–1820 (\$17.09 per barrel, according to Table 10) is of the same order as the simultaneous differentials on other goods taken into the interior from the seaboard, but later figures show that the spread, though much reduced, underwent ups and downs with currency conditions with no pronounced tendency to diminish further. Cotton behaved in such a peculiar manner that there is some doubt as to the homogeneity of our quotations.<sup>22</sup> It is to be recalled that this item was far less important in the Ohio Valley region than in most other parts of the world. According to Table 9, the markets may not be arranged in a consistent rank. In the first half of the period (1816–1834) Cincinnati's cotton market behaved quite independently of the others, and there was no steady rapprochement between western and eastern quotations. Of particular note is the gap opened between 1819 and 1820, when seaboard cotton prices underwent a precipitate decline which was delayed in the West, judged by Cincinnati and Pittsburgh reports, until 1820 and 1821. As for the latter half of the period (1835–1861), New York prices were generally the highest, Philadelphia were next in order, and Cincinnati, New Orleans, and Charleston were

<sup>22</sup> New Orleans quotations refer to a prime article before 1842, whereas those in Charleston are for a middling cotton. Cincinnati grades were not specified at that time. For later years New Orleans data pertain to middling cotton.

usually on the bottom. The average width of the entire band, however, was relatively very small. It appears that although Cincinnati cotton cost 6 or 7 cents a pound more before 1820, the margin after 1825 was generally only a fraction of a cent. The reader may note a steady appreciation of Cincinnati relative to New Orleans, which is broken only by the figure for the latter thirties.<sup>23</sup>

*Metal Products.* The figures relating to bar iron and nails need little comment. At the beginning of the era the Ohio price of the former product averaged \$90 per ton above New Orleans and practically \$115 above New York, and the decline of these figures was interrupted only in the latter thirties. Indeed, the position of the Cincinnati and New Orleans markets was almost completely reversed, since the former was \$58 cheaper by 1856-1860. The New York differential, which also compares domestic and foreign iron, had sunk to a mere \$10 per ton. As in the case of imported foodstuffs the greatest single change took place between the first and second five-year intervals. The same is true of nails, although the Cincinnati price did not decline so far. To be sure, the western quotation was lower than New Orleans for a short time, but there was a tendency for the nails differential to stiffen during the fifties. One may conclude that the manufacture of nails in the West had not reached the same pitch of development, relatively speaking, as the manufacture of bar iron.

The Cincinnati-Philadelphia differential on window glass (Table 10) also underwent such a change after the Panic of 1819 that the position of the two markets was reversed, and the western price remained lower, though with a shrinking spread, until the latter forties. Then, reaching a point above the East, the western price dropped once more, so that window glass averaged 59 cents per box cheaper in Ohio than in the Pennsylvania market. This is another case in which domestic manufacture brought about a cessation of shipment from the seaboard to the interior. Bar lead was also more expensive in the West at first but became definitely cheaper (owing to proximity to local sources of supply) after that date. It is notable, however, that Cincinnati and Philadelphia quotations were approximately equal at the end

<sup>23</sup> Cincinnati quotations for some of these years are missing, and interpolations are based upon adjusted New Orleans data.

of the period. As for shot, the situation was more like that of nails in that the western price was maintained at a slight margin above the East for the greater part of the time. This margin was so small after 1820, however, that it is very doubtful if extensive interregional trade was economically possible — indeed, the western price was below the eastern during the decade of the forties.

*Price Displacement.* Enough has already been written to prove that some of the most important western commodities were appreciating in the West compared with the East and South, whereas other goods were rapidly declining in the first-named region, relatively speaking. If we take the western price series alone and express each one in the form of relatives based upon a long-term average (1824–1846), we see the situation from another angle. The ready conclusion is that the western price system underwent a greater change than that of other sections. In other words, the price systems of New York, New Orleans, and Philadelphia, though probably not in equilibrium throughout the period, must have been much nearer such a state.

A suggestion as to the extent of this phenomenon is afforded in Table 11, where average Cincinnati commodity-price relatives for 1824–1826 and 1844–1846 are arranged in order of size.<sup>24</sup> Although the interval of time is only some twenty years, the relatives belonging to manufactured and extra-regional goods almost without exception descended from the upper to the lower half of the array. The prices of grains and legumes in crude form (wheat, corn, beans, etc.) ascended from the very bottom of the scale to positions practically at the top, and the prices of processed farm products of local origin (flour, pork, linseed oil, etc.) almost all assumed a higher rank. The presence of a severe agricultural depression in the mid twenties of the nineteenth century, it may be added, does not detract greatly if at all from the significance of Table 11. In the first place, farm prices were also low twenty years later; and furthermore, one must also

<sup>24</sup> F. C. Mills has furthered the study of price displacement by suggesting methods of reducing it to statistical measurement; the latter, however, loses sight of specific commodities or industries involved. For this reason, the analysis above is more similar to that employed by W. T. Layton in his study of English prices since 1820. (F. C. Mills, *The Behavior of Prices*, pp. 287–311; Walter T. Layton and Geoffrey Crowther, *An Introduction to the Study of Prices* [1935], pp. 65, 75, 88, 108.)

TABLE 11  
 AVERAGE CINCINNATI PRICE RELATIVES FOR THE PERIODS 1824-1826 AND 1844-1846  
 ARRANGED ACCORDING TO MAGNITUDE \*  
 (Base: Monthly average, 1824-1846)

	1824-26		1844-46
Pepper .....	158.6	GINSENG .....	144.4
Indigo .....	156.9	FLAXSEED .....	133.0
Coffee .....	155.6	BEESWAX .....	112.2
Copperas .....	145.9	BEANS .....	104.5
Tea .....	140.8	WHEAT .....	99.7
Cotton .....	134.7	CORN .....	99.4
Lead .....	131.5	Mackerel .....	96.9
Yarn .....	128.5	BUTTER .....	96.8
Molasses .....	126.7	OATS .....	95.0
BEESWAX .....	123.7	BACON .....	92.6
Sugar .....	123.2	LARD .....	92.2
Nails .....	123.1	FLOUR .....	86.4
Glass .....	120.6	PORK .....	85.6
Shot .....	119.4	CORDAGE .....	85.1
Iron .....	107.9	RICE .....	84.6
Rice .....	103.3	FEATHERS .....	83.1
Weighted Ave. ....	97.2	OIL, LINSEED .....	82.1
CANDLES .....	99.5	TALLOW .....	81.6
GINSENG .....	99.4	WHISKY .....	80.5
TOBACCO .....	98.9	Weighted Ave. ....	79.9
Mackerel .....	97.0	Sugar .....	78.8
CHEESE .....	94.6	CANDLES .....	78.4
LARD .....	92.4	CHEESE .....	76.6
WHISKY .....	88.7	Molasses .....	76.1
TALLOW .....	87.5	Pepper .....	75.9
Salt .....	86.4	Tea .....	75.2
FEATHERS .....	85.1	Iron .....	74.8
PORK .....	82.6	TOBACCO .....	73.2
HEMP .....	79.8	Nails .....	71.3
BACON .....	76.3	Lead .....	69.0
CORDAGE .....	76.0	HEMP .....	67.0
OATS .....	75.0	Indigo .....	66.4
BUTTER .....	74.4	Shot .....	63.0
FLOUR .....	74.3	Yarn .....	60.0
OIL, LINSEED .....	72.5	Cotton .....	59.9
WHEAT .....	66.3	Copperas .....	57.3
CORN .....	64.6	Salt .....	55.9
BEANS .....	56.8	Coffee .....	54.3
FLAXSEED .....	53.2	Glass .....	52.2

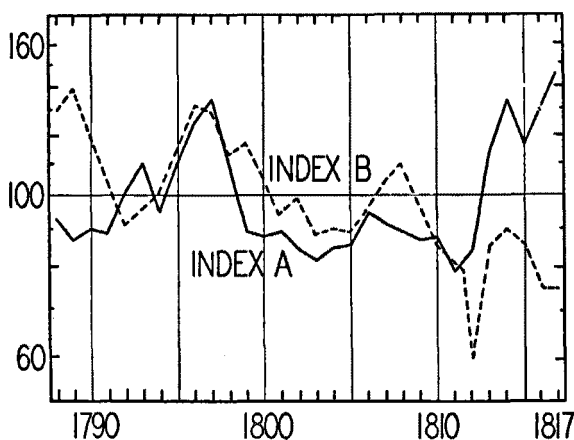
\* Ohio farm products and derivatives in capitals and small capitals.

account for the decline in value of manufactured and imported goods.

*Index A and Index B.* Another method of observing this shift in the western price structure is to divide the price series into two groups, one of which (Index A) represents Ohio Valley farm products and goods processed directly therefrom, whereas the

CHART VII

UNWEIGHTED ANNUAL INDEX NUMBERS OF OHIO VALLEY WHOLESALE COMMODITY PRICES, 1788-1817. INDEX A: COMMODITIES IDENTIFIED WITH NORTHERN AGRICULTURE. INDEX B: OTHER COMMODITIES  
(Base: 1788-1817 average)

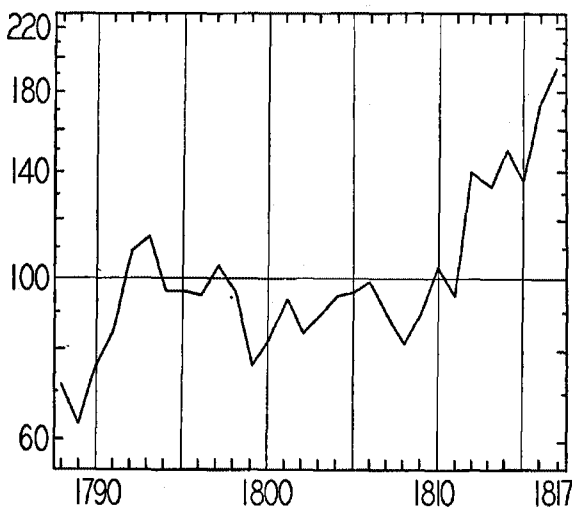


For data, see Tables 16-17, Appendix B.

other (Index B) includes goods brought in from outside as well as domestic manufactured goods. Chart VII, which portrays annual index numbers for the two groups, shows that prices in the B group were steadily falling between 1788 and 1817 (much of this movement was due to the depreciation of salt). Farm prices, on the other hand, were stable at a fairly low level except for the boom and decline in the middle 1790's and an even stronger boom after 1812 which, though interrupted in 1815, gathered still more momentum in 1816 and 1817. There is no doubt that the agricultural prices were relatively low at the beginning of the period, and it is equally clear that the situation was greatly improved by 1817. However, it cannot be said that a consistent

trend in this direction held all through the interval. This is apparent in Chart VIII, where annual ratios of Index A to Index B are plotted. It would seem, according to this graph, that the price structure of the Ohio Valley attained a good measure of stability during the period between 1791 and 1811. In other words, it is

CHART VIII  
ANNUAL RATIOS OF INDEX A TO INDEX B, 1788-1817



For data, see Table 18, Appendix B.

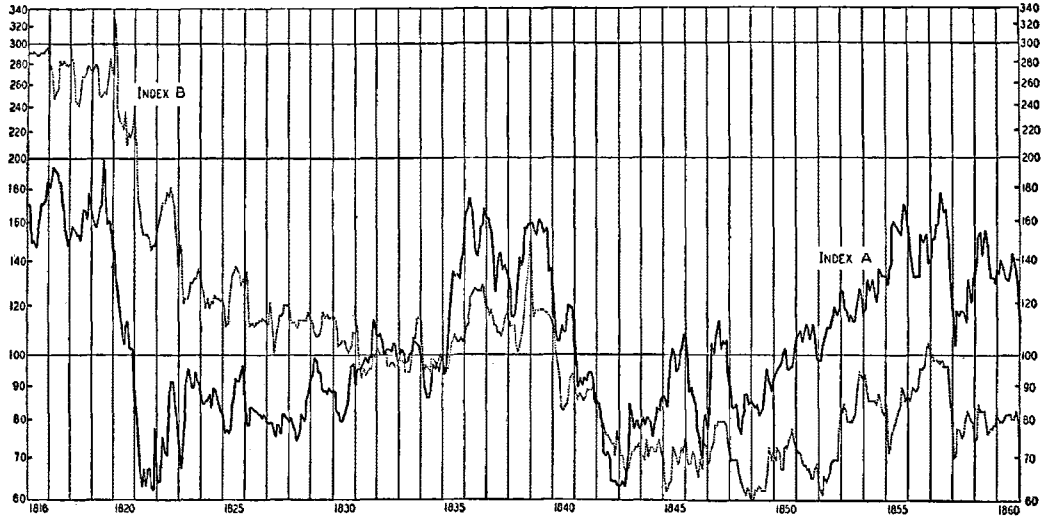
difficult to construe the upward movements at the beginning and end as segments of a single long-term trend.

As for the period 1816-1860, however, there can be no doubt as to the continuity and extent of this shift in the price structure. This is apparent in Chart IX, which displays two comparable sets of Cincinnati monthly index numbers. There may be some question as to the exact nature of the general movement of Index A and Index B, taken separately, but the sweeping rise of the former and decline of the latter, in relation to each other, is easily the most notable feature of the chart.

The classification of price series into these two groups was suggested by the behavior of the series themselves, and is strictly not along geographical lines. Nevertheless, it is highly probable that costs of transport constitute a leading determining factor

### CHART IX

WEIGHTED MONTHLY INDEX NUMBERS OF CINCINNATI WHOLESALE COMMODITY  
PRICES, 1816-1860. INDEX A: COMMODITIES IDENTIFIED WITH NORTHERN  
AGRICULTURE. INDEX B: OTHER COMMODITIES



For data, see Cole, *Wholesale Commodity Prices*, I, 186-187.



even for Cincinnati, one of the most accessible markets in the whole West before the Civil War. Practically every article in Index B was forced to carry a heavy incoming transportation charge, and almost all the products grouped under Index A had to be shipped a long distance to market. On the other hand, our classification is not strictly functional, since agricultural products from other regions, such as cotton and sugar, are placed in Index B. In short, the division embraces the purchasing-power concept but confines it to a single region.

Attention need hardly be called to efforts now being exerted by various agencies, particularly the United States Department of Agriculture, to refine the analysis of the price structure so as to measure the disparity in purchasing power between farm and industry which developed after the World War and widened greatly during the depression.<sup>25</sup> No attempt is made here to secure a highly refined measure of fluctuations in the purchasing power of early farmers in the Ohio Valley, but a first approximation is afforded in Chart X. Annual averages for Index A are divided by corresponding figures for Index B, and a straight-line trend (curved by the scale) is fitted to the ratios thus obtained. One sees that northern farm values were comparatively high in inflationary periods (1816-1818, 1835-1839) and low in times of deflation (1820-1822, 1840-1844), but such short-time movements are dwarfed in comparison to the long, steady pull from about 50 per cent at the beginning of the era to over 150 per cent at the end.<sup>26</sup> And attention may once more be called to the fact

<sup>25</sup> See *The Agricultural Situation*, published monthly by the Department. Great care is exercised to secure farm prices for groups of commodities by states. The prices paid by farmers are at retail, and are divided into consumption and production groups. Much attention has been devoted to the measure of variations in the cost of processing and distributing farm products (i.e., the spread between farm prices and prices in the wholesale and retail markets for agricultural products). The purchasing power of specific products, e.g., cotton, over all other commodities is also computed. The Cincinnati group indices afford only a rough picture of the farmer's purchasing power compared with such refined computations as these. To be sure, the prices of most of the staples in Index A are farm prices, at least for the farmers around Cincinnati.

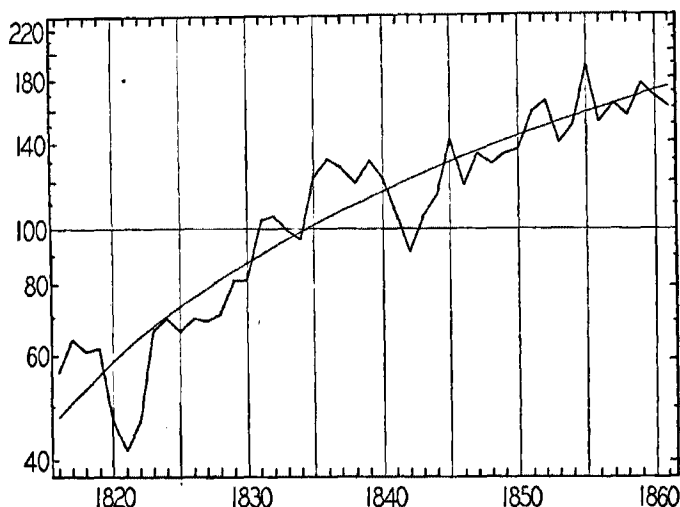
This type of analysis also receives particular attention in the monograph by Arthur G. Peterson, *Historical Study of Prices Received by Producers of Farm Products in Virginia, 1801-1927* (1929).

<sup>26</sup> The equation of the line of least squares is:  $y = 109.6 + 2.8x$ .

that, according to Charts VII and VIII, above, local farm prices were extremely high in 1816-1817, relatively speaking, compared with 1810-1811 and earlier years. Indeed, the annual ratio of Index A to Index B increased over 100 per cent in this brief

CHART X

ANNUAL RATIOS OF INDEX A TO INDEX B, 1816-1861. LINE OF LEAST SQUARES



For data, see Table 19, Appendix B.

interval. In other words, the trend visible in Chart X may be extended back to 1810 or thereabouts.

The long-term shift in relative values just described was a primary development in western economic life before the Civil War, and was of such magnitude that it attracted comment from several contemporary observers. One early writer, citing Cincinnati import and export prices of 1819 and 1833, ascribed their diversity of trend not only to reductions of inland carriage costs but also to an improvement in western currency held due to the policies and administration of the National Bank.<sup>27</sup> But to at

<sup>27</sup>Niles hastened to add that the provision of a long-needed home market for western products was a most important factor. The 1819 prices of flour, corn, pork, and whisky are extremely low compared with newspaper quotations of that year, but conceivably may apply to 1821. (*Niles*, XLIV, 36 [Mar. 16, 1833], quoting from *New York Commercial Advertiser*.)

least two others, the reduction of transportation costs was the primary agent.<sup>28</sup> Research in Virginia and Vermont farm prices reveals that the phenomenon was not confined to the Ohio Valley, though its effects were more spectacular in this particular region.<sup>29</sup> No such relative improvement, it is true, was evident in New York, and, though agricultural prices rose remarkably in Philadelphia, the movement occurred after 1843.<sup>30</sup>

Perhaps the role played by transportation in this price revolution has been overemphasized and oversimplified, and yet a monetary explanation is unsatisfactory. It is possible to ascribe the relative fall of import prices in part to the decline of world prices and in part to the secular appreciation of Ohio Valley currency as compared to eastern money and specie (such appreciation itself resulting from the decline in the costs of shipping precious metals *inter alia*), but such propositions cannot be reconciled with the steady rise of the Cincinnati prices of flour, pork, and other leading exports in comparison to the world market. Secondly, the extent of correlation between the timing of the rapprochement of Cincinnati and eastern prices and the construction of more direct as well as inexpensive means of transportation and communication has already received attention, as has the impairment of New Orleans' relative price position. In the third place, no hypothesis other than that given above fits in so well with the tendency of the cruder agricultural products not only to rise more rapidly in value than their derivatives over a long period of time but also to commence flowing directly to distant markets.<sup>31</sup> Nevertheless, there are other factors which must not be overlooked in the analysis: relative demands, costs of manufacture, and customs duties. Extraordinary improvements in the technique

<sup>28</sup> Ohio Commissioner of Statistics, *Third Annual Report* (1859), p. 96; U. S. Census of 1860, II (Agriculture of the United States in 1860), clxvii-clxviii.

<sup>29</sup> A. G. Peterson, *Historical Study*, pp. 42-43; T. M. Adams, *Prices Paid by Farmers for Goods and Services and Received by Them for Farm Products, 1790-1871; Wages of Farm Labor, 1780-1937* (1939), pp. 26 ff.

<sup>30</sup> The agricultural index for Philadelphia began to rise in 1830 but fell back to the industrial level during the depression of 1842-1843. A wide disparity developed and was maintained during the later forties and the fifties. (Bezanson, *op. cit.*, I, 354-55; Smith and Cole, *op. cit.*, pp. 65, 98).

<sup>31</sup> Philadelphia prices of farm crops fluctuated closely in agreement with farm derivatives during this interval (Bezanson, *op. cit.*, I, 194-95, 232-33).

of mining and fabrication undoubtedly help to account for downward trends in articles such as iron and iron products, salt, lead, and glass.<sup>32</sup> But even here it is to be remembered that the extension of these economies was stimulated by an expansion of the market (and *vice versa*). As for the tariff, it would appear that, although legislation prior to 1861 was injurious to the western agricultural class in so far as it raised (or sustained) the prices of manufactured items — to name textiles and iron products, comparatively few of which are provided for in Index B — this was offset by extensive reductions and remissions of duties on articles such as tea, coffee, salt, and pepper.<sup>33</sup>

It is in connection with causation that the relations between prices and transportation facilities are greatly oversimplified.<sup>34</sup> Discussions commonly treat the former factor as purely passive. In the words of one writer: "We may and often do use the cheap device — unavoidable sometimes, useful often, misleading very frequently, always doing violence to the truth — of either neglecting the weaker direction of a two-sided or many-sided relation or assuming that in a particular instance influence is exerted only by A on B, and not by B on A."<sup>35</sup> The present case is an excellent example of such neglect and assumption. One overlooks the fact, for example, that price margins between the interior and the seaboard — fundamentally a reflection of the distribution of population and resources — were indispensable to a successful continuance of improvements in facilities of transportation. We may go even further, to say that in the absence of such profit margins, actual as well as anticipated, eastern merchants would not have been so keen to find means of penetrating into interior markets, and western producers would have had no incentive to reach the seaboard at a lower cost. Actual instances of the employment of price spreads in the advocacy of public works are

<sup>32</sup> Flour milling is a case discussed below.

<sup>33</sup> Here, again, the tariff changes may hardly be used to explain the *relative* decline of western prices in comparison to the seaboard, except to the extent that the lowering or abolition of the artificial barriers to trade acted to provide an *extra* stimulus to importation into the interior. This may have been the case with salt; and yet tariffs usually have greater effects upon prices in a seaport or near a frontier than at a point so far in the interior as Cincinnati.

<sup>34</sup> See, for example, Bye, *op. cit.*, p. 213.

<sup>35</sup> J. A. Schumpeter, *Business Cycles*, I, 28.

far from wanting. We may cite here the writings of Thomas Worthington, one-time governor of Ohio, who in the early twenties was a leader in the formation of public opinion for the Ohio canals. Worthington demonstrated not only the extra profit to be had by direct shipment of flour to New York but also the possibility of getting Onondaga salt to the Ohio River more cheaply (an uncommonly wide spread between the river and Lake Erie persisted at the time).<sup>36</sup> In short, it is clear that proponents of the various schemes for connecting the West more closely with the East and South fully realized that a flow of traffic could be initiated and maintained only between a cheaper and a dearer market. They were also confident that a large share of the benefit from a change in price relationships caused by the expansion of such traffic (in either direction) would accrue to inhabitants of the interior.

Two questions remain to be answered: first, how far was Cincinnati characteristic of the West of this period, and, secondly, is there reason to believe that agricultural purchasing power continued to increase after 1861? The reply to the first is that since Cincinnati was rather more accessible in earlier years than the great majority of points in the West, the curve in Chart X considerably understates the extent of the improvement of purchasing power in the region as a whole; at the same time, the movement was more gradual in Cincinnati than in hundreds of other communities whose disadvantages were suddenly diminished by the approach of canals or construction of railways.

As for the second query, several studies indicate that the purchasing power of agricultural products continued to increase in the latter part of the nineteenth century, though perhaps at a declining rate. Cincinnati prices of grains, especially corn, continued to increase relative to New York prices as late as 1914.<sup>37</sup> We find a similar tendency of Virginia farm prices to rise throughout the century, compared with prices in general.<sup>38</sup> It is probable, however, that the decline in manufacturing costs exerted a more directly important influence during the latter half of the century,

<sup>36</sup> John Kilbourn, *Public Documents*, pp. 3, 24, 78. See also LH, Sept. 24, 1824, citing the *Scioto Gazette*.

<sup>37</sup> White, *Wholesale Prices*, pp. 5-6.

<sup>38</sup> Peterson, *op. cit.*, pp. 42-43.

as compared with transportation. Thus, a study of Minnesota farm prices gives much consideration to the reduction of railway rates but also emphasizes the part played by innovations in flour milling, especially in 1873.<sup>39</sup> And the reader is cautioned by one astute observer against interpreting price alterations during the period 1860-1880 as proof positive of agricultural prosperity.<sup>40</sup>

*Price Seasonality.* As has already been suggested, the Ohio River economy of ante-bellum days was subject to severe seasonal fluctuations aside from those ordinarily attributed to agriculture. Reference is made to the annual cycle due to variations in the stage of the waters. This seasonality was of sufficient regularity and amplitude to leave its stamp not only upon freight rates and individual commodity-price series but even upon index numbers. Seasonal patterns of prices for three thirteen-year intervals between 1824 and 1860 (1824-1836, 1836-1848, 1848-1860) have been elaborated with the employment of the median-link-relative method.<sup>41</sup> Findings relating to the second and third periods are on the whole more satisfactory than those relating to the first, especially where individual commodity series are concerned. This is due in part to the fact that the month-to-month

<sup>39</sup> Fifth Biennial Report, Minnesota Bureau of Labor (1895-1896), Part I, "Modern Variation in the Purchasing Power of Gold" (1896). This lengthy analysis is based upon data collected by the United States Department of Agriculture.

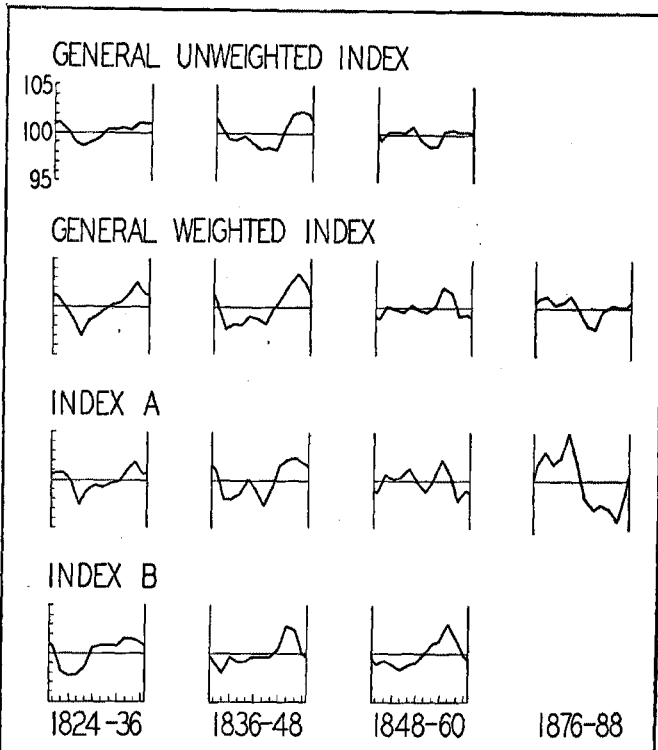
<sup>40</sup> "Most important of all, variations in the prices of their products is only one factor in determining the business prosperity of farmers:—variations in yields are probably more important, and there are numerous other factors by no means negligible" (W. C. Mitchell, *Gold, Prices, and Wages under the Greenback Standard* [1908], pp. 55-57).

<sup>41</sup> Data for years prior to 1824, it is judged, are too discontinuous to permit comparable results; besides, they are heavily influenced by cyclical and "irregular" fluctuations.

The reader will note the choice of these three intervals to be somewhat arbitrary: that is, the years 1836 and 1848 do not mark abrupt shifts in the seasonality of the various series analyzed. Statisticians have yet to discover a wholly satisfactory method of measuring changing seasonality for the purpose of "elimination," though they have made considerable progress towards greater complexity. See Horst Mendershausen's two articles: "Methods of Computing and Eliminating Changing Seasonal Fluctuations," *Econometrica*, V, 234-62 (July, 1937), and "Eliminating Changing Seasonals by Multiple Regression Analysis," *Review of Economic Statistics*, XXI, 171-77 (Nov., 1939); and the same author's *Les Variations du mouvement saisonnier dans l'industrie de la construction* (1937), pp. 72-101, 121-30.

variability of a large majority of the series is comparatively low for the earlier years.<sup>42</sup>

CHART XI  
INDICES OF SEASONAL VARIATION. INDEX NUMBERS OF CINCINNATI  
WHOLESALE COMMODITY PRICES



For data, see Tables 20-21, Appendix B.

*Index Numbers.* Taking up first the four series of Cincinnati index numbers of prices we notice in Chart XI that all seasonal patterns of the period 1824-1836 bear the earmark of the river economy in spite of the fact that a comparatively small number of component series possessed a high frequency of month-to-

<sup>42</sup> To adopt Mills' method of measurement, in only a few cases, such as flour and whisky, does the number of monthly price changes before 1836 approach the total number of possible changes.

month variation at that time. The amplitude of variation, it is true, is diminutive compared with that characteristic of freight rates because even the most active commodity prices reveal less seasonal amplitude than rates of river freight; but the timing is much the same. In the following epoch (1836-1848) general prices were still clearly under the influences of freshet and drought. Significant changes, however, appear in the third period; only Index B, which represents many commodities so bulky and heavy as to favor water shipment (iron, coal, salt, etc.) persisted in a spring low and an autumn peak, albeit with some advance in timing. The other index numbers forsake the pattern almost entirely. Index A began to rise early in the year and fall sharply in the last quarter, while both general indices (weighted and unweighted) lost much of their seasonality. The latter tendencies continued after the Civil War; according to two patterns available for the period 1876-1888,<sup>43</sup> general prices exhibited no regular variation except a slight decline in the summertime, and northern agricultural prices had reached a group seasonal pattern which was the exact opposite of the early one. Whereas the prices of farm products tended to rise in Cincinnati during summer and decline through winter in the days of river shipping, the converse was true after railways took charge of the flow of goods to market. Furthermore, there is evidence that the seasonality of index numbers representing farm prices became more volatile after the Civil War. The 1876-1888 pattern shows more activity as well as a greater range of variation.

*Seasonality. Flour, Pork, and Associated Commodities.* The transformation of seasonality already mentioned may be seen to better advantage in connection with particular commodities. Short-time variations in the Cincinnati quotations of the latter were, of course, directly caused by fluctuations of receipts on the one hand and consumption or shipments on the other, but the primary factors in the early days were the stage of the rivers (as reflected in rates of freight) and the timing of the harvest. With the introduction of speedy, all-weather facilities of transportation and communication, the general tendencies were (1)

<sup>43</sup> The patterns of 1876-1888 were constructed by the same method (median-link-relative) from White's index numbers (H. E. White, *Wholesale Prices at Cincinnati and New York*, pp. 15, 23).



to take emphasis away from the first-named factor and place it on the second; and (2) to accentuate the year-round cycle. The first tendency is well illustrated by the behavior of flour prices; both appear in the series representing wheat and corn, pork products, and whisky.

According to Chart XII, where patterns for the three time-intervals mentioned above are drawn to represent a number of leading price series, the price of flour in the twenties and thirties was disposed to rise sharply during the *second* half of the year, fall sharply in the *first* quarter, and remain at a low level for the remainder of the spring. Contrast this with the pattern representing the fifties, when flour ruled high in the late spring, slumped in early summer, and recovered only gradually as the crop year wore to a close. Only a slight trace of the former spring depression remained (March-April).<sup>44</sup> The middle period was evidently one of transition, particularly in respect to behavior in the spring of the year.

Descriptive evidence also shows that in the early days the farmers of the Ohio Valley regularly waited until the spring following harvest to grind and ship their wheat, partly because shipping and milling were cheaper when plenty of water was available and partly because they hoped for a better price.<sup>45</sup> By 1835 the development of low-water shipping and the penetration of canals into the interior had gone far towards facilitating the movement of a larger part of the crop during the harvest summer, but "spring receipts" at Cincinnati still formed a big share of the total.<sup>46</sup> Canals were not proof against ice or low water.

<sup>44</sup>The progressive changes are clearly reflected in scatter diagrams of the link relatives. For instance, the distribution of April items is as follows:

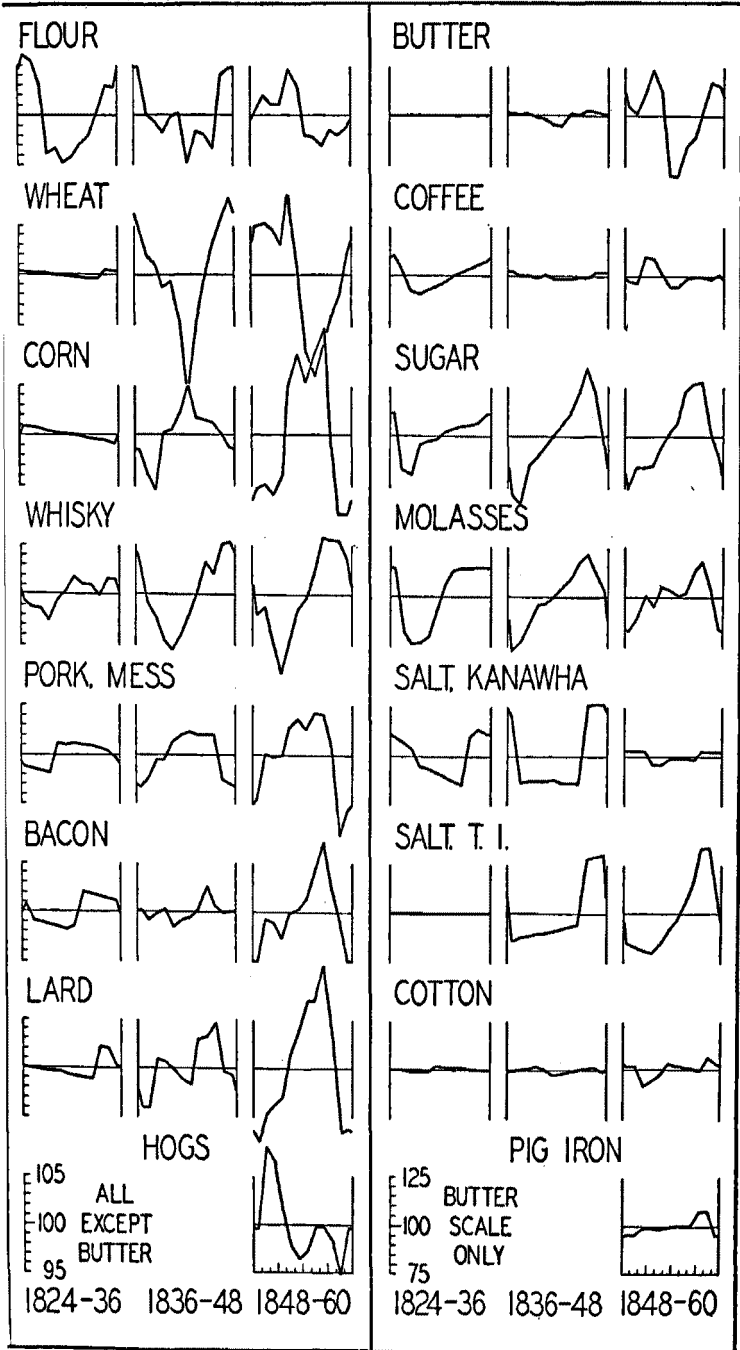
Percentage	1824-36	1836-48	1848-60
80-89 .....	4	2	0
90-99 .....	5	5	5
100 .....	1	3	4
101-10 .....	2	1	2
111-20 .....	1	2	2

<sup>45</sup>Michaux, *op. cit.*, p. 199; LH, June 16, 1818, quoting from the *Zanesville Express*; L. C. Hunter, *Studies*, pp. 32-41.

<sup>46</sup>"Spring receipts" at that time were usually all sold or shipped before the first of June (CDG, Oct. 15, 1835).

CHART XII

INDICES OF SEASONAL VARIATION IN SIXTEEN SELECTED SERIES OF CINCINNATI  
WHOLESALE COMMODITY PRICES, 1824-1836, 1838-1848, 1848-1860



For data, see Table 22, Appendix B.

The quotation in New Orleans, an important factor, was greatly affected by the fact that large quantities could best be shipped there in the very season when the risk of perishability was high. At any rate, the great change came with the railroad, which liberated Cincinnati from its dependence upon New Orleans.<sup>47</sup> Furthermore, the direct admission of wheat from the then mid-West into world markets made for greater activity in wheat prices which was sure to affect flour. Changes in the production situation were undoubtedly also of importance. Acreage expanded at an extraordinary rate; and spring wheat became a less uncommon variety. Outstanding improvements took place in methods of cultivating and harvesting. Finally, steam power began to supersede erratic water power in flour mills. All these developments brought it about that a larger share of a larger wheat crop came to be shipped to market within a few months after harvest. Stocks were more frequently so depleted in the late spring as to force prices upward. Nevertheless, the amplitude of flour seasonality did not increase—the principal alteration was in timing.

The seasonal variations of wheat, corn, whisky, and pork products underwent noteworthy changes in both amplitude and timing. The general tendency was for the peak to move toward a point just before introduction of a new year's supply. Thus, in the last period May became the peak for wheat, September for corn, the autumn for whisky, and the early part of the same season for pork products. These changes in timing, it will be noticed, were in some cases radical in degree, and so were some of the changes in amplitude. Historically, there is no evidence that the broadening of sources of supply and markets of consumption reduced seasonality in a local western market—on the contrary. Thus, butter, wheat, and corn had so small a degree of monthly variation before 1835 that it was difficult or impossible to detect seasonality at all. Butter evidently had no seasonality, and the range of variation was less than 1 per cent for wheat and 2 for corn. Prices were stodgy and inflexible until wider trade developed. For 1848–1860 the corresponding ranges

<sup>47</sup>The great amplitude of New Orleans seasonality, to which reference has been made above, is decisively demonstrated by patterns for flour and lard representing the period 1824–1846 (A. H. Cole, *Wholesale Commodity Prices*, I, 92).

of variation were over 48, 16, and 18 per cent, respectively.<sup>48</sup>

*Imported and Manufactured Goods.* Chart XII also gives seasonal patterns for seven articles belonging to Group B. No conclusion affects all in equal degree, but the familiar pattern of river seasonality may be recognized in the graphs, especially those representing the period 1824-1836 (coffee, sugar, molasses). Coffee appears to have lost its seasonality in the second interval and assumed a pattern in the third with the *high* point in the spring. As for sugar and molasses, we find that the timing became more nearly adjusted to the crop year. The Cincinnati price of cotton was so relatively inflexible as to permit little seasonality; yet there is a suggestion of a spring low in the fifties. Pig iron data (available for the third period only) show an autumn peak but no depression in the spring. Turks Island salt is another unusual case: no seasonality is detectable in the first period, but prices followed the river pattern fairly closely in the second and third. The absence of variation in 1824-1836 was again largely due to price inflexibility, but a development in activity brought changes in patterns of latter periods. Salt is a case where river transportation was especially poorly suited to the needs of the West in that the principal demand came in late autumn — just when the water was usually low. Accordingly, the outstanding features of the graphs representing the western Virginia article are an abrupt rise in autumn and a decline at the end of the packing season. During the fifties, administration of prices by Kanawha salt companies tended to smooth out the fluctuations. Although these concerns generally aimed to profit by raising the price at the beginning of the packing season, they did succeed to some extent in adjusting shipments and storage to the market and cost-price situation. As many boatloads as possible were sent at low rates in the spring of the year to selected depots, there to await the needs of packers in the following autumn and winter.

<sup>48</sup> The butter series for 1846-1860, it should be noted, was constructed by splicing "prime roll" quotations for January-May and October-December to "prime barrels and firkins" for intervening months. Precautions were taken not to introduce artificial seasonality, but it is nevertheless true that these prices do not apply to exactly the same article as earlier ones. However, the change in seasonality is significant in that all quotations purport to represent the leading variety in the market.

PART II  
COMMODITY PRICES, PRODUCTION, AND  
TRADE

## CHAPTER VI

### WEIGHTS AND MEASURES

THE INFORMATION on weights and measures available to a student of prices is frequently insufficient to enable him to purge price series of elements making for nonhomogeneity. This is largely due to the fact that the metrological aspects of trade, or more common points of commercial usage, elude the historian. A similar difficulty is encountered in the elaboration of weights: namely, the want of precise intelligence on the ratios of equivalence among various shipping containers. Contemporaries are prone to treat information of this character as common knowledge hardly worthy of record. But it is not impossible to compile a fairly trustworthy account from acts of legislation, specialized studies such as those by John Quincy Adams,<sup>1</sup> Alexander D. Bache,<sup>2</sup> and J. H. Alexander,<sup>3</sup> and market reports.

The relative scarcity of explicit information on weights and measures, it should be noted, is accompanied by a strong presumption against change. Sir William Beveridge was led to conclude, in the light of his experience with old manuscript sources of price data, that as often as not the mere mention of a weight or measure indicated a departure from traditional practice.<sup>4</sup> In the present study no such relationship has been dis-

<sup>1</sup> *Report upon Weights and Measures* (1821). A scholarly examination by the Secretary of State of the entire subject, it contains considerable material collected from various localities within the nation.

<sup>2</sup> *Report . . . on the Construction and Distribution of Weights and Measures* (1857). This document, compiled by Bache, contains a survey of federal and state legislation concerning standards.

<sup>3</sup> *Universal Dictionary of Weights and Measures, Ancient and Modern . . .* (1850). This work is unique; unfortunately, its tabular form robs it of much value, the information supplied being necessarily incomplete. Reference may also be made to "Weights and Measures," in J. [Isaac] Smith Homans and J. [Isaac] Smith Homans, Jr., *A Cyclopaedia of Commerce and Commercial Navigation* (1858), pp. 1941-53; this article was compiled in large part from the three sources given above.

<sup>4</sup> *Prices and Wages in England from the Twelfth to the Nineteenth Century* (1939- ), I, xxxvi.

covered, but this is not surprising in view of the fact that our survey differs to a notable degree in several important respects, such as the length of period covered.

*The Pound Avoirdupois.* The great majority of commodities quoted regularly in the Cincinnati market before the Civil War were sold by weight, and by far the most common unit was the pound avoirdupois. During the first half of the nineteenth century, it is true, the legal standards of nation, state, and city were not strictly uniform and also underwent several alterations in a theoretical sense, but there is no reason to believe that such variations exerted any effect upon the behavior of commodity prices.

The actual standards used in the West in early times were brought from England by way of the East, according to every bit of information available. As early as 1822 the troy and avoirdupois pounds were so firmly entrenched in commercial usage that a committee of the Cincinnati City Council reported strongly in favor of their formal adoption.<sup>5</sup> Within a short time the Council passed an Ordinance for the Regulation of Weights and Measures providing that the pound avoirdupois be used for all articles usually sold by that weight.<sup>6</sup> Further activity was centered in a quest for precise uniformity between one place and another. On March 5, 1835, the Ohio legislature passed an act<sup>7</sup> to bring county standards into conformity with the pound avoirdupois adopted in New York state by act of December 3, 1827, but it is doubtful whether the Ohio Secretary of State fashioned and distributed standards to local authorities.<sup>8</sup> In any event, the

<sup>5</sup> Reference was made to the desirability of a universal standard derived from nature, but the Committee decided that its serious consideration was out of the question, "the English standard being the commonest in use among us" (*Advertiser*, Feb. 19, 1822).

<sup>6</sup> In the town charter of 1815, the Town Council was given the power to establish and regulate markets, to fix, regulate and enforce the assize of bread (Section 7). By the city charter of 1819 all legislative functions were transferred to the City Council created at that time. (*Ohio Laws*, XIII, 60, and XVII, 175; *Advertiser*, Mar. 26, 1822.)

<sup>7</sup> *Ohio Laws*, XXXIII, 24; Bache, *op. cit.*, pp. 50-51, 70. This pound was derived from the weight of a cubic foot of water at maximum density (62½ pounds).

<sup>8</sup> In 1841: "The standards provided for by this act have not yet been procured: See Appendix to House Journal 1840-41" (J. R. Swan, ed., *Statutes of the State of Ohio* [1841], p. 990, note a).

statute was repealed in the Act of February 21, 1846, which provided for adoption of a system of weights and measures already elaborated by the United States Treasury Department.<sup>9</sup> Ohio did not depart from the United States standard of weight thereafter. And it may be added that the experience of other states was not dissimilar; for instance, New York adopted the federal standards by unanimous vote in 1851.<sup>10</sup>

*The Hundredweight and Ton.* Diversity of legal and commercial usage introduced questions of nonhomogeneity in several price series composed of some quotations by the ton (or hundredweight) and others by the pound.<sup>11</sup> The situation in respect to the ton and hundredweight is not clear, taking the United States as a whole. There appears to be general agreement only to the extent that long weights were commonly employed in connection with coal and iron and with the shipping of heavy or bulky commodities by water.<sup>12</sup> Thus, the long ton was used for coal in Maryland in 1850, and in 1844 the same unit was used in Cincinnati for bulk bacon and pork.<sup>13</sup> The Kanawha saltmakers employed a ton of 2,240 pounds to weigh wrought iron in 1828-1829, and Louis Hunter found (by empirical methods) that the prices of Pennsylvania bar iron all through this period referred to gross weight.<sup>14</sup> Thurston defined a ton of coal to be the equiva-

<sup>9</sup> A joint resolution of Congress (June 14, 1836) authorized the Department to construct standards and distribute them to the states. The pound avoirdupois was derived from an English troy pound (7,000:5,760) brought over to the United States Mint by Capt. Kater in 1827 and adopted by the Treasury in 1832. (Bache, *op. cit.*, p. 5.) The Ohio statute of 1846 was amended two years later and repealed in 1861, but its provisions as to the United States standards were reenacted (*Ohio Laws*, XLIV, 54).

<sup>10</sup> One "nay" was recorded in the Assembly vote (*Journal of the Assembly*, II, 747 [74th Sess.]; *Journal of the Senate*, 303-4 [74th Sess.]). Illinois was exceptional in that it had a standard pound of 7,020 grains from March 22, 1819, until it accepted the federal standard (7,000 grains) on March 4, 1843 (Bache, *op. cit.*, pp. 52, 74).

<sup>11</sup> The series include pot and pearl ashes, castings, cordage, hemp, bar iron, American blister steel, and tobacco. In several other cases quotations changed from a "per pound" to a "per 100 pounds" basis, or vice versa.

<sup>12</sup> All steamboat and wagon freight rates on general merchandise were, on the other hand, quoted in terms of one hundred pounds. See Alexander, *op. cit.*

<sup>13</sup> CDG, Feb. 10, 15; Apr. 6, 1844.

<sup>14</sup> House Exec. Doc. no. 55, 21st Cong., 1st Sess. (1829-1830), p. 37; Sen. Doc.



lent of twenty-eight bushels of eighty pounds, and the long ton was used in 1846 by the New Orleans Chamber of Commerce not only for metals and ore but also for sugar, rice, honey, and other heavy articles shipped by water.<sup>15</sup>

So far as more general usage is concerned, the evidence is conflicting. Net weights appear to have become common in the West almost from the beginning and to have earned widespread legislative sanction long before the outbreak of the Civil War. In Maryland at the mid-point of the century, Alexander found the ton of 2,000 pounds the legal standard for articles other than coal, but the same authority declared the United States official ton to be "generally" equivalent to 2,240 pounds. In Philadelphia, on the other hand, the gross hundred (112 pounds) was uniformly used until 1824, when the Chamber of Commerce adopted the net weight (100 pounds) for eight specific commodities,<sup>16</sup> and tariff legislation seems to indicate that both standards persisted in usage at the seaboard for a considerable number of years. It is highly probable that the ton of 2,000 pounds and the hundredweight of a hundred pounds edged the larger weights out of general usage only step by step. Thus, one investigator has found that even though the English ton persisted in the United States at least as late as 1861 (except for the weighing of American steel), the "cwt." contained only a hundred pounds for codfish and tobacco from very early times, and was shortened for saltpetre in 1794, English steel in 1818, ashes in 1831, and most other commodities in 1824.<sup>17</sup>

There is abundant evidence that neither of the English weights was ever widely adopted in the West except for the special purposes mentioned above. In its report to the Cincinnati Council in 1822 the Committee on Weights and Measures states that they "have not been able to find that this custom [the gross hundred or 112 pounds] has reached this country, nor can they feel any regret that it has not, as it appears . . . to be an arbitrary en-

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no. 47, 20th Cong., 1st Sess. (1827-1828), Appendix A, p. 16; Hunter, "A Study of the Iron Industry at Pittsburgh before 1860," pp. 76A-AA.

<sup>15</sup> Thurston, *Pittsburgh as It Is* (1857), pp. 48-49; LH, Nov. 19, 1846.

<sup>16</sup> The short ton was used for American steel in Philadelphia, but the long ton was found to be employed in weighing hemp (Bezanson, *op. cit.*, I, 337-38).

<sup>17</sup> A. H. Cole, *Wholesale Commodity Prices*, II, x.

forcement, inconvenient in its number, and productive of no positive good in its effect."<sup>18</sup> Lexington invoices of 1790 and the Smith-Findlay (Cincinnati) accounts of 1797 regularly used the twenty-five-pound quarter and the short hundredweight. The Charleston (West Virginia) firm of Donnally & Steele purchased iron castings in Pittsburgh in 1813 on the same basis. Moreover, the advertisement of black salts "per gross hundred" in an early newspaper suggests that the net weight was not uncommon.<sup>19</sup>

Ohio legislation began with the Act of March 5, 1835, mentioned above, wherein both net weights were adopted with no exception (in the reenactment of 1861 pig iron and iron ore were specifically excepted). A short-ton law was passed in Wisconsin in 1839, while Missouri legislated two years later that hemp be sold by the hundred pounds. Kentucky's Revised Statutes of 1852 provided for a short ton and hundredweight. In sum, no less than seventeen states and three territories had similar statutes by 1857, including Ohio, Indiana, Illinois, Kentucky, Missouri, and Michigan.<sup>20</sup>

The system of weights used at the ports of entry of the United States was not clearly defined until 1861, although many of the customs duties were expressed as specific rates. It may be inferred from the language of the tariffs and from Alexander that the English system was generally employed by the officials. It is perfectly true that in the first general tariff (July 4, 1789) the duty of hemp was expressed as 60 cents per 112 pounds weight,<sup>21</sup> indicating that the ordinary "hundredweight" might have been understood to mean one hundred pounds. Furthermore, in the

<sup>18</sup> *Advertiser*, Feb. 19, 1822. Yet Thomas Wallace's copybook gives the English system in a table of "Kentucky weights and measures" (Feb. 7, 1811). Furthermore, the legal minimum for a bundle of Kentucky hemp, which was set at one "hundredweight" in 1794, was specified to be 112 pounds a year later. (William Littell and Jacob Swigert, *Digest of the Statute Law of Kentucky* [1822], I, 258-60, 330; cited in Verhoeff, *op. cit.*, p. 73.)

<sup>19</sup> MSS. at the Historical and Philosophical Society of Ohio; Donnally & Steele Account Book; LH, June 16, 1812.

<sup>20</sup> Coal was not excepted from the Ohio statute of 1861, probably because it was sold by the bushel. The Kentucky law was apparently taken from the *New York Revision* (I, 779). (J. R. Saylor, ed., *The Statutes of the State of Ohio* [1876], I, 109-10; Bache, *op. cit.*, pp. 78, 80, 85; C. A. Wickliffe et al., *Revised Statutes of Kentucky* [1852], c. CV, § 6.)

<sup>21</sup> *U. S. Statutes at Large*, I, 24 (c. 2).

third revenue measure (passed some three years later) the hemp duty was again reckoned per 112 pounds, but the rate on steel was 100 cents per "hundredweight."<sup>22</sup> However, in the tariff of April 27, 1816, all forms of manufactured iron as well as hemp, steel, and copperas were weighed by the "hundredweight."<sup>23</sup> The words "ton" and "hundredweight" were used commonly in later statutes without proper definition, and it is probable that the situation led to confusion. At any rate, a special section in the Act of March 2, 1861, stated that "wherever the word 'ton' is used in this act, in reference to weight, it shall be deemed and taken to be twenty hundred weight, each hundred weight being one hundred and twelve pounds avoirdupois."<sup>24</sup> The apparent preference for the English system in this quarter may be construed as a reflection of the situation then prevalent in respect to the foreign trade of the republic. In the first place, foreign trade was of relatively greater importance than in later periods, and, secondly, England was easily the leading source of our imports as she was our biggest customer abroad.

*The Weight of Hogs.* A troublesome complication arose in the construction of a monthly series of Cincinnati hog prices, for which some quotations referred to live weight ("gross") and others to dressed weight ("net"). Thus, the difficulty arose from variations in the manner of sale rather than in the standard of weight.<sup>25</sup> The problem was marked by such considerations as these: (1) quotations before 1844 were confined to the winter packing season and were commonly not specific as to grade; (2) the differential between net and gross prices, though substantial (the average hog loses approximately 20 per cent in weight in

<sup>22</sup> Act of May 2, 1792; *Statutes*, I, 259 (c. 27).

<sup>23</sup> The duty on steel again appeared as \$1.00 per hundredweight (*Statutes*, III, 310 [c. 107]).

<sup>24</sup> It may be noted that, although the duties on bar, plate, rolled or hammered, pig, band, and hoop iron, as well as hemp, were stated in terms of the ton, the tariff on steel was in terms of both a pound and one hundred pounds. The duty on wire was also a specific sum "per hundred pounds." (*Statutes*, XII, 178 (c. 68, § 26).) Cincinnati and Pittsburgh prices of American blister steel were expressed in terms of the "cwt." between 1816 and 1822 and per pound thereafter. The short hundredweight was employed in the present study. Cf. Bezanson, *loc. cit.*

<sup>25</sup> It is fairly certain that the common unit of weight was a hundred pounds throughout.

the slaughtering process), was far from constant; and (3) hog prices varied with such amplitude that it was impossible to infer the correct specification directly from a given quotation.

In respect to the winter quotations before 1844, the procedure adopted in this study has been to treat them all as pertaining to live animals. Several circumstances favor this interpretation, aside from the fact that many of the quotations were comparatively low. In the first place, market reports in several of the years referred unmistakably to "live hogs" (1827-1831), "pork by the whole hog" (1828) or "fresh pork, in the hog" (1828-1829).<sup>26</sup> Secondly, the word "net" was coupled with a price upon only two occasions before 1844 (1831 and 1840), though it was used in other connections from early days.<sup>27</sup> Third, hogs were commonly sold directly to the packing houses by the drovers in the early days, and it appears that the intervention of slaughter-houses in the early forties was probably responsible for the adoption of a "net" and "gross" price system at that time.

Winter quotations in 1844 and later years were uniformly specified as "net." The term "gross" was at first applied only to "stock" hogs at the end of the season. However, a summer "gross" market developed steadily after 1844, in which local butchers supplanted the feeders as the principal buyers. The summer market, it must be remembered, never approached the winter packing season so far as volume of trade is concerned.

All quotations for the packing seasons of 1844-1861 were reduced to a live-weight basis in the construction of the annual average prices employed in analyses involving hog-corn price ratios, but the monthly series for 1846-1861 was placed upon a "net" basis by converting all summer quotations thereto. It was assumed that the net price was 25 per cent higher than the gross.<sup>28</sup> For lack of information no adjustment was made for another complicating circumstance: the fact that in some years

<sup>26</sup> In the twenties the quotations frequently referred to "pork" or "fresh pork."

<sup>27</sup> The state inspection statute of 1820 specifies that "navy pork" barrels were to contain no meat from hogs weighing less than 150 pounds "nett" (Chase, II, 1098; c. 471, § 7, passed Feb. 7, 1820).

<sup>28</sup> Samuel Benner employed this ratio with price data of 1855-1874. H. E. White calculated a ratio of 1.220588235 from data for the years 1853-1867. I am indebted to Mr. White for information leading to the "purification" of the hogs series. (*Benner's Prophecies* [1884 ed.], pp. 61-62; White, *An Economic Study*, pp. 444-45.)

the slaughterhouses paid for the offal by awarding a "premium" per head amounting to between 25 and 50 cents. This custom prevailed "during several seasons" in the fifties but was dropped in 1858.<sup>29</sup> The Aldrich Report, it should be stated, was incorrect in taking all Cincinnati hog prices to be "live weight," and a serious error in one of the quotations for 1860 (the base year) prejudices studies based upon these figures.<sup>30</sup>

*Other Units of Weight.* Several important commodities were sold in Cincinnati by units or containers which suggest volume but were in fact units of weight. The box of dry cod and the keg of nails contained a hundred pounds each. In 1822 powder was sold by "qr. kegs" but the actual unit was considered to be twenty-five pounds whether powder was packed in kegs or canisters.<sup>31</sup> The bag of shot was also equivalent to twenty-five pounds, and the keg price maintained a very nearly constant ratio of 12 to 1 to the bag price during the fifties. Most important of all, the bushel and the barrel, originally measures of capacity, were turned by custom or by law into units of weight, undoubtedly on account of the greater ease with which the latter standards could be observed.

*The Barrel.* All authorities agree that the barrel of flour or meal weighed 196 pounds net from the beginning, and both the content and the specifications of the cooperage were enforced by Ohio inspection statutes passed in 1802 and later years.<sup>32</sup> Such

<sup>29</sup> CCC (1859), p. 26.

<sup>30</sup> The error does not affect annual price relatives in the Aldrich Report, since these, for reasons unknown, are based upon October figures only. However, W. C. Mitchell's quarterly relatives contain an artificial seasonality and a bias induced by a gross error in the figure for July 1860. (Aldrich Report, pt. II, Table X, pp. 27-28; pt. I, Table 32, p. 103. Mitchell, *Gold Prices and Wages under the Greenback Standard*, Appendix, Table 2, p. 354.)

Average prices for the winter packing seasons 1848/49-1878/79 may be found in official statistics of the state of Ohio which represent the "gross price, or the equivalent of the gross price." Some were apparently computed by subtracting 20 per cent from net quotations. The data for 1848/49-1860/61 match corresponding figures derived in this study fairly closely, the difference ranging from zero to 35 cents. (Ohio Secretary of State, *Annual [Statistical] Report* [1879], pp. 691-92.)

<sup>31</sup> LH, Nov. 23, 1822.

<sup>32</sup> Chase, I, 333, 474, and II, 1414; *Territorial Laws*, c. 151 (1802); *Ohio Laws*, c. 62 (1805), 471 (1820), 626 (1824). See also LH, Dec. 20, 1814, and Dec. 23,

simple requirements could not be laid down for pork, beef, or fish, but it is evident that a tendency was in operation to standardize the weight of the meat in these "wet" barrels. According to the earliest western inspection laws, those of 1802 and 1805, the barrel of pork or beef was to contain between 200 and 225 pounds of meat, so that tare and net weight had to be marked on the head. The barrel was then merely a container. A similar rule was made for fish in 1812.<sup>33</sup> The law of 1820, however, prescribed that the barrel of pork or beef was to hold 200 pounds of clean meat, assorted according to the respective grade, and a similar provision for fish was made in the following year.<sup>34</sup> It is noteworthy that Louisiana also passed a similar inspection statute for pork and beef a month later.<sup>35</sup> The Louisiana standards were apparently the ones which governed Cincinnati packers; the latter discovered that if they salted and pickled 196 pounds of pork, it would "weigh out" more than 200 pounds when inspected in eastern and southern markets.<sup>36</sup>

With some exceptions, the common unit of sale for salt in the West before the Civil War was the bushel of fifty pounds, and the barrel and sack were containers only. This was especially true of Kanawha and Turks Island salt, the two varieties most popular with Cincinnati packers. In Pittsburgh, however, salt was sold by the barrel in the early days.<sup>37</sup> The net weight and tare of each barrel were stamped thereon at the Kanawha works, and it was noted in Cincinnati in 1828 that the saltmakers were selling only at the "lick weight" (to protect themselves against shrinkage).<sup>38</sup> In 1844 Liverpool salt appeared in the Ohio market. The gross weight was figured at 214-15 pounds on the canals (LH, July 3, 1845, and Feb. 26, 1846).

On the evolution of similar contemporary legislation in Kentucky see Verhoeff, *op. cit.*, pp. 70-76. An act of 1815 was somewhat exceptional in that it made the inspection of flour for export optional unless demanded by the purchaser.

<sup>33</sup> Chase, II, 766; *Ohio Laws* (c. 265).

<sup>34</sup> Chase, II, 1098, 1197. These provisions were continued in later statutes.

<sup>35</sup> LH, Feb. 14, 1821.

<sup>36</sup> James D. B. De Bow, *The Industrial Resources . . . of the Southern and Western States* (1852-1853), I, 377 (quoting Cist).

<sup>37</sup> According to the quotations, the barrel appears to have approximated 280 pounds. This figure was occasionally used in the Donnally & Steele account book, although no two barrels of salt appear to have been equal in actual weight.

<sup>38</sup> CDG, Dec. 18, 1828.

ket, where it was sold thereafter by the sack of four bushels (Turks Island sacks held only two). New York salt was quoted after 1846 by the barrel (280 pounds) or by the "dairy sack" of twenty-eight pounds. By 1853 the Kanawha salt company then in operation (Ruffner, Donnally & Company) found it necessary to pack a portion of its product in barrels of this size, though they were considerably smaller and more expensive than those commonly used in the packing trade, in order to meet competition from Syracuse salt in Springfield, Xenia, and other points. But it was not until 1860 that the Ohio River and Kanawha brands were sold by the barrel in Cincinnati in sufficient quantity to merit separate quotations.<sup>39</sup> The demand for the smaller barrel appears to have originated in the dairy and domestic branches of the market. As for the packers, salt continued to be quoted by the bushel for many years thereafter, although a seven-bushel barrel became standard towards the close of the century.

*The Bushel a Unit of Weight.* In the cases of salt, coal, and small grains the dominant trend during the period under survey was the substitution of a fixed weight for a fixed volume as a condition of sale. In other words, the bushel was converted from a single standard to a multiple one. Legislation recognized this situation and confirmed it, so that by 1857 the legal bushel was a standard of weight in most states. This change may have proceeded from a recognition that the weight of a given shipment is more easily checked than the volume, but in connection with salt, at least, another factor enters into consideration — the large-scale reduction of the unit for the purpose of increasing customs revenue.

All the manuscript accounts of Cincinnati, Louisville, Frankfort, and Lexington belonging to the pioneering period as well as the entire body of documentary and journalistic evidence of later years point to the employment of the bushel of fifty pounds in the salt trade of the West. A measured Winchester bushel of salt weighs between seventy-five and ninety pounds, depending upon the quality. But by Act of May 2, 1792, the Congress of the United States followed Great Britain's example in stating that the "bushel" of salt was considered not to exceed fifty-six pounds

<sup>39</sup> Ruffner, Donnally & Company Letter-book, Feb. 15, 1853 *et passim*; WCA, Mar. 7, 1860.

for the levy of the specific customs duty.<sup>40</sup> This latter bushel was adopted at the Onondaga salines, but the westerners appear to have used the fifty-pound measure from a very early date. This may be another reflection of the trend towards the "net" system of weight already seen to be characteristic of western commerce.

The change to a weight basis for small grains took place only gradually, and did not commence until a later date. Emphasis in early legislation is upon a measure equivalent to the Winchester standard (2,150.4 cubic inches).<sup>41</sup> Thus, in 1811 Ohio authorized the county commissioners to have measures made of half-bushel content.<sup>42</sup> Furthermore, early advertisements in Cincinnati indicate that grain was sold by volume, albeit attention was paid to the weight of a given article. Thus, barley was offered in bushels, "each bushel weighing 47 pounds"; and the Cincinnati Steam Mill offered a premium on wheat weighing sixty pounds to the bushel.<sup>43</sup> Isaac Jackson, a near-by farmer, sold wheat to the mill in the fall of 1815. On one sale he netted 75 cents per bushel weighing fifty-nine pounds, but one week later he was paid at the rate of only 67 cents for wheat averaging fifty-eight pounds to the bushel.<sup>44</sup>

Ensuing legislation in many states fixed the standard of the bushel for specific commodities, particularly grains, upon a basis of weight. By 1813 the state of New York had already made a beginning in this direction; and when that state adopted the imperial bushel in 1827 as a measure of capacity, it retained the weight standard for wheat, rye, and Indian corn.<sup>45</sup> On March 5,

<sup>40</sup> The use of the words "actual bushel" in the act shows that the Congress was aware of the nature of the change. The duty of 1790 was thus raised from 12 to about 17 cents per measured bushel. All succeeding tariffs retained the fifty-six-pound bushel, until an additional duty of 6 cents per hundred pounds was inserted in the Act of July 14, 1862 (*Statutes*, I, 180, 259; XII, 543).

<sup>41</sup> On the derivation of this standard, see Beveridge, *op. cit.*, p. xxix. By 1819 fourteen states had adopted it. See also Bache, *op. cit.*, pp. 34-36.

<sup>42</sup> Chase, II, 753; *Ohio Laws*, c. 250.

<sup>43</sup> LH, Aug. 18, 1812; May 22, Dec. 20, 1813; May 20, 1823.

<sup>44</sup> Isaac Jackson Papers.

<sup>45</sup> Van Ness and Woodworth, *Revised Laws . . .* (1813), II, c. 324, § 13; *Revised Statutes . . .* (1829), pt. I, c. XIX, tit. II, 611. The weights in pounds were as follows: wheat, sixty; rye and Indian corn, fifty-six. The imperial bushel has a capacity equivalent to eighty pounds of distilled water at maximum density, or 2,211.84 cubic inches. It was the official measure in New York until April 11, 1851,



1835, Ohio passed an act closely resembling the New York law of 1827 and also defining the bushel of certain grains by weight.<sup>46</sup> This legislation was repealed by a statute passed February 21, 1846, by which Ohio adopted the federal standards of capacity; however, the weights for grains were reenacted on February 8 of the following year (with minor changes) and the schedule was retained permanently, although minor amendments were entered from time to time.<sup>47</sup>

The legislative experience of the other states was not dissimilar to that of New York and Ohio, although Wisconsin was the only one besides Ohio to follow the action of New York in accepting the imperial system.<sup>48</sup> By its first statute on weights and measures, enacted on December 11, 1798, Kentucky established its bushel of capacity practically equivalent to that of Winchester.<sup>49</sup> The weight standards for grains were not adopted until almost fifty years later.<sup>50</sup> Most of the other states had pursued this course by 1857. According to Bache,

Many kinds of grains, seeds, and other substances, which have been bought and sold by measure, are now usually exchanged by weight; and most of the States have established by law the number of pounds avoirdupois which shall be understood to constitute a bushel, unless there be some special agreement as to the measure between the buyer and seller. Of some grains, &c., the legal weight of the bushel in different States is not always the same, which, no doubt, arises from the variety of the weight of the product in different soils.<sup>51</sup>

The important thing to note, from the point of view of the price historian, is that the variations in the actual weight of the bushel

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when the federal standard was adopted. By act of May 19, 1836, barley and oats were added to the list of grains to be sold by weight (forty-eight and thirty-two pounds respectively). (Bache, *op. cit.*, pp. 52, 117.)

<sup>46</sup> The standards of capacity provided for in the Ohio Act of March 5, 1835, were probably never set up. (*Cf. ante.*) Section 24 gave the following weights in pounds: wheat, sixty; rye and Indian corn, fifty-six; barley, forty-eight; and oats, thirty-three.

<sup>47</sup> Bache, *op. cit.*, pp. 70-72. See above, p. 140.

<sup>48</sup> *Ibid.*, pp. 77-78. Wisconsin also had a weight standard for wheat, rye, Indian corn, barley, and oats.

<sup>49</sup> William Littell and Jacob Swigert, *op. cit.*, II, 1238-39.

<sup>50</sup> *Cf. Revised Statutes* (1852), c. CV, § 7. The legislation may be found in the acts of the 1844-1845 session (p. 43).

<sup>51</sup> *Op. cit.*, pp. 85, 129.

of the different grains changed so little from time to time and from place to place, as judged by both actual transactions and legislative standards, that the probability of serious nonhomogeneity among the bushel-price data due to this cause is quite small.<sup>52</sup>

*The Coal Bushel.* In the case of coal, Ohio presents a special situation. There is no record that a weight standard was established by a statute before the Civil War, although it is certain that a bushel of bituminous coal was figured at eighty pounds in the markets.<sup>53</sup> On the contrary, an act was passed on February 14, 1848, which established a *volume* standard for stone coal, coke, and unslaked lime (2,688 cubic inches).<sup>54</sup> The situation was not clarified until March 31, 1864, on which day another statute was enacted to the effect that coal was to be sold by weight (bituminous, eighty pounds; cannel, seventy pounds per bushel); however, if scales were not available, the legal standard of volume was to be used.<sup>55</sup>

*Weight Equivalent of the Bushel.* The *Cincinnati Price Current* published regularly a schedule of bushel weights accepted by custom in the local market, and this fact indicates a lack of precise uniformity with other markets. The list given in February 1861, reproduced on the following page, is a fair sample. The weights for cloverseed and oats differed from the Ohio legal standards of sixty and thirty-two pounds, respectively.<sup>56</sup>

*Changes in the Legal Gallon Standard.* The gallon was by far the most common unit of liquid measure in the wholesale markets

<sup>52</sup> The one possible exception is the case of New York, which, according to the evidence at hand, was from 1827 to 1851 legally on a comparatively "heavy" bushel standard applicable to all commodities sold by volume.

<sup>53</sup> See CDG, Feb. 15, 1844. Only two states, Illinois and Kentucky, appear to have fixed the weight before 1857—eighty pounds (Bache, *op. cit.*, p. 129).

<sup>54</sup> Bache, *op. cit.*, p. 71. This was an attempt to give a definite equivalent to the heaped bushel.

<sup>55</sup> Saylor, I, 627. A similar trend is visible in the federal tariff legislation of the period. The duty on coal was 5 cents "per heaped bushel" in the Act of April 27, 1816, but the specific rate in the Act of March 2, 1861, applied to a "ton of 28 bushels, 80 lbs. to the bushel" (*Statutes*, III, 310 [c. 107], XII, 178 [c. 68]).

<sup>56</sup> CPC, Feb. 13, 1861. The Ohio cloverseed bushel was fixed at sixty pounds in 1844, changed to sixty-four pounds in 1847, and returned to sixty pounds in 1848. It is also notable that Kentucky, Indiana, and Illinois fixed a bushel of onions at fifty-seven pounds. (Bache, *op. cit.*, pp. 71 ff.)

a century ago. Its development from the legal and mercantile points of view was not remarkably different from that of the bushel. Before 1825 the Queen Anne wine gallon of 1705 (231 cubic inches) was all but universally used in the English-speaking

Apples, dried .....	25	Rye .....	56
Barley .....	48	Rye malt (including weight	
Barley malt (including weight		of bags) .....	40
of bags) .....	34	Seed	
Beans .....	60	Clover .....	62
Bran .....	20	Timothy .....	45
Corn .....	56	Flax .....	56
Corn in ear .....	68-70	Hemp .....	42
Coal .....	80	Canary .....	60
Hominy .....	60	Millet .....	50
Oats .....	33	Hungarian grass .....	50
Onions .....	54	Rape .....	50
Onion sets .....	25	Blue grass .....	14
Peaches, dried .....	33	Wheat .....	60
Potatoes .....	60		

world. At that time, England put the imperial system into effect, calling for a gallon (dry or liquid) equivalent to ten pounds of distilled water, or 278.48 cubic inches. As in the case of the bushel, the state of New York was the first American jurisdiction to espouse the new system, which it adopted by the act of December 3, 1827. Two years later, however, the Empire State diminished its official liquid gallon to four-fifths of its former content, at the same time retaining the ten-pound equivalent for the dry gallon. Not until 1851 did New York forsake this double-gallon system to return to the gallon of 231 cubic inches.<sup>57</sup>

Ohio and Wisconsin appear to be the only states which followed New York's example, the former by the Act of March 5, 1835, and the latter in 1839. Yet Ohio anticipated New York by five years in forsaking the double-gallon standard in favor of the

<sup>57</sup> There is some doubt as to whether the official state weights and measures were actually employed by all the local sealers. It is apparent by Section 8 of the law of April 29, 1829, that the standards provided for in the Act of December 3, 1827, had not yet been distributed, and perhaps not even made. By an act of February 4, 1831, the standards were to be sent to county sealers only at the counties' expense. See *Laws of the State of New York*, 52d Sess., c. 297, pp. 433-34 (1829); 54th Sess., c. 34, p. 31 (1831).

original Queen Anne wine gallon, and Wisconsin took the same course in 1852.<sup>58</sup>

There is no question that, if actual mercantile usage followed the legislative enactments, the variations in the gallon standard set up by these three states could not have failed to exert a noticeable effect upon price. The New York liquid gallon of the years 1827-1829 was more than 20 per cent greater in content than the measure commonly used up to that time, and the liquid standard on the statute books from 1829 to 1851 was over 4 per cent smaller in capacity than the 1705 wine gallon employed ever since. Similarly, the Ohio liquid gallon of 1835-1846 was legally ten cubic inches less in capacity than the measure supposedly in use before that period and since. However, serious doubt exists as to how far the legal standards were complied with in the various markets. As has already been suggested, there is ample room for the belief that the Ohio standards, in particular, were never changed in actual practice. At any rate, it may be stated at this point that no adjustments were thought necessary in the Cincinnati price series to allow for changes in the bushel or gallon, in view of the unsatisfactory condition of the information available.<sup>59</sup>

As for states other than New York, Ohio, and Wisconsin, it is a safe assertion that the gallon of 231 cubic inches has been accepted by both merchants and legislators in practically all of them from very early times.<sup>60</sup>

*Packages and Containers.* The scales of equivalence among the various packages and containers used in inland transportation before the Civil War cannot be stated with precision because they were not uniform and were therefore subject to the processes of estimate or average. In the present investigation, the following equivalents were employed in the reduction to common units of the data for the volume of shipments:

<sup>58</sup> Bache, *op. cit.*, pp. 70, 79.

<sup>59</sup> It may also be noted that no evidence has been discovered in the newspapers, trade reports, or other sources of commercial information, to indicate that a significant change took place in the gallon or bushel in common use.

<sup>60</sup> See Bache, *op. cit.*, pp. 34-85. Of course, this assertion must be qualified in the case of states such as Louisiana or Texas, which employed other well-defined systems of weights and measures until they became identified with the United States.

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Beans .....	bbl.	equals 3 bu.	Oats .....	sack	2 bu.
Butter .....	hhd.	1,000 lbs.		bbl.	3 bu.
	bbl.	200 lbs.	Oil, linseed .....	bbl.	40 gals.
	firkin	100 lbs.	Pork and bacon ...	hhd.	800 lbs.
	keg	25 lbs.		box	400 lbs.
Candles .....	box	60 lbs.		bbl.	200 lbs.
Corn .....	sack	2 bu.		tierce	304 lbs.
Corn meal .....	bbl.	5 bu.	Pepper .....	bag	100 lbs.
	bbl.	6 bu.	Rope .....	package	60 lbs.
		(shelled corn)	Rice .....	tierce	550 lbs.
Cheese .....	cask	200 lbs.	Sugar .....	hhd.	1,000 lbs.
	box	40 lbs.		bbl.	200 lbs.
Cotton .....	bale	500 lbs.		box	600 lbs.
Coffee .....	bag, sack	160 lbs.	Seed, flax .....	bbl.	3 bu.
Feathers .....	sack	50 lbs.	Salt .....	bbl.	7 bu.
Ginseng .....	bbl.	200 lbs.		sack	4 bu.
	bag	100 lbs.	Shot .....	keg	300 lbs.
Hemp .....	bundle	112 lbs.		bag	25 lbs.
	bale	300 lbs.	Tallow .....	bbl.	240 lbs.
Lead .....	keg	100 lbs.	Tea .....	package	56 lbs.
	pig	60 lbs.	Tobacco, leaf ....	hhd.	1,000 lbs.
Lard .....	hhd.	1,000 lbs.		bale	100 lbs.
	bbl.	225 lbs.	Tobacco, mfd. ....	box, keg	250 lbs.
	keg	45 lbs.	Wheat .....	sack	2 bu.
Molasses .....	bbl.	40 gals.	Whisky .....	bbl.	40 gals.
Nails .....	keg	100 lbs.	Yarn, cotton ....	package	10 lbs.

## CHAPTER VII

### FLOUR AND WHEAT, WHISKY AND CORN; MISCELLANEOUS FARM PRODUCTS

THE PURPOSE of this chapter (and those immediately following) is twofold: first, to trace the development of the western trade in leading commodities; and secondly, to point out similarities and differences in the behavior of their price series. Although emphasis is laid upon the period between 1816 and 1861, on which considerably more information is available, efforts are made to carry the account as far back as materials permit. Statistics relating to the Cincinnati and New Orleans markets receive the lion's share of attention, since they are superior to those covering other commercial centers. Even here, however, it must be admitted that the data leave much to be desired — reports on the volume of New Orleans receipts are only fragmentary for years prior to 1822, whereas statistics on Cincinnati's trade were not compiled in a regular manner until 1845.

*Flour Prices and Production before 1816.* By the turn of the nineteenth century wheat flour had become an important article of commerce on the Ohio River. General James Wilkinson's maiden export ventures to New Orleans between 1787 and 1791 were mainly in tobacco and secondarily in pork,<sup>1</sup> and the production of hemp and whisky in the ensuing epoch was not inconsiderable. However, the culture of wheat forged to the fore in the 1790's, and the few trade statistics available indicate the primacy of flour. Flour became so important as a "money crop" that the settlers ate corn meal and used wheat only sparingly.<sup>2</sup> In 1800, in the spring shipping months, 22,714 barrels passed Fort Massac (Illinois) on the way down the Ohio, compared with only 1,017 barrels of whisky, 12,500 pounds of pork, and 18,710 pounds of bacon.<sup>3</sup> During the first half of the year 1801 some

<sup>1</sup> Mary Verhoeff, *Kentucky River Navigation*, pp. 55-57.

<sup>2</sup> Michaux, *op. cit.*, p. 195; Charles B. Kuhlmann, *The Development of the Flour-milling Industry in the United States* (1929), pp. 79-81.

<sup>3</sup> Fort Massac was the first port on the Ohio to file returns with the Treasury

93,033 barrels of the breadstuff were received at the Spanish customs-house at Loftus' Heights, together with relatively small amounts of other commodities; and Michaux reported that 85,570 barrels passed Louisville in the corresponding period one year later.<sup>4</sup>

Early production of flour centered in the Monongahela region and Kentucky. The latter district had exported as much as 1,500 or 2,000 hogsheads of tobacco a year in the early 1790's. But it was noted in 1798 that "within the last three years the exportation of tobacco has considerably diminished and flour seems to take its place."<sup>5</sup> Indeed, it was reported that New Orleans had ceased importing flour from the Atlantic states and hoped to compete with the latter in foreign markets. The early Monongahela flour had been of such poor quality that it was used for biscuit and then only in times of scarcity, but it was rapidly improving in this respect.

The shift in Kentucky in favor of flour was no doubt effected in part by a boom in the world price of the latter which accompanied the launching of the Napoleonic Wars. Tobacco also rose in price, it is true, but not to the same degree (Chart XIII). Prices were so low in 1793 that a meeting of the Democratic Society of Lexington was held to consider opening the navigation of the Mississippi, and a memorial to Congress disclosed that "considerable quantities of beef, pork, flour, hemp, tobacco, &c., the produce of this country, remain on hand, for want of purchasers, or are sold at inadequate prices."<sup>6</sup> Immigrants, it must be remembered, formed a market for a good share of the crop, and Indian troubles were restraining the flow to the West at that time, especially into the region north of the Ohio River. Western prices, nevertheless, finally obeyed the impulse furnished by the

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Department (*Pittsburgh Gazette*, July 12, 1800, cited in A. B. Hulbert, "Western Ship-Building," p. 722).

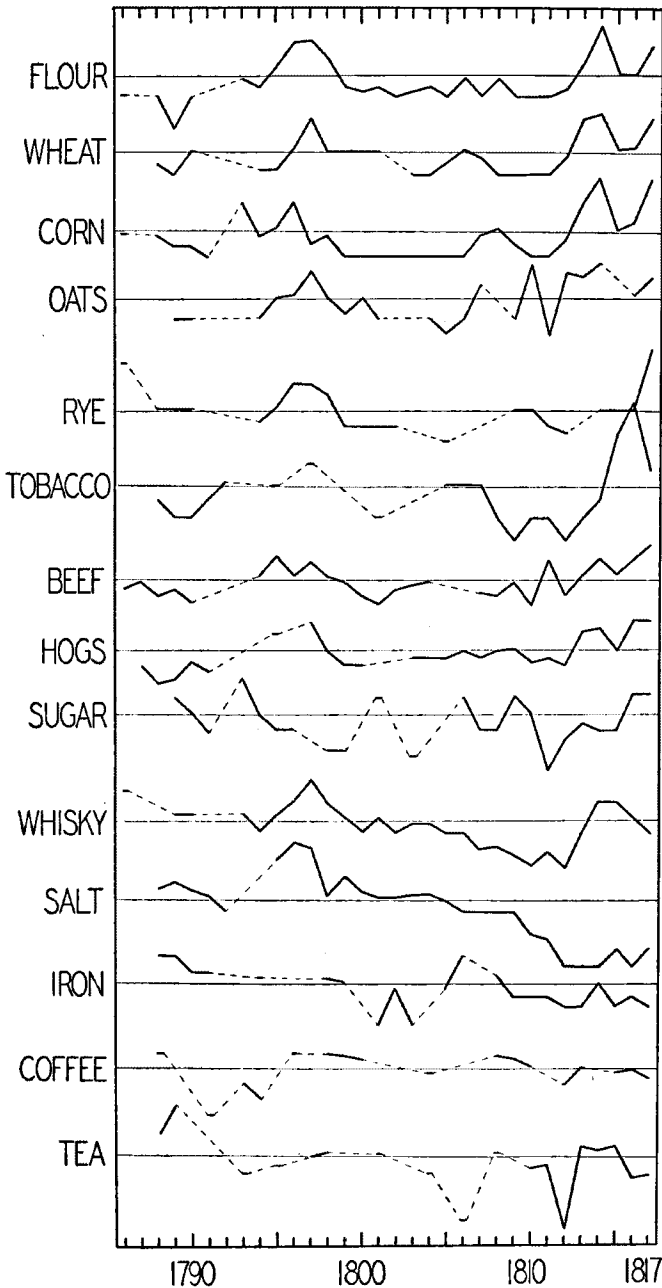
<sup>4</sup> John W. Monette, *The Progress of Navigation and Commerce on the Waters of the Mississippi River and the Great Lakes, A. D. 1700 to 1846* (1903), p. 487; Michaux, *op. cit.*, pp. 197-98; *Kentucky Gazette*, Aug. 6, 1802.

<sup>5</sup> Clark to Pickering letter, *Annals of Congress* (10th Cong., 1st Sess.), p. 2736. See also Verhoeff, *Kentucky River Navigation*, p. 85, n. A. Imlay (*op. cit.*, p. 52) gives a description of the Pennsylvania industry.

<sup>6</sup> *Annals of Congress*, pp. 2776-79.

### CHART XIII

MEDIAN ANNUAL PRICES OF FOURTEEN LEADING COMMODITIES IN THE  
OHIO VALLEY, 1786-1817



For data, see Table 23, Appendix B.



outside world.<sup>7</sup> As a matter of fact, it is surprising that they reacted to such an extent, considering the familiar complaints about lack of markets and money. By 1797, long after Boston and London prices had adopted a downward course, breadstuffs reached a peak in the interior. Flour brought \$12.00 a barrel in Cincinnati in March of that year, and Lexington wheat was quoted at \$1.00 in September.<sup>8</sup> These prices prevailed in spite of an abundant crop in 1796 and a very large surplus yet undisposed of. Indeed, we have the most unusual spectacle of a committee reporting to the Lexington Emigration Society on the prices of the necessaries of life!<sup>9</sup>

It is unfortunate that no figures are available with which to measure the effects of the Treaty of Greenville, the Land Acts of 1796 and 1800, and the Louisiana Purchase upon western production. The data given above suggest a boom in 1801 and 1802. Incomplete figures for the years 1804-1807 give total receipts of flour at New Orleans amounting to 133,403 barrels, much of which undoubtedly came from the upper Ohio Valley. At that time Ohio production was concentrated in the southern part of the state—over one quarter of it was shipped from Cincinnati alone.<sup>10</sup> Local prices fell sharply in 1798 and 1799

<sup>7</sup> On the boom of 1794-1796 see Smith and Cole, *op. cit.*, p. 14.

<sup>8</sup> Smith & Findlay Accounts (five barrels for £22 10s.); *Rights of Man or the Kentucky Mercury*, Sept. 27, 1797.

<sup>9</sup> It was judged that prices of foodstuffs would not rise further unless the number of immigrants was especially large in the year to come. The crops of 1797 were reported deficient because of a severe winter and a dry spring (*ibid.*). Imlay, whose invitation to emigrants was for the most part overenthusiastic, judged that the pioneer was ordinarily not ready to barter or sell "superfluous productions of his farm" until his fourth season (*op. cit.*, p. 135). David Meade found the Lexington prices of both foods and lands high when he migrated in 1796; and a year after arrival he was buying every foodstuff he used. Land twenty miles around Lexington was worth from £3 to £6 per acre. Meade advised his nephews to have £500 clear of travel expenses and £1,000 within a year if they planned to come to Lexington (Bayrd Still, "The Westward Migration of a Planter Pioneer in 1796," *William & Mary College Quarterly Historical Magazine*, 2nd ser., XXI, 320, 341 [Oct. 1941]).

<sup>10</sup> According to origin of shipment, the leading centers of production were western Pennsylvania, Kentucky, western Virginia, and Ohio in that order (W. F. Galpin, "The Grain Trade of New Orleans," *Mississippi Valley Historical Review*, XIV, 500-501 [Mar. 1928]).

and rarely exceeded \$5.00 a barrel from that time until 1813. Michaux noted in 1802 that peace had brought an end to the demand for western flour and salt provisions in the "Carribbees." Kentucky wheat was at so low a price that the balance of trade was seriously affected.<sup>11</sup> It was reported in Frankfort in the spring of 1808 that wheat had averaged not over 3 shillings (one half-dollar) a bushel for several years.<sup>12</sup> Tobacco fared even worse between 1808 and 1815; the Lexington quotation was as low as \$1.50 per hundredweight upon several occasions, and rarely reached as high as \$2.50.<sup>13</sup> Hemp, it is true, experienced a boom in 1810, but the price was only \$4.25 in 1811. All these facts are reflected in the downward course of Index A already noted to be characteristic of the years preceding the War of 1812. And, it should be added, additional support is lent to the picture of discontent in the West already pieced together from local accounts and New Orleans prices of these staples.<sup>14</sup> Prices in the rest of the world, it may be recalled, held to a higher level than that of the early 1790's, and the only consolation to the westerners was that manufactured items such as salt and iron were also declining in price. Production of flour continued large in comparison with other commodities, but the rate of expansion was apparently curbed to some extent. The average imports at New Orleans during the years 1810-1812 were about equal to the shipments reported a decade earlier, and flour barrels outnumbered pork eleven to one (Table 1).

As might be expected, flour prices in western markets rose during the War of 1812, reaching a peak at the end of 1814. At that time army contracts were advertised in Cincinnati at \$9.00

<sup>11</sup> Michaux, *op. cit.*, pp. 139-40, 196. The Lexington price in August 1802 was 25 cents a bushel.

<sup>12</sup> *Palladium*, Mar. 17, 1808. It is entirely possible that the data collected here fail to reflect the true situation in 1805 and 1806. A boom in the sales of public lands took place at that time. Furthermore, one Kentucky dealer advertised "Extravagant Prices, and the Rise" late in the former year (*Informant* [Danville], Dec. 10, 1805).

<sup>13</sup> *Lexington Reporter*, 1808-1812; Weir Accounts, 1813-1814.

<sup>14</sup> G. R. Taylor, "Agrarian Discontent in the Mississippi Valley Preceding the War of 1812," *Journal of Political Economy*, XXXIX, 471-505 (August 1931), and "Prices in the Mississippi Valley Preceding the War of 1812," *Journal of Economic and Business History*, III, 148-63 (November 1930).

a barrel. The same price was quoted in Pittsburgh a month later.<sup>15</sup> The markets broke early in 1815, when the price fell back to \$6.50. Receipts at New Orleans were fairly large in 1814 (74,000 barrels) and a strong increase was noted shortly after the war. The year 1818 was marked by a comparatively huge trade at New Orleans (236,000 barrels), and it was reported that the Cincinnati inspector passed 130,000 barrels. Flour had become the chief export of the Miami country, followed by pork, bacon, lard, and whisky.<sup>16</sup>

*The Export Trade, 1816-1861.* Although local Cincinnati production turned to provisions and whisky rather than flour-milling after the War of 1812, flour continued to be a primary article of trade. Until the middle of the century increasing quantities flowed down the tributaries of the Ohio and the Mississippi to New Orleans and other southern points, and much was exported to the West Indies, South America, and the eastern seaboard. The Ohio canals acted as agents in tapping the interior so as to feed southern as well as eastern traffic. With the completion of rail connections to New York, flour moved in larger quantities in an eastern direction, and wheat entered long-distance trade to the seaboard.

*Western Flour Mills.* The expansion of wheat acreage ahead of transportation facilities — shipment of grain in the berry was prohibitive — brought a heavy demand upon the few early Ohio Valley mills, and scarcity of hand labor probably contributed to the situation. This demand was perhaps the chief cause of the comparatively wide disparity in the prices of flour and wheat already mentioned. The millers' services were highly appreciated, however crude their technique and high their charges.<sup>17</sup> Faux

<sup>15</sup> LH, Nov. 22, Dec. 20, 1814; *Mercury*, Jan. 11, 1815.

Between September 1812 and November 1813 the contract price of flour for the Western Army averaged \$6.00 in Cincinnati. According to John H. Piatt, the purchasing agent, prices at other points were higher more or less in proportion to the distance from the Ohio River. The highest price (\$15.00) was paid at Fort Meigs. At that time the army demand was far greater than the local supply in the interior, but, as production developed in later years, the geographical price relationships tended to be reversed. That is, flour and other products were worth less and less the further one went from the river. See *Niles'*, V, 185 (Nov. 13, 1813).

<sup>16</sup> See Table 1. Daniel Drake, *op. cit.*, p. 148; *Advertiser*, Feb. 23, 1819.

<sup>17</sup> See the short but penetrating account in Kuhlmann, *op. cit.*, pp. 78 ff.

noted a steam mill at Vincennes, Indiana, which gave thirty pounds of flour for a bushel of grain in 1819 — he termed it a “large grinding establishment of extortion.” But the same observer noted that since land carriage of grain was 50 cents per hundred for twenty miles, corn could not pay its cost for this distance and wheat was barely able to do so.<sup>18</sup> Most of the early mills operated by horse or water power, one of the leading examples being Tarascon’s plant at Shippingport, which was built between 1815 and 1819. Although he possessed an enviable location, Tarascon was, like many others, frequently put out of operation by high or low water.<sup>19</sup> During the summer of 1821 the proprietor offered a barrel of superfine flour, made with “all French burs and bolting cloths,” for seven bushels of “very sound” wheat (or 200 pounds for six bushels). A sharp advance in flour prices in October impelled him to offer cash (depreciated paper) for wheat, but he published a refusal to grind “for money except on special agreement.”<sup>20</sup> Steam power was in use in Pittsburgh as early as 1810, when the Pittsburgh Steam Mill advertised that “when flour is by the cwt. \$2.50, wheat is generally 75 cents per bushel, and 3 bushels to the cwt.”<sup>21</sup> Lexington had a steam mill in the following year.<sup>22</sup>

Until 1814 Cincinnati depended upon small mills along neighboring streams. In 1812, however, construction was begun on the Cincinnati Steam Mill, a nine-story limestone structure proudly acclaimed the “most capacious, elevated and permanent building in this place (1815).”<sup>23</sup> Situated on the waterfront, its whole length exposed to the current in high floods, the mill housed a seventy-horse-power engine of Oliver Evans’ design. The building was divided (vertically) into two parts, one of which was planned for flour grinding, the other for the manufacture of wool

<sup>18</sup> *Op. cit.*, pp. 214, 314–15 (in Thwaites, XI, 207–8, 290).

<sup>19</sup> Built six stories (102 feet) high at a cost of over \$150,000, it had a capacity of 500 barrels per day (Collins, *op. cit.*, p. 364).

<sup>20</sup> The first advertisement is dated June 16, 1821 (*Louisville Public Advertiser*, Oct. 6–Nov. 28, 1821).

<sup>21</sup> *Pittsburgh Gazette*, Feb. 9, 1810.

<sup>22</sup> On September 23 (1811) John H. Morton advertised in the *Kentucky Gazette* that the plant was in complete operation and ready to sell flour and meal, buy grain and wood, or exchange.

<sup>23</sup> Drake, *op. cit.*, p. 137.

and cotton yarn and fabrics, flaxseed oil, and several other products. The introduction of this new equipment failed to bring about any sudden narrowing of the mill margin, judging from the fact that in September 1815 Isaac Jackson sold a bushel of wheat to the Mill at  $1\frac{1}{4}$  cents per pound (75 cents for a fifty-nine-pound bushel) and bought a hundredweight of flour for \$3.00. At this rate the mill was exchanging only twenty-five pounds for the bushel.<sup>24</sup>

At the beginning of 1818 it was announced that the Steam Mill was "in complete order" — the machinery had evidently been out of commission — and was to operate thereafter as Ormsby & Evans (Oliver Ormsby and George Evans). The mill, which probably constituted the backbone of the Cincinnati grain market at the time, offered cash for wheat and corn at \$1.00 and 45 cents, respectively.<sup>25</sup> About a year later the establishment was annually manufacturing 16,000 barrels of flour, besides operating nail-cutting, spinning, carding, and fulling machinery.<sup>26</sup> A second steam mill, operated by John F. Keys on the Hamilton road, half a mile from the center, was mentioned in an advertisement by local flour dealers (Barr, Patterson, & Smith) in the summer of 1822.<sup>27</sup>

Late in 1823 the Cincinnati Steam Mill was gutted by fire — an unprecedented calamity to the community. Within three months the General Assembly of Ohio passed an act authorizing Oliver Ormsby to raise \$25,000 by lottery for the purpose of rebuilding.<sup>28</sup> Tickets were printed to the total of \$80,000 and advertised steadily for several months. However, Ormsby found it unnecessary to use this capital and returned all proceeds from ticket sales. Over three years elapsed before the Steam Mill was

<sup>24</sup> On November 2, 1818, Jackson had five bushels ground at Walker's Mill, for which he received 172 pounds of flour and 71 of bran. He figured the 57 pounds difference in gross weight as "Toll!!" (Isaac Jackson Papers).

<sup>25</sup> *Western Spy*, Jan. 31, 1818.

<sup>26</sup> Note that the mill was using 13,000 bushels of coal annually. Several other manufacturing plants were also burning coal (*Advertiser*, Feb. 23, 1819).

<sup>27</sup> LH, Jan. 14, 1823. In the advertisement, dated July 24, 1822, the dealers offered to buy wheat delivered either at the river bank or at Keys' Mill. They offered to pay the "market price" but failed to name a specific figure.

<sup>28</sup> *Advertiser*, Nov. 5, 1823; *National Republican*, Feb. 24, 1824.

back in the wheat market.<sup>29</sup> Local farmers and consumers were forced to patronize other mills less fortunately situated, notably the Hopewell Steam Mill and the Good Intent Steam Mill, at the very time when grain prices were the lowest in years. Whether because of the price situation or because the Steam Mill was incapacitated, all Cincinnati newspapers omitted grain quotations for many months from otherwise quite complete prices-current.

After reconstruction the Cincinnati Steam Mill operated a distillery and fulling mill as well as a flouring establishment rated at 20,000 barrels capacity. The trend of the times is well illustrated, however, by the fact that the structure was razed in 1835 to make room for a wharf, steamboat landing, and store.<sup>30</sup>

*Cincinnati Milling in Later Years.* That Cincinnati failed to keep pace with Buffalo, Wheeling, Louisville and other centers after 1825, so far as local milling was concerned,<sup>31</sup> is reflected in contemporary accounts. During the thirties local reporters emphasized prices, receipts, shipments, and consumption of the staple but practically overlooked local mills. Early in 1837, however, it was recorded that the product was valued at some \$600,000 annually — one-fifth as much as the pork business. In 1841 the output of flour was valued at \$817,000, and the amount very nearly doubled in each succeeding census (1851 and 1859).<sup>32</sup> Cist noted in 1846 that "only within a few years have we manufactured any considerable quantity of flour."<sup>33</sup> The seven flour mills reported in 1841, employing twenty-seven hands, are to be compared with forty-eight pork-packing houses employing 1,220.<sup>34</sup> In 1852 two mills on the Miami Canal were converted to paper

<sup>29</sup> *National Republican*, Mar. 5, 1824, and following issues, and July 25, Sept. 29, 1826; *LH*, Apr. 7, July 25, Aug. 4, 1826.

<sup>30</sup> Drake and Mansfield, *op. cit.*, p. 60; *Cincinnati Almanac for 1839*, p. 43.

<sup>31</sup> Kuhlmann, *op. cit.*, p. 82. It is not accurate to state that Cincinnati milling declined between 1840 and 1860 unless one speaks in relative terms.

<sup>32</sup> Later figures, which include feed production, were \$1,690,000 (1851) and \$3,216,000 (1859). (*CCC* [1859], pp. 8-9).

<sup>33</sup> *Cist's Advertiser*, Jan. 14, 1846.

<sup>34</sup> Charles Cist, *Cincinnati in 1841* (1841), pp. 56-58. In 1834 Wheeling boasted 134 flour mills, with an annual output of 280,000 barrels, of which 180,000 were reported to have gone down the river (Ambler, *A History of Transportation*, p. 164).

production, which appears to indicate that the mill margin did not favor location in that vicinity.<sup>35</sup> Indeed, trade figures for 1845-1861 show that local mills generally failed to satisfy the home market.

*Development of the Flour Trade.* Despite the fact that Cincinnati failed to attract the milling industry to any great extent, and in spite of the fact that the surrounding region ranked far below the Lake region as a wheat producer, the flour trade of the Ohio Valley was channeled through this point to such a degree that it grew to large proportions. Up to 1850 or thereabouts the traffic came to the city by canal, river, and wagons from mills further in the interior, and re-shipments were made to New Orleans and other points in the South. In the early twenties — an epoch of unusually low prices — the trade suffered a decline which was particularly severe in Cincinnati. Inspections were reported as low as 27,000 barrels in 1823 and 30,000 during the year ended December 1, 1824. Recovery in 1825 and 1826 brought the figure to 45,000, and in 1827 to 59,000 barrels; besides, it was estimated that another 15,000 were exported without benefit of inspection.<sup>36</sup> By 1832 receipts by the Miami Canal alone were 97,578 barrels, and it was judged that an equal quantity of "produce" was brought to town in wagons. Seven years later imports were placed at 203,000 barrels, of which at least 60,000 were for local consumption.<sup>37</sup>

More complete figures for years after 1846 show that average annual imports grew from 309,000 to 550,000 barrels just before the Civil War. At the same time, receipts of wheat increased from 460,000 to 1,070,000 bushels. Exports of the latter were somewhat smaller, as has already been suggested — indeed, they were not reported at all until 1857. These figures are reproduced in summary form in Table 12, along with corresponding data for other farm products.

<sup>35</sup> CCC (1852), p. 8.

<sup>36</sup> In addition, 42,000 barrels were reported for the "fall and winter of 1822" (LH, Jan. 21, 1823, and Dec. 28, 1824; *Emporium*, June 22, 1826; Drake and Mansfield, *op. cit.*, pp. 76-78; CDG, Jan. 4, 1828; *National Republican*, Jan. 8, 1828).

<sup>37</sup> In 1835 receipts were reported at only 90,000 barrels (James Hall, *Notes*, p. 271; LH, Feb. 7, 1833; *Chronicle*, Oct. 12, 1839).

As has already been mentioned, a pronounced shift in the direction of flour shipments took place with the coming of the railway. Cincinnati began to function as a point of distribution for flour proceeding from points farther west to the eastern seaboard.<sup>38</sup> It became the leading clearinghouse and seat of speculation in the region. Thus, in 1858 a million barrels were reported to have changed hands in the Cincinnati market of which only a fraction entered local commerce (no reference has been found to trade in futures).<sup>39</sup> Taking only the recorded imports and comparing them with New Orleans figures for corresponding dates, we find that the Ohio flour trade grew from one-third of the Mississippi in the late forties to almost one-half during the fifties as a whole. The case is stronger for wheat imports, in which Cincinnati was second to New Orleans in 1846-1850 but passed that city by a comfortable margin in 1851-1855 and easily retained its rank in the latter half of the decade.<sup>40</sup> Furthermore, averages are misleading in that they conceal shrinkage of the New Orleans wheat trade from 869,524 "barrels & sacks" in 1856 to a mere 13,116 four years later. Cincinnati imports, on the other hand, were well over a million bushels in 1860 and continued increasing to 2,175,000 two years later.<sup>41</sup> In short, the Cincinnati trade grew at an increasing rate during the forties and fifties, and the very end of the period witnessed a notable expansion in the traffic in unmilled wheat.

*Destination of Cincinnati Flour, 1850-1861.* Table 13, in which annual data are given on the destination of Cincinnati flour, shows that the southern river trade suffered a decline in 1853 and 1854 (the latter a year of bad drought) from which it never fully recovered. Thereafter, the quantity sent directly to New Orleans dwindled so rapidly that in some years it was well below

<sup>38</sup> Louis B. Schmidt, "The Internal Grain Trade of the United States, 1850-1860," *Iowa Journal of History and Politics*, XVII, 96-124 (Jan. 1920); reprinted in L. B. Schmidt and Earle D. Ross, *Readings in the Economic History of American Agriculture* (New York, 1925), pp. 197-209.

<sup>39</sup> CCC (1858), p. 16.

<sup>40</sup> Wheat receipts at New Orleans, first listed in 1835, were reported in terms of "barrels and sacks." These containers, on the basis of relative values given in 1858 and 1860, were counted as the equivalent of two-fifths of a barrel of flour.

<sup>41</sup> On New Orleans, see references in Table 1. Cincinnati figures may be found in CCC (1863), p. 47. Flour imports did not share the rapid growth.



TABLE 12

VOLUME OF AVERAGE ANNUAL IMPORTS AND EXPORTS OF SELECTED NATIVE FARM PRODUCTS AND DERIVATIVES IN CINCINNATI, BY CANAL, RIVER, AND RAILWAY, FOR FIVE-YEAR INTERVALS, 1846-1860 (YEARS ENDED AUGUST 31)

COMMODITY	UNIT	IMPORTS (thousands)			UNIT	EXPORTS (thousands)		
		1846-50	1851-55	1856-60		1846-50*	1851-55	1856-60
Flour .....	bbl.	309.2	442.6	550.1	bbl.	268.8	328.6	515.1
Wheat .....	bu.	460.8	391.0	1,070.1	bu.	....	....	489.5
Bran, midd'gs	sack	18.1	76.2	157.1	sack	3.0§	10.7	25.2
Corn .....	bu.	461.8	691.5	1,245.5	sack	75.1	46.8	50.7
Corn meal ...	bbl.	21.0	21.0	6.0	bbl.	23.0	1.3	0.8
Whisky .....	bbl.	177.1	270.9†	419.6†	bbl.	164.0	251.6	335.5
Alcohol .....	....	....	....	....	bbl.	2.3	12.2	37.2
Rye .....	bu.	23.9	43.8	110.1	bu.	....	....	36.3‡
Oats .....	bu.	210.2	312.6	597.9	sack	41.0	13.4	57.5
Barley .....	bu.	112.2	183.5	367.1	sack	....	....	49.1‡
Malt .....	bu.	20.3	37.1	85.4	bu.	....	....	100.5‡
Beans .....	bu.	7.9	22.0	28.0	bbl.	2.2	2.5	5.0
Hops .....	bale	0.5	2.5	4.8	bale	....	....	1.5
Flaxseed ....	bbl.	23.4	37.0	27.1	bbl.	0.9	2.3	1.3

Linsed oil ...bbl.	5.6	9.0	16.9	bbl.	3.7	6.8	....
Oil cake .....lb.	1,696.1	145.0	672.0	ton	3.1	1.8	1.2
Hay .....bale	10.1	17.1	48.5	bale	0.5§	2.3	3.1
Tobacco .....hhd.	4.2	7.4	5.3	hhd.	4.4	7.0	4.8
Tobacco .....bbl.	1.0	2.3	4.7	bbl.	0.2§	1.8	4.9
Tobacco .....keg	12.2	29.2	42.9	keg	7.0	26.4	37.8
Apples, green .bbl.	20.3	31.2	40.9	bbl.	7.2	6.7	10.3
Fruit, dried ..bu.	32.6	48.5	87.4	bu.	6.4	17.6	31.3
Onions .....bbl. & sack	....	....	3.5†	bbl. & sack	....	....	2.3‡
Potatoes .....bbl.	16.4	24.2	99.3	bbl.	15.4	14.9	55.8
Butter .....bbl.	5.5	12.4	12.5	bbl.	1.6	3.0	2.7
Butter .....keg	7.2	10.8	19.1	keg	25.7	35.1	30.9
Cheese .....cask	0.4	0.1	0.1	cask	0.4	0.0	0.0
Cheese .....box	133.5	212.0	205.5	box	61.4	131.5	134.2
Eggs .....box & bbl.	2.7	11.8	20.2	box & bbl.	6.8	7.3	9.4
Feathers .....sack	3.8	7.2	4.8	sack	3.4	7.7	5.3

Source: Cincinnati Chamber of Commerce, Annual Report (1850), p. 12; (1855), pp. 26-27; (1859), pp. 36-37; (1863), p. 47.

\* Figures for 1846 include shipments to southern ports only.

† Includes imports by wagon.

‡ 1858-60 only.

§ 1847-50 only.

|| 1857-60 only.

10 per cent of the total export. Thus, the proportion traveling by canal and railway, together with that shipped to ports on the upper Ohio (the majority of which probably connected with rail or canal at Parkersburg, Wheeling, or Pittsburgh), increased by

TABLE 13  
FLOUR SHIPMENTS FROM CINCINNATI FOR YEARS ENDED AUGUST 31, CLASSIFIED  
ACCORDING TO POINT OF DESTINATION AND MODE OF SHIPMENT, 1850-1861  
(Thousands of barrels)

Destination	1850	1851	1852	1853	1854	1855
New Orleans .....	44	282	310	203	149	10
Other down-river ports ...	26	96	86	49	10	1
Up-river ports .....	8	8	11	19	83	65
Via canal & railway .....	4	5	2	42	91	123
By flatboat .....	17	96	135	77	50	3
<b>TOTAL</b> .....	<b>99</b>	<b>487</b>	<b>544</b>	<b>390</b>	<b>383</b>	<b>202</b>
	1856	1857	1858	1859	1860	1861
New Orleans .....	33	69	155	10	35	51
Other down-river ports ....	5	15	9	8	6	107
Up-river ports .....	180	107	182	171	133	95
Via canal & railway .....	292	226	264	374	253	173
By flatboat .....	1	31	19	4	1	17
<b>TOTAL</b> .....	<b>511</b>	<b>448</b>	<b>629</b>	<b>567</b>	<b>428</b>	<b>443</b>

Source: Chamber of Commerce, *Annual Report* (1852), p. 13; (1855), p. 29; (1858), p. 33; (1861), p. 50.

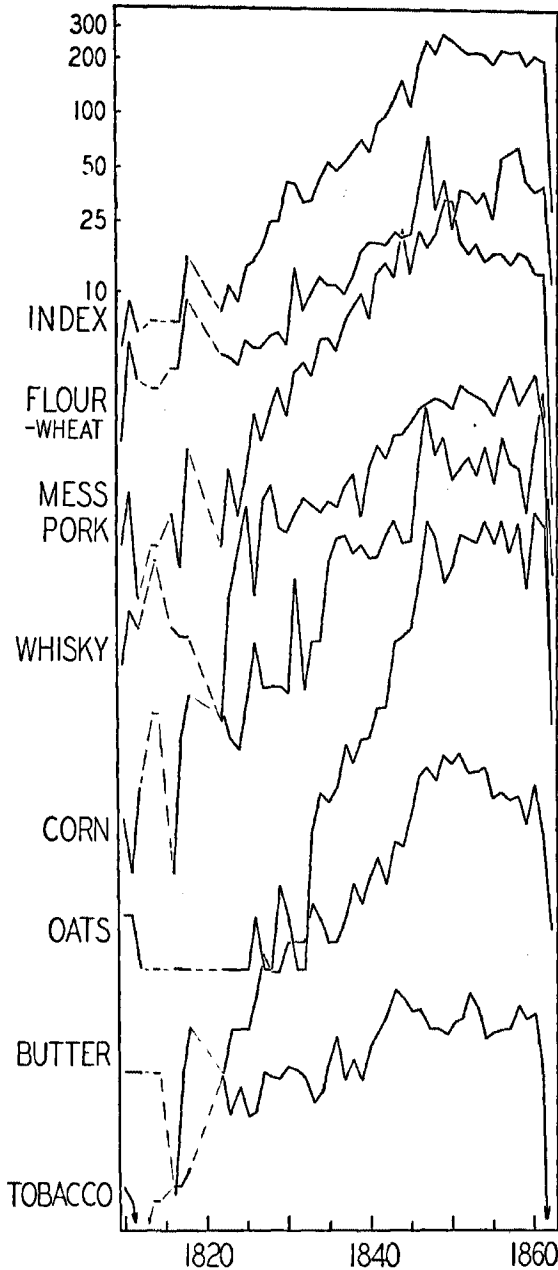
leaps and bounds. During the three commercial years ended in 1852, immediately before the connection of through rail lines, only about 3 per cent of Cincinnati's flour had been shipped in this way; during the succeeding triennium the figure became 43 per cent; in the period 1855-1858 it just shaded 80 per cent, whereas it slightly exceeded this ratio just prior to the outbreak of the Civil War. This information, it will be seen, harmonizes with that on price relationships elsewhere discussed and also with our knowledge of the freight-rate movements of this decade.

*Indices of Cincinnati and New Orleans Trade.* The position occupied by the cereals in the commerce of the Ohio and Mississippi rivers during the entire half-century preceding the Civil War is summarized in Charts XIV and XV. These graphs present weighted annual indices of receipts at the two markets, together

### CHART XIV

WEIGHTED ANNUAL INDEX OF IMPORTS OF OHIO VALLEY PRODUCTS AT NEW ORLEANS,  
TOGETHER WITH RELATIVES REPRESENTING FLOUR (AND WHEAT), PORK, WEISKY,  
CORN, OATS, BUTTER, AND TOBACCO, 1810-1862

(Base: 1810-1862 average)  
(Vertical logarithmic scale at different levels)



For data, see Table 42, Appendix B.

with curves representing the leading commodities under discussion. According to the annual index of receipts at New Orleans plotted in Chart XIV, the Mississippi trade in all the leading articles increased at a fairly constant rate between 1822 and 1850. In fact, the index reveals that around the middle of the century the receipts of all products taken together were roughly four times as great as in 1840; for flour and wheat, however, the increase was only about twofold at that time. Despite wide variations in the trade of particular articles during the fifties, the trade of New Orleans tended to remain at a fairly high, though declining, level until 1861, when an enormous drop took place. Receipts of local farm products at Cincinnati, according to Chart XV, increased rather steadily between 1845 and 1861. It is apparent that year-to-year variations were of minor dimensions and, furthermore, that the trade in flour, wheat, and corn continued to grow during the latter fifties.

The New Orleans figures for separate products also indicate that they did not all develop at the same time. At the beginning of the period leaf tobacco was highly important, and receipts remained relatively large until the middle forties; after that time, however, tobacco production failed to expand as much as other articles.<sup>42</sup> Next came flour and whisky, followed by pork, lard, and other hog products. Butter and corn were comparatively backward, and the receipts of oats did not begin to rise until after 1830.

*Wheat Prices and Trade.* Changes in the western wheat trade were even more marked than was the case with flour. In the first place, the relative improvement of Cincinnati wheat prices was of greater dimensions; and secondly, wheat was a commodity which, though completely barred from long-distance shipment at the beginning of the period, was later permitted to enter inter-regional trade by the change in transportation facilities. Let us first consider the traffic in wheat from the central Ohio Valley to the seaboard.

All traffic data available show conclusively that before the Civil War wheat was shipped as wheat on the Ohio and the Mississippi in minor quantities only. Except for the year 1818, it was

<sup>42</sup> Cotton, sugar, and leaf tobacco were omitted from the New Orleans index, since they were primarily southern crops.

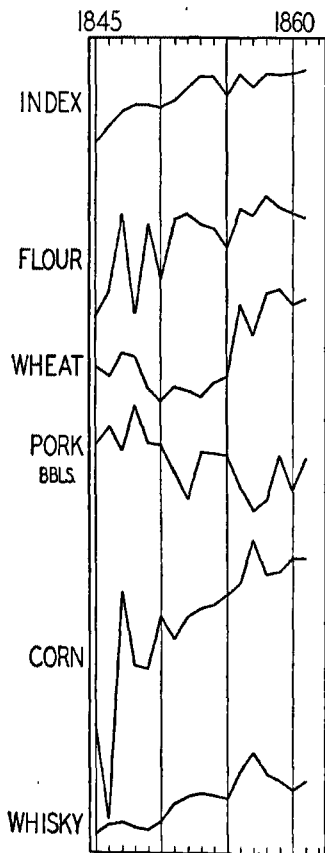
not listed in the New Orleans imports from the interior until 1835. From that time on, river shipments of wheat were very

CHART XV

WEIGHTED ANNUAL INDEX OF IMPORTS OF FARM PRODUCTS AND PROVISIONS AT CINCINNATI, TOGETHER WITH RELATIVES REPRESENTING FLOUR, WHEAT, PORK, CORN, AND WHISKY, 1845-1861

(Base: 1845-1861 average)

(Vertical logarithmic scale at different levels)



For data, see Table 43, Appendix B.

small compared to flour, amounting to as much as 25 per cent only in extraordinary years like 1847 and 1857 (see Table 1 above). Similarly, canal receipts of wheat at Cincinnati (which

did not appear as a separate item until 1840) rarely amounted to as much as 10 per cent of the equivalent in flour.<sup>43</sup> The latter is also true of receipts at the Ohio River terminus of the Ohio Canal (Portsmouth).<sup>44</sup> This is in marked contrast to the Lake Erie trade, of which wheat formed a very large part right from the beginning. Over the period 1833-1860 the canal receipts of wheat at Cleveland totaled 28,532,880 bushels as against 673,345½ bushels at Cincinnati.<sup>45</sup>

*Rail Shipments of Wheat after 1857.* Cincinnati did not list exports of wheat until 1857, although equivalent figures may have been included in the data for flour in earlier years.<sup>46</sup> But

TABLE 14  
WHEAT SHIPMENTS FROM CINCINNATI FOR YEARS ENDED AUGUST 31, CLASSIFIED  
ACCORDING TO POINT OF DESTINATION AND MODE OF SHIPMENT, 1857-1861  
(Thousands of bushels)

Destination	1857	1858	1859	1860	1861
New Orleans .....	0	7	...	1	4
Other down-river ports .....	13	23	1	10	44
Up-river ports .....	51	172	91	55	188
Via canal & railway .....	331	419	518	255	359
By flatboat .....	...	...	...	...	...
TOTAL .....	395	621	610	321	525

Source: Chamber of Commerce, *Annual Report* (1861), p. 50.

between 1857 and 1861 huge shipments of grain moved from Cincinnati to the East almost entirely by railway, according to Table 14. And if these data were combined with those representing flour in Table 13, it would appear that the railway was handling an even greater proportion of the traffic in breadstuffs after 1855 than that indicated by the flour figures alone. One explanation for this change in shipping trends is that the freight on wheat relative to that on flour was considerably lower by canal-and-lake than by canal-and-river; in fact, it was so high by the latter route as to keep wheat almost entirely off the main

<sup>43</sup> Huntington and McClelland, *Ohio Canals*, pp. 177-78.

<sup>44</sup> *Ibid.*, pp. 180-81.

<sup>45</sup> *Ibid.*, pp. 176-78.

<sup>46</sup> No reason may be given for the failure to include wheat in the list of exports before 1857. It was noted in 1855 that 170,000 bushels had been sent to the lake

road of commerce. The new railway freight structure of the fifties changed the picture; by fixing a wheat rate lower in comparison to flour, it forced a great deal of unmilled grain to move from Cincinnati and many other points of the West. Furthermore, the railway tariff was clearly designed to take wheat business from the canals. Canal receipts of wheat at Cleveland dropped about 40 per cent from 1852 to 1853 and another 60 per cent the following year; the decline in flour receipts did not reach these proportions, although it was large indeed.<sup>47</sup>

*Western Wheat and Flour in the World Market.* The expansion of acreage in the American West, the introduction of new techniques in cultivation and milling, and the shift in trade routes were accompanied by notable alterations in the character of the final market of consumption. In 1820 the Atlantic states took less than 10 per cent of the flour exported from New Orleans, the rest going in very large part to the West Indies.<sup>48</sup> Eight years later it was estimated that out of the annual surplus of 2,000,000 barrels, New England consumed 850,000 and the remainder went, among other places, to the southern states, the West Indies, British American colonies, and South America.<sup>49</sup> Between 1815 and 1840 (inclusive) the United States exported 24,312,000 barrels of flour, of which over 15,000,000 were reported sent to the West Indies and South America, and less than 6,000,000 to the British Isles and the Continent.<sup>50</sup> A large share of this supply

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towns between harvest time and the end of August. At the same time Rochester millers were contracting in Cincinnati for Kentucky wheat to replace the injured Genesee product. In the following autumn (1856) the wheat trade was described as "largely increased" with heavy sales to millers all the way from Sandusky to New York. Mills in the interior were being dismantled or converted to other uses; thus, two Miami Canal mills turned to paper production. (CCC [1852], p. 7; [1855], p. 18; [1856], p. 11.)

<sup>47</sup> Huntington and McClelland, *op. cit.*, p. 176. The railway was particularly important to the Cincinnati wheat trade, because it carried the early wheat of Kentucky and Tennessee to market. Thus, new flour was furnished the lake towns, western Pennsylvania, and western New York two or three weeks earlier than had been possible theretofore (CCC [1856], p. 11).

<sup>48</sup> *Niles*, XIX, 264 (Dec. 16, 1820).

<sup>49</sup> *Ibid.*, XXXIV, 156 (May 3, 1828).

<sup>50</sup> De Bow, *Industrial Resources*, I, 95. See also Worthy Putnam Sterns, "The Foreign Trade of the United States from 1820 to 1840," *Journal of Political Economy*, VIII, 40-45, 452-65 (Dec. 1899, Sept. 1900).



departed from New Orleans directly for foreign shores. Nevertheless, New York, Philadelphia, and Baltimore were trading centers for a great deal of the flour proceeding to far-removed destinations, just as Cincinnati set the price for large quantities of western flour which never came near the city.

The question of the precise significance of the repeal of the British corn laws to the cereal growers of the West has recently become a matter of debate. The view has long been held in authoritative quarters that the repeal was a boon to farmers in the northwestern portion of the United States in that it opened a rich market for their products, especially for wheat and flour.<sup>51</sup> It has recently been pointed out that American exporters were injured rather than benefited by the repeal — earlier legislation had given Canadian flour and wheat a distinct preference in the English market in which American exporters shared by shipping via Montreal. According to this interpretation, the repeal took away this preferred position because the United States could not at that time compete in the open market against grain from the Baltic countries.<sup>52</sup> Contemporary reports on the situation are heavily biassed one way or the other according to the writers' views on the issue of the tariff and the home market; and the export data are susceptible of more than one interpretation. It appears, however, that leading writers in the Cincinnati region, as in New Orleans, favored repeal because Ohio Valley flour was prevented in the early forties from participating in the "back-door" trade through Canada.<sup>53</sup> Moreover, export data pertaining to the years 1843-1861 show that a healthy expansion took place even though the figures are diminutive compared with those later in the century.<sup>54</sup> And although the proportion of the total wheat crop to be exported increased only from 7½ to 10 per cent be-

<sup>51</sup> The question had important ramifications in the field of British and American diplomacy of the time. For a conventional treatment see Thomas P. Martin, "Cotton and Wheat in Anglo-American Trade and Politics, 1846-1852," *Journal of Southern History*, I, 1-27 (Aug. 1935), and articles cited therein.

<sup>52</sup> Frederick Merk, "The British Corn Crisis of 1845-46 and the Oregon Treaty," *Agricultural History*, VIII, 95-123 (July 1934).

<sup>53</sup> CDG, June 23, 1840; *Chronicle*, July 16, Aug. 27, Sept. 26, 1842; *Commercial*, Nov. 19, 1846; De Bow, *Industrial Resources*, I, 83-98. The passages cited in De Bow were written in 1846 and 1851.

<sup>54</sup> Smith and Cole, *Fluctuations*, pp. 88-89.

tween 1850 to 1860 (domestic demand expanded from 93 to 156 million bushels), it must not be overlooked that this country sent almost twice as much wheat abroad as Russia during the period 1857-1862.<sup>55</sup> Furthermore, although the price of flour in Cincinnati did not rise remarkably during that epoch, wheat (as will appear shortly) did appreciate in a noticeable manner. Still another fact to be considered is that during the fifties the reports of the Cincinnati Chamber of Commerce paid more and more attention to figures on crops and trade affecting the English market.

*The General Pattern of Western Agricultural Prices.* Before discussing the behavior of flour and wheat prices between 1816 and 1861 we wish to emphasize that the prices of agricultural exports should be treated as a group because of the fact that, although significantly different in their seasonality and year-to-year behavior, they showed an unmistakable tendency to cling to a common pattern of long-time change.<sup>56</sup> This was found to be true not only of quotations relating to the Cincinnati market exclusively (1824-1860) but also of monthly series fabricated from shorter segments representing different western markets (1816-1825) and of the median annual prices for 1788-1817 which were drawn from different points in the region. If we join the series for Index A in Chart VII (1788-1817) to that represented in Chart IX (1816-1860) so as to take in a period of seventy-three years, we find that the prices of farm products in the West were more stable than either the prices of other goods in that region or those of the same goods in other parts of the country. In other words, the general pattern has no pronounced upward or downward slant. Index B, on the contrary, underwent a sweeping and practically uninterrupted decline—figures at hand indicate that manufactured and imported goods depreciated from 75 to 85 per cent. The diversity in trend between the two group indices is, of course, reflected in the ratios discussed in Chapter Five. As for the volume of trade, the indices reflect a

<sup>55</sup> The percentage of the *western* crop which was exported was undoubtedly larger (U. S. Census of 1860 [Agriculture, II], cxli, cxliv).

<sup>56</sup> On the concept of the general pattern see Edwin Frickey, "The Pattern of Short Time Fluctuation in Economic Series, 1866-1914," *Review of Economic Statistics*, XVI, 248-55; XVII, 139-42 (Dec. 1934, Nov. 1935).

great deal of growth — a type of long-range variation which by nature cannot characterize a price series or an index of prices.

A closer examination of the general pattern of Index A shows four large humps of very nearly equal height: 1796-1797, 1814-1819, 1836-1839, and 1855-1857. Only the first of these may be characterized as a "peak"; and although all except the third are associated with wars, such uniformity in height and duration is worth noting, as well as the even spacing in time. Furthermore, each boom was followed by a period of low prices, particularly severe in 1821-1825 and 1840-1844 and not at all promising in 1860-1861. As for recoveries, one finds a notable resemblance between the steady ascent in 1823-1835 and that in 1843-1854. The failure of agricultural prices to rise between 1801 and 1812 lends a different note, whereas their behavior after 1861 was strongly influenced by the Civil War.

In other words, western agricultural prices showed a tendency to rise and fall in a not too irregular fashion between 1788 and 1861. After increasing from average figures in 1789 to a peak in 1797 they settled down to their former level in 1800-1812. An even sharper climb in 1813 and 1814, resumed in 1816 and 1817, brought them to a plateau from which they were not dislodged until two years later. Then followed a severe deflation in 1820-1822 and a depression lasting about four years. Recovery was gradual but substantial until 1835, when they rose once more to a level over 50 per cent above the base (1824-1846 average). Prices remained well above normal for three years. Another decline ensued which lasted until 1842-1843. Gradual recovery merged into another boom stage in the middle fifties. A sharp drop in 1857 was followed by a seesaw decline until 1861. Values were then unsettled and, though higher on the whole than in 1821 and 1842, were extremely low for certain important articles. This general outline, it can readily be seen, bears no close resemblance to Moore's cycles for this era or Kondratieff's "langen Wellen";<sup>57</sup> nor can it be said to be a succession of the Juglar or "major" trade cycles. If cycles there were, they were intermediate

<sup>57</sup> The boom of the late thirties has long been regarded as an obstacle in the application of the Kondratieff interpretation to American series. Here we have a long cross-trend between 1821 and 1835 as well. Furthermore, the low point of

in length, possessing a rather consistent duration of eighteen to twenty years. The rhythm, it should be added, is weakened to some extent by the aforementioned tendency of prices to decline between 1800 and 1812.<sup>58</sup>

The concept of the general pattern, it should be added, has been elaborated in an endeavor to observe and measure the general course of economic events in a given region over a given period of time. Thus, it is definitely limited both in an historical and in a geographical sense. The Ohio Valley pattern for the years before 1861 (Chart VI) may have striking similarities to a pattern for later years, but they are only similarities. Furthermore, a pattern for Great Britain during the early nineteenth century is different from that for the Ohio Valley, if only on account of the absence from most British economic series of the great boom of the late thirties and the depression which followed. (The English boom of the mid twenties, conversely, was barely felt in the West.) At the same time, it must not be forgotten that the pattern outlined above does not rest wholly upon the course of agricultural commodity prices, even though Index A has been selected as the basis of exposition. Many other economic data — particularly the sales of public lands, the charters of banks, circulation and value of bank notes, construction of transportation projects, and rates of exchange — fluctuated in marked sympathy with prices and with each other. It is the

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the forties is early rather than late in the decade, and there is positive evidence of a decline towards the end of the fifties.

As for Moore's Fourier Sequence, which is based upon the Sauerbeck Index of English prices, neither the 19.2-year nor the 16-year constituents fit our curves because (1) the sine curves are symmetrical; (2) they yield low points around 1830 and late in the forties (H. L. Moore, *Generating Economic Cycles* [1923], pp. 51-54).

<sup>58</sup> The interested reader is invited to project the series beyond 1861. Depressions in 1878-1879, 1895-1897, and 1932-1933 follow the sequence rather closely; the situation in 1914 was akin to that in 1861 — prices were clearly higher than in the preceding depression but were not favorable. See the farm products index in White's *Wholesale Prices*, p. 15. Recently a parallel has been sought between the early 1940's and the 1900's in respect to the wheat situation. (Helen C. Farnsworth, "Wheat in the Post-Surplus Period 1900-09 with Recent Analogies and Contrasts," *Wheat Studies of the Food Research Institute*, XVII, no. 7 [April 1941]).

function of later chapters to trace the behavior of these series from year to year and from decade to decade.

*The Flour and Wheat Price Series.* The series of western flour prices furnishes an almost continuous record of variations in the value of an important farm product in markets closely attuned to the influences of supply and demand. From a statistical point of view, flour was similar to whisky in that both were active vehicles of trade, and even sluggish newspapers kept up with their price variations, howsoever small. Flour and whisky were both sensitive. Moreover, the flour series is to all appearances more homogeneous than the great majority. Although standards of inspection fluctuated from time to time and brand names were not unchanging, a comparatively small margin or spread prevailed among various grades. The latter precludes the possibility of sizable artificial errors.

*Market Quotations.* Prior to 1816 grades and qualities of flour were generally not specified in the account books of western merchants and the occasional newspaper prices-current, references, and advertisements. Exceptions are the listing of both "common" (\$2.00 per cwt.) and "superfine" (\$2.50 per cwt.) in an isolated series of Frankfort prices-current for the last quarter of 1801,<sup>59</sup> and the use of "fine" and "superfine" by the Miami Exporting Company in 1803 and 1804. After the more or less regular appearance of Cincinnati prices-current in 1816, however, the article was generally listed as superfine. In 1824 practically no flour of a coarser grade was inspected in Cincinnati. At that time 27,186 barrels of superfine passed inspection, compared with only 2,142 fine and 218 common.<sup>60</sup> The development of the trade is evident from changes in later prices-current. They were as follows:

<sup>59</sup> The superfine grade antedates Evans' milling improvements of 1791. A Virginia inspection law of 1772 specified both fine and superfine, and a similar statute listed four grades (superfine, fine, middling, shipstuff) in 1787. Charleston quoted an "English superfine" flour as early as 1782, and domestic superfine was specifically quoted in New York or Philadelphia beginning in 1785. Beveridge records no superfine grade in English prices. (*Guardian of Freedom*, Oct. 2, Nov. 6, Dec. 4, 1801; LH, July 5, 1803, and Oct. 1, 1804; W. W. Hening, *The Statutes at Large*, IX, 250, and XII, 518; Cole, *Wholesale Commodity Prices*, II, 74-78; Beveridge, *op. cit.*, I, 256, 541-43.)

<sup>60</sup> Figures are for the year ending December 1, 1824 (LH, Dec. 28, 1824).

Flour, superfine .....	1816-26
“ “ wagon .....	1826-46
“ “ store .....	1826-48
“ “ canal .....	1837-51
“ “ City Mills .....	1840-53
Flour, country, common brands .....	1848-56
“ “ extra .....	1850-56
“ “ superior .....	1853-56
Flour, superfine .....	1856-60
“ choice .....	1856-60
“ extra .....	1856-60
“ extra white wheat .....	1860

Thus, it appears that some specifications referred to the location of the market, whereas others signified different grades or qualities. Wagon and canal prices tended to equal each other, and both were 10 or 12 cents (per barrel) less than “store” or “city mills.”

The relatively slow development of the wheat trade is reflected in the fact that, although spring wheat was appearing prominently as early as 1837,<sup>61</sup> wheat was unspecified as to grade until the fifties were well under way (differences in type and quality were accounted for by a price spread). Occasionally, it is true, “new” wheat appeared at a discount. In 1856 the Chamber of Commerce commenced narrowing its quotations down to “prime red” wheat, and “red” and “white” wheat began to appear in *Gazette* reports at about the same time. In 1858 the latter publication listed three grades of “white” (“fair,” “good,” and “prime”) as well as the simple “red.” Corresponding grades of the latter received recognition the following year, and in 1860 “spring wheat” merited a separate quotation for a few months. In general, white wheat commanded a premium over red which averaged 20 cents a bushel in 1858 but shrank to 10 or 15 cents in 1859 and about 5 cents in 1860. Spring wheat averaged 10 or more cents less than prime red in the spring of the last-named year. Since prices of prime red wheat tended to approximate the average of all varieties, and also since the Chamber of Commerce adopted them for its reports, they were chosen in this investigation so far as they were available.

<sup>61</sup> WCA, Dec. 22, 1837; Mar. 2, 1838.

*Month-to-Month Activity.* It is interesting, in this day when agricultural prices are commonly found to be far more flexible than industrial, to find that the former were not always so flexible in their behavior. Flour and whisky, as has been said, were unusual in that they were readily susceptible to change from week

TABLE 15

PERCENTAGES OBTAINED BY COMPARING THE NUMBER OF MONTHLY PRICE CHANGES OF SEVENTEEN WESTERN FARM PRODUCTS (OR DERIVATIVES) WITH THE NUMBER OF POSSIBLE CHANGES, BY TWELVE-YEAR INTERVALS, 1824-1859. COMPARABLE SUMMARY FIGURES FOR THIRTEEN INDUSTRIAL PRICE SERIES AND EIGHT PRICE SERIES REPRESENTING IMPORTED GOODS

SERIES	PERCENTAGE		
	1824-35	1836-47	1848-59
Flour .....	87	98	96
Wheat .....	34	71	89
Whisky .....	62	96	99
Corn .....	32	58	87
Mess pork .....	34	69	94
Bacon .....	35	58	90
Lard .....	40	62	87
Rye .....	16	39	75
Oats .....	30	62	85
Barley .....	14	29	84
Beans .....	32	52	50
Flaxseed .....	19	54	58
Linseed oil .....	32	57	90
Hemp .....	25	27	58
Tobacco, manufactured .....	17	30	31
Butter .....	22	44	83
Cheese .....	30	53	68
Seventeen farm products .....	34.3	57.3	78.3
Thirteen industrial goods .....	25.2	24.1	28.8
Eight imported goods .....	42.4	43.1	56.4

to week or month to month. During the very period under survey, however, quotations of most of the other products gradually acquired a great degree of activity.<sup>62</sup> This is shown in Table 15, where percentages of frequency in monthly change (of the Mills type) are given for seventeen articles, together with corresponding summary figures. In interpreting the results one must not lose sight of the fact that the growth of the market was an im-

<sup>62</sup> The same was found true in Philadelphia. This concept does not represent *range* of variation. (Bezanson, *op. cit.*, I, 59.)

portant, perhaps indispensable, condition to the development. In the first place, speculators and specialized dealers who transacted business upon a larger scale found it both possible and necessary to alter their views on the price situation at much more frequent intervals of time. Secondly, the geographical expansion of the area of supply and demand, coupled with the emergence of a respectably large local market of consumption, tended to render the market more active in off-seasons.<sup>63</sup> In other words, quotations became more significant on the whole, since early newspapers frequently continued printing an old price even though there were no goods sold at all or the few sales actually made were not large and steady enough to merit attention. The great improvement in reporting facilities, furthermore, must in itself have worked towards the same end.

*Flour and Wheat Prices in the Long Run.* In 1692 John Locke noted that the value of wheat in the western world, though highly variable from season to season, was very stable over periods of "seven and twenty years together" since the supply of this most general food was more perfectly adjusted to consumption than that of any other commodity. Accordingly, he found wheat to be the "fittest measure to judge of the altered value of things in any long tract of time."<sup>64</sup> Adam Smith also judged that wheat was superior to silver as a measure of the "real value of different commodities" from century to century, even though both were inferior to labor as a standard.<sup>65</sup> In current phraseology, the purchasing power of wheat was thought to be more stable than that of money.

Let us see if this observation applies to Ohio Valley prices between 1791 and 1860—a period admittedly short for the purpose. In Table 16 the general unweighted index numbers are arranged by five-year periods, together with percentages representing the purchasing power of ten selected commodities (in terms of the price index). The base period chosen for all the calculations (1824–1846) appears to have been one of com-

<sup>63</sup> This circumstance is an element in the changes in seasonality discussed in Chapter V.

<sup>64</sup> *Some Considerations of the Consequences of the Lowering of Interest, and Raising the Value of Money* (1692), pp. 71–74.

<sup>65</sup> *Wealth of Nations*, bk. I, chap. V. (1937 ed., p. 36).



paratively low prices, and this fact has some influence on the result. We find, however, that the purchasing power of wheat proceeded in the same direction as that of money over the seventy-year interval and that neither could be called stable. Thus, the average deviations for 1791-1860 were 35.1 and 38.6 per cent, and for 1816-1860 were 29.7 and 21.0 per cent, respectively. Of the six commodities whose prices cover the longer period, it will be noted, only one (salt) was less stable than wheat in its purchasing power over other commodities, using the average deviation as a yardstick.

Table 16 also shows that flour was far more stable in purchasing power than wheat—the latter, like other grains, increased in relative value to a notable degree. Mess pork and lard were also comparatively stable in purchasing power after 1816—their average deviations were very nearly the same as those of prices in general. The purchasing power of whisky, however, was by far the most stable of the ten listed commodities during the later decades. Before 1816 spirits were dear in the West, but, as will be explained below, the removal of taxes, together with the widespread employment of the distilling process as an outlet for surplus corn, lowered the price so that for a long time it lay midway between rising agricultural prices and falling prices of imported and manufactured goods. As a result, the price of whisky came close to approximating prices in general. This fact, together with others brought up in this connection, may be verified by consulting Charts XIII and XVI-XX.

Other observers have called attention to the fact that the *price* of wheat—rather than its purchasing power—was remarkably stable during the nineteenth century. Layton found that English wheat prices were quite stable between 1820 and 1875, although the purchasing power of wheat rose before the repeal of the Corn Laws and fell thereafter.<sup>66</sup> Furthermore, Snyder used wheat as the leading example of the "inertia" of prices. Whereas the total effort-cost of a bushel of grain is held to have dropped "possibly" 95 or more per cent during the past century, and production has increased about tenfold, "the average price of wheat in the last fifty years, or a hundred years, has not greatly differed from the average price through the preceding two cen-

<sup>66</sup> Layton and Crowther, *Introduction to the Study of Prices*, p. 75, n. 1.

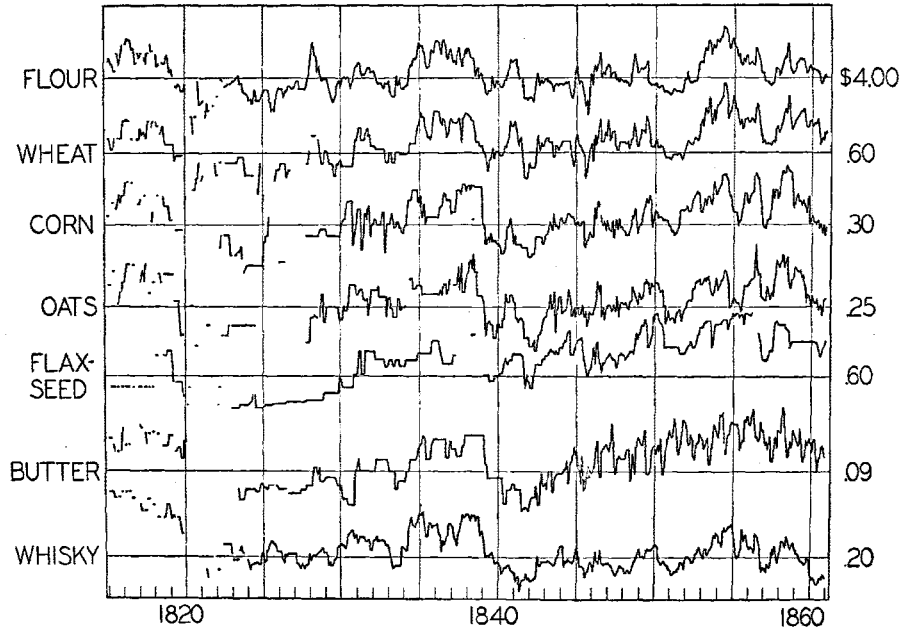
TABLE 16  
GENERAL UNWEIGHTED INDEX NUMBERS OF PRICES BY FIVE-YEAR PERIODS, 1791-1860. PURCHASING POWER OF TEN SELECTED  
COMMODITIES

(Base: 1824-1846 average)

	Flour	Wheat	Corn	Mess Pork	Lard	Butter	Whisky	Cotton	Iron	Salt	Index
1791-95 .....	72	45	69	..	..	107	158	..	144	407	175
1796-00 .....	78	57	55	..	..	77	129	..	129	434	194
1801-05 .....	69	55	54	..	..	82	132	..	114	387	151
1806-10 .....	67	52	60	..	..	84	200	..	161	290	161
1811-15 .....	82	67	78	..	..	158	191	..	111	162	171
1816-20 .....	66	57	70	57	82	84	110	141	89	177	203
1821-25 .....	67	60	53	73	84	103	76	131	97	121	109
1826-30 .....	91	81	84	81	77	83	92	98	112	124	97
1831-35 .....	98	96	115	100	95	97	113	113	94	96	102
1836-40 .....	109	111	114	125	120	124	112	90	93	112	122
1841-45 .....	112	125	107	95	109	101	90	86	100	75	81
1846-50 .....	122	137	129	105	119	155	95	96	81	80	83
1851-55 .....	123	144	145	124	140	171	92	81	57	81	103
1856-60 .....	112	144	151	140	157	168	85	95	46	62	111

### CHART XVI

MONTHLY MEAN WHOLESALE PRICES OF LEADING AGRICULTURAL COMMODITIES IN CINCINNATI, 1816-1861  
 (Vertical logarithmic scale at different levels)



For data, see Cole, *Wholesale Commodity Prices*, II, 174 ff. For flour and wheat and all 1861 prices, see Tables 24-25, 56, Appendix B.

turies."<sup>67</sup> In other words, the relative value of wheat in money appears to have been constant rather than its value in terms of other commodities. To be sure, Snyder stated that the majority of other commodity prices (mostly raw materials) were stable or at least failed to exhibit trends in any way related to the trends in production.<sup>68</sup> The idea that "constant cost" is a common production situation would appear to have gained historico-statistical support.

Nevertheless, Ohio Valley data indicate that flour *prices* were also more stable than wheat, taking the comparatively short period from 1788 to 1861. Both were remarkably resistant to change before 1810, but after 1821 the price of wheat, as well as its purchasing power, increased to a notable degree. Flour, on the other hand, failed to appreciate to the same extent during the era between the twenties and the fifties; indeed, it had an extremely slight downward drift between 1791 and 1860, taking the period as a whole.

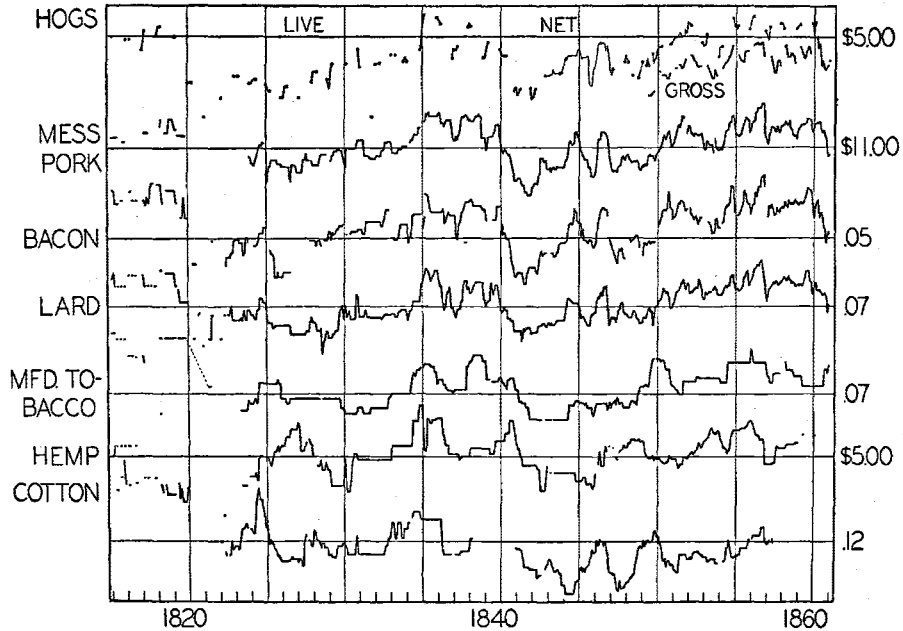
*Relative Appreciation of Grain.* So far as rises and declines from year to year are concerned, western wheat prices were correlated rather closely with flour, and the agreement tended to increase, owing to the development of wheat's sensitivity to change (the situation was much the same with corn and whisky).

<sup>67</sup> Carl Snyder, "On the Structure and Inertia of Prices," *American Economic Review*, XXIV, 187-88 (June 1934). The decline of effort-cost of a bushel of wheat appears to be exaggerated and may probably be traced to the thirteenth Annual Report of the U. S. Commissioner of Labor (1898). Leo Rogin found that other figures "aid in exhibiting the utter absurdity of the assumption that the figures arrived at by the Department of Labor for 'machine methods' constitute even a remote approximation to the man-labor requirements in producing that crop [wheat] in the country as a whole toward the end of the nineteenth century." Rogin did attest, however, to a "material reduction" in labor requirements per acre between 1915 and 1925. (*The Introduction of Farm Machinery in its Relation to the Productivity of Labor in the Agriculture of the United States during the Nineteenth Century* [1931], pp. 227, 228, 241.)

<sup>68</sup> From this it follows that "the main, long-term movements in the prices of most great basic commodities, or in commodity price indexes, have little or no discoverable consistent relation with the commodities themselves." Snyder also found no apparent correlation between deviations of prices and production from their respective trend-lines; the great majority of prices must therefore be subject to some outside, external force, as are other components of the "general price level" (*op. cit.*, 204-7).

### CHART XVII

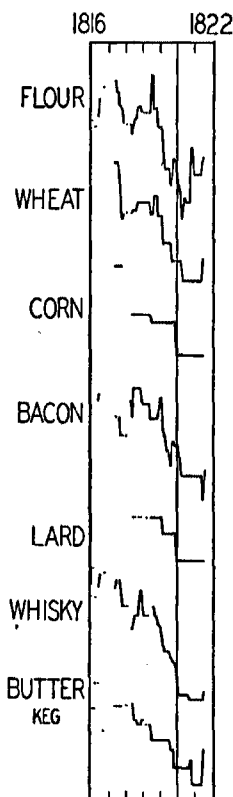
MONTHLY MEAN WHOLESALE PRICES OF LEADING AGRICULTURAL COMMODITIES IN CINCINNATI, 1816-1861  
 (Vertical logarithmic scale at different levels)



For data, see Cole, *Wholesale Commodity Prices*, II, 174 ff. For hog prices, see Tables 26-27, Appendix B.

However, the processing margin steadily declined after 1821. The same was true in the case of corn and whisky, with the difference that whisky prices had a more decidedly negative trend

CHART XVIII  
 MONTHLY MEAN WHOLESALE PRICES OF LEADING AGRICULTURAL  
 COMMODITIES IN PITTSBURGH, 1816-1822  
 (Vertical logarithmic scale at different levels)



For data, see Cole, *Wholesale Commodity Prices*, II, 174 ff.

than flour. The extent of these phenomena, which are corroborated in the descriptive material above, may be gathered from several sets of ratios in Chart XIX. The significance of such percentages is, to be sure, dependent upon a correlation of each pair of series as to short-time movements in respect to both timing

and amplitude (this aspect of the relationship may be judged from Charts XIII and XVI).<sup>69</sup> Corresponding data for flaxseed and linseed oil show a similar decline in the processing margin.<sup>70</sup>

Chart XIX shows that a bushel of Ohio Valley wheat which was worth about 13 per cent of a barrel of flour before 1816<sup>71</sup> increased in relative value until it was worth more than 21 per cent of the latter by 1856-1860. The increase was particularly notable in the early forties and the late fifties.<sup>72</sup> Furthermore, a gallon of whisky ordinarily cost considerably more than a bushel of corn before 1815, but the latter was worth more than double the former after 1850.<sup>73</sup> As a corollary to the fact that local agricultural products appreciated in terms of manufactured and imported goods, we find three important instances in which the value of bulky raw materials rose to a notable degree in comparison with commodities processed from them.

The increases just mentioned were due both to improvements in processing technique and an expansion of the market for grains concomitant with advances in transportation and repeal of the English laws of trade.<sup>74</sup> Similar ratios for New York, Philadelphia, and New Orleans show trends which proceed in the same direction but which are not nearly so positively inclined.<sup>75</sup> In the case of wheat and flour it is worth noting that

<sup>69</sup> Corn prices were rather more closely related to whisky prices than to those of pork products, partly on account of the longer period of hog production and marketing. Thus, it is found that deviations of annual purchasing power ratios from their average of the preceding five years are correlated as follows for the period 1827-1861: corn and whisky, +.74; corn and oats, +.33; corn and lard, -.26 (no lag); +.23 (lard lagging one year).

<sup>70</sup> The data are contained in Table 28, Appendix B.

<sup>71</sup> The wheat/flour ratio for 1788-1790 rests upon a few non-synchronous quotations and is so suspiciously high as to warrant little further comment.

<sup>72</sup> Changes in grades of wheat may contribute in some small measure to the size of the ratios for the last three intervals. However, quotations for 1858-1860 indicate that "prime red" prices were usually so near to the average for all grades that the series is practically homogeneous.

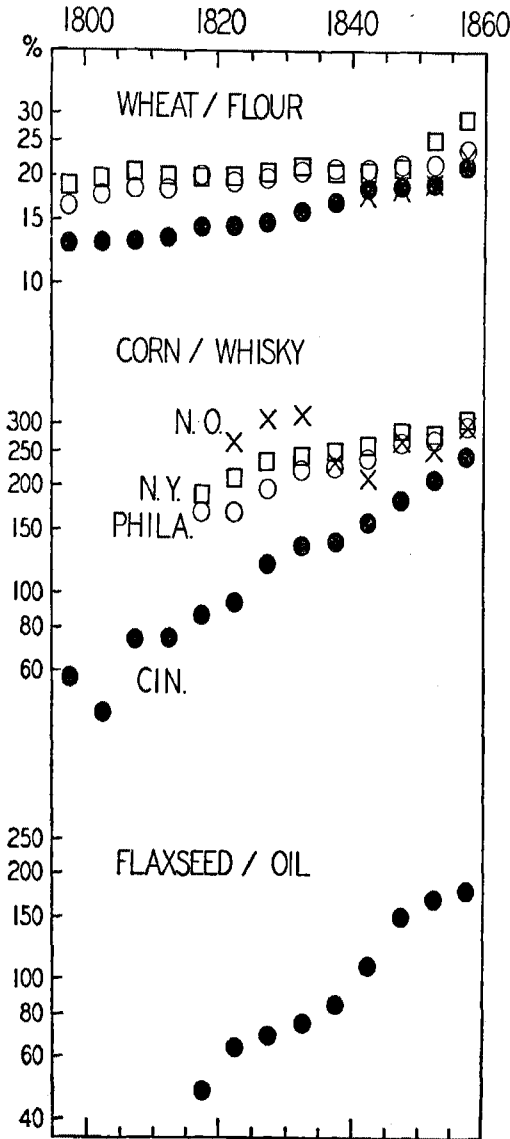
<sup>73</sup> One of the reasons the corn/whisky ratio is so small for years prior to 1817 is that spirits and distilleries suffered heavy taxes and fees.

<sup>74</sup> Kuhlmann found "no revolutionary changes in milling machinery or processes" between 1791 and 1870 (*op. cit.*, p. 101).

<sup>75</sup> Further doubt is cast on the homogeneity of the New York price data by the magnitude of the wheat/flour ratios for the fifties.

### CHART XIX

RATIOS OF AVERAGE PRICES IN NEW YORK, PHILADELPHIA, NEW ORLEANS, AND CINCINNATI OF WHEAT (BUSHEL) TO FLOUR (BARREL), CORN (BUSHEL) TO WHISKY (GALLON), AND FLAXSEED (BUSHEL) TO LINSEED OIL (GALLON), BY FIVE-YEAR PERIODS, 1796-1860



For data, see Table 28, Appendix B.



by the very end of the period the Cincinnati ratios fairly reached a level occupied by New York and Philadelphia forty years before. The comparatively late development of wheat exports from Cincinnati, it may be added, seems to indicate that greater efficiency in processing was probably as important as developments in marketing and transportation facilities.<sup>76</sup>

*Short-Run Interregional Comparison.* The long-range rapprochement of seaboard and interior flour prices has already formed the subject of extended comment in relation to the improvement of transportation facilities. In respect to short-run behavior we find that for many years disturbances were communicated to the West from the outside world through New Orleans and that the lag of the interior markets in responding to change gradually disappeared with the passage of time.

In the boom and depression which followed the War of 1812 flour prices in western markets, with the exception of Louisville in 1820-1822, held rather closely together despite differences in currency, but all were well behind New York and Philadelphia. Seaboard prices rose much sooner and further in 1816 than those in the interior (New York was \$6.88 higher than Cincinnati by February 1817). Similarly, the decline began nine months earlier in the East than along the Ohio River. As for the New Orleans market, a precipitous decline in the winter of 1819-1820 lagged behind New York but anticipated the fall in the West. By March 1820 the spread between New York and Cincinnati had narrowed to 82 cents per barrel. Then only did the fall in the interior begin to gather momentum; and flour in Pittsburgh reached \$1.50 a barrel in April 1821 — a month or two after the low point in the East. In Cincinnati regular prices-current were suspended in November 1820, but manuscript sources indicate that in June 1821 flour sold for \$1.50 in specie.<sup>77</sup>

Recovery was comparatively slow in the West. In January

<sup>76</sup>The development of oceanic shipping during the fifties may have affected the wheat/flour ratio on the eastern seaboard much as internal improvements affected western ratios. Comparable English prices are not at hand, but it is noteworthy that the purchasing power of wheat (in terms of the Sauerbeck index) was definitely on the decline after 1845 (Layton and Crowther, p. 75, n. 1; Snyder, *op. cit.*, p. 194).

<sup>77</sup>In 1821 published provisions prices were also quoted in specie; larger transactions were probably made at still lower rates (Isaac Jackson Papers).

1823 flour was worth \$6.88 a barrel in New York, or \$4.00 more than in Cincinnati. Two years later the margin was still as great as \$2.55. The average differential persisted at slightly less than \$2.00 through the years 1826, 1827, and 1828; only then did a decline set in which, though not unbroken, brought the average margin down to 92 cents in 1835.

Extraordinary variations took place during the late thirties and the fifties which were more nearly simultaneous in all markets. Moreover, Cincinnati began to share more fully in upward movements. Thus, in the winter of 1835-1836 flour quotations in the West topped those in Philadelphia and fell short of New York figures by only a few cents, but in the following summer a more severe decline in the Ohio market opened a margin of more than \$2.00 a barrel which was maintained with only minor variations until 1839. During that year, western flour prices again declined in a relative sense, so that the New York price was nearly double that in Cincinnati in April 1840; the margin was not brought back to "normal" until two years later.<sup>78</sup> These fluctuations were closely timed in all markets. The Cincinnati amplitude was also seen to be greater in the variations of 1841-1842, 1846, 1854-1855, and 1857-1858. Indeed, at the peak in 1855 Cincinnati equalled New Orleans, came within 40 cents of Philadelphia, and exceeded New York by 54 cents. It is notable, finally, that the western market declined more rapidly in 1856: Cincinnati was at a discount between 10 and 14 per cent in May of that year. It is a reasonable inference that western production had grown to the point where its variations played a significant role in determining the world price.

*Prices of Grains and Provisions.* Although the majority of western agricultural price series were dominated by the drift of a general pattern between 1791 and 1861, they showed a propensity to deviate from that pattern in a more or less regular fashion from year to year. That is, the prices of flour, wheat, corn, and oats rose above and fell below the general pattern in cycles four to six years in length, and the prices of hogs, mess pork, bacon, lard, and other commodities belonging to this family behaved in a similar fashion — with the important difference that the high points in the grain price-cycles upon several occasions

<sup>78</sup> Cole, *Wholesale Commodity Prices*, II, 273.

occurred near low points in the provisions price-cycles and conversely. This may be verified in Charts XVI and XVII, where it appears that the diversity in movement became more sharply outlined towards the end of the period 1816-1861. Before 1840 there were comparatively few instances when the two groups of prices were obviously in inverse relationship, but during the greater part of the forties and fifties flour and pork were plainly negatively correlated in their year-to-year movements. Indeed, it appears that for these two decades Index A is largely a compromise between two groups of commodities of which these articles are leading examples.

The extent of the diversity in flour and pork prices may also be judged from the fact that annual pork-flour price ratios fluctuated from year to year in a manner quite similar to hog-corn price ratios. Thus, in some years, such as 1820, 1840, 1852, 1857, and 1858, a barrel of pork was worth about four times as much as a barrel of flour; in others, such as 1817, 1829, 1842, 1854, and 1855, the proportion was less than two to one. This is a respectably wide range of variation; however, it must not be overlooked that the value of mess pork in terms of flour tended to return to a norm.

Such substantial disparities in the behavior of the prices of different foodstuffs from year to year can hardly be explained by variations in the state of business or in the money or credit available, and it is little easier to see why consumption of one article should rise and fall compared with another so as to cause such regular changes in price differentials. The weight of authority has long favored the explanation that variations in production are primarily responsible for the phenomenon, and a large number of statistical studies has tended to bolster the view that year-to-year variations in the prices of agricultural articles are inversely correlated with crops and world stocks available.<sup>79</sup> One prominent statistician has, it is true, found little apparent relationship between the deviations of prices and production of leading commodities from lines of secular trend; but instead of the conclusion that the price of a commodity has nothing to do with its production, it

<sup>79</sup> See, for instance, G. F. Warren and F. A. Pearson, *Interrelationships of Supply and Price* (1928), where a brief summary of other statistical attacks of the problem is given in an appendix (pp. 120-25).

may be suggested, first, that the over-all influence of money and business must be discounted, and, secondly, that trends do not furnish suitable points of reference.<sup>80</sup>

Perhaps a majority of economic theorists would agree that in the long run there is no necessarily uniform set of relationships between the price and production of a given commodity. It is incontrovertible, for instance, that in several important instances expanding production has been accompanied by reasonably steady prices, primarily because the market has grown at a comparable rate. It is only under conditions such as the following that one would expect an inverse relationship between supply and price in the long run: (1) a fixed market; (2) a market which contracts when production expands (and conversely); (3) a market which expands or contracts in the same direction as production but at a lesser rate. None of these three situations, with the possible exception of the third, fits the early nineteenth-century agricultural situation very well because of the unparalleled expansion of population and development of transportation facilities. It is obvious, however, that in connection with several manufactured goods and services, such as transportation, there was a long-run inverse correlation between prices and production owing to the relatively great expansion of supply.

As for the short run, it is apparent that the needs of the people — together with storage and other marketing facilities — are relatively fixed compared with production capacity, particularly of agricultural goods. This is true largely because the supply of the latter may — and does — undergo major alterations not only with the seasons but also in accompaniment with weather, insects, plant diseases, and other factors largely outside human control. In other words, the market for a given year's crop — or even for a given decade's crops — is so relatively rigid that prices and production tend to be inversely correlated.

We must not regard prices as purely passive and overlook the effects of prices upon production. Here the theorist infers a positive relationship between price and intended production, but the fact that, where agricultural crops are concerned, empirical studies have failed to show such a relationship to a highly consistent degree has caused many to question its reality. In particular, it is

<sup>80</sup> See Carl Snyder, *op. cit.*, pp. 204-7.

maintained that many farmers maintain or increase acreage in the face of falling prices because their expenses are relatively fixed, and this has undoubtedly happened in certain situations, particularly where producers found the prices of all crops falling together or were debarred by inertia or otherwise from planting an alternative crop. Furthermore, a given planter has no absolute assurance as to next year's price or yield. It is difficult to see, however, how producers can go on indefinitely increasing acreage in a falling market in the absence of reduced costs or subsidies from outside. On the other hand, we have abundant evidence of the shift of acreage from one crop to another in response to the price-cost situation, even though many such shifts are delayed so long as to make it difficult to discover a regular statistical correlation between prices and supply.<sup>81</sup> In short, the "short-run" relationship described by the theorist is frequently so blurred as to be virtually absent in empirical studies of year-to-year variations; at the best, one can see response to price only after a period of from two to ten years.

*Crops and Prices in the Early Twenties.* If we are to judge by Cincinnati quotations, the grain situation in the West was anything but propitious between 1820 and 1828. Reference has already been made to the collapse of prices in 1820 and 1821 and the comparatively slow recovery in the West as compared with the seaboard. In the spring and summer of 1821 flour was sold in Cincinnati at \$1.50, while in Pittsburgh editors alluded to transactions at \$1.00 a barrel.<sup>82</sup> Prices were even lower in the landlocked interior — wheat brought 12½ cents a bushel in Greenfield (Ohio) at that time, and much grain could not pay its way to market.<sup>83</sup> In the autumn of 1821 a European crop scare reached the inland markets which served to raise Cincinnati flour as high as \$3.50, only to recede when the truth was out.<sup>84</sup> In 1822 Cin-

<sup>81</sup> For instance, Charles Hammond noted that in 1827 farmers were beginning to neglect wheat because prices had been low for seven years. Little was sown, and, since the yield was poor, the harvest was scanty in 1828 (CDG, Feb. 11, 1829).

<sup>82</sup> Bitter complaints resembled those appearing in the agricultural press in 1932. Blaming English corn laws for the disastrous conditions, one article was publicized by *Niles'* and widely copied. *Niles'* also stressed the migration of unemployed workers into farming. (*Pittsburgh Gazette*, Apr. 20, 1821; *Niles'*, XX, 180 [May 19, 1821]).

<sup>83</sup> *Niles'*, XX: 85, 97, 288 (Apr. 7-14, June 30, 1821).

<sup>84</sup> LH, Nov. 14, 1821.

cinnati lagged behind the rest of the country, probably because her local monetary affairs were not yet in order. According to quotations in the provisions market, flour remained at \$1.00 to \$1.25 a hundredweight. The year 1823 brought definite signs of a recovery from the "era of good feelings," and flour passed the four-dollar mark in the spring of 1824 for the first time in over four years. A bountiful harvest, however, quickly sent it down again. Corn and oats also plumbed to record lows, and grain quotations disappeared from the newspapers.<sup>85</sup> Production continued to increase, according to the figures on receipts at New Orleans. Although small compared with the bumper years 1811 and 1818, grain receipts between 1822 and 1828 were considerably greater than in any other earlier year and were trending upward. This situation furnished ammunition for the campaign for better means of transportation to market.<sup>86</sup>

A similar situation in Germany has been noted by Schumpeter, who ascribes it to the good harvests of 1820-1824 and the operation of the English corn laws, which forced world grain prices further downward by restricting the import of grain;<sup>87</sup> Niles also stressed the corn laws.<sup>88</sup> The corn laws were undoubtedly an important factor, but one can see notable similarities in the American depression just described and the situation in the first

<sup>85</sup> Corn was probably even more seriously affected than wheat, but neither was then a prominent article of trade. *Niles'* noted that the harvest of 1824 brought Cincinnati corn down to 8 cents a bushel — no current newspaper quotation has been discovered lower than 12½ to 15 cents. However, the average *retail* price of corn in 1826 was 12 cents per bushel, compared with 12 to 18 cents for oats. Current quotations were missing in that year. (*Niles'*, XXVII, 123 (Oct. 23, 1824); *National Republican*, Nov. 19, 1824; LH, July 4, 1826; Drake and Mansfield, *op. cit.*, p. 83.) Cotton and tobacco underwent a price boom in the middle twenties. In the case of tobacco, however, a deep depression ensued which lasted until well into the following decade.

<sup>86</sup> See the Canal Commissioners' report of 1822. Thomas Worthington stated that the average price of wheat had not exceeded 37½ cents for five or six years (*National Republican*, Jan. 21, 1823; LH, Sept. 24, 1824, quoting from the *Scioto Gazette*).

<sup>87</sup> *Op. cit.*, I, 269.

<sup>88</sup> American wheat and rye crops were estimated at one-half more than several years past, and Indian corn was very promising. "But bread stuffs appear to be a perfect drug in foreign countries; no less than 6,400,000 bushels of foreign wheat being now ware-housed at the single port of London, waiting for the chance of a market." (*Niles'*, XXIV, 320 [July 26, 1823]; see also XXXI, 52; XXXV, 65, 86 [1826-1828].)

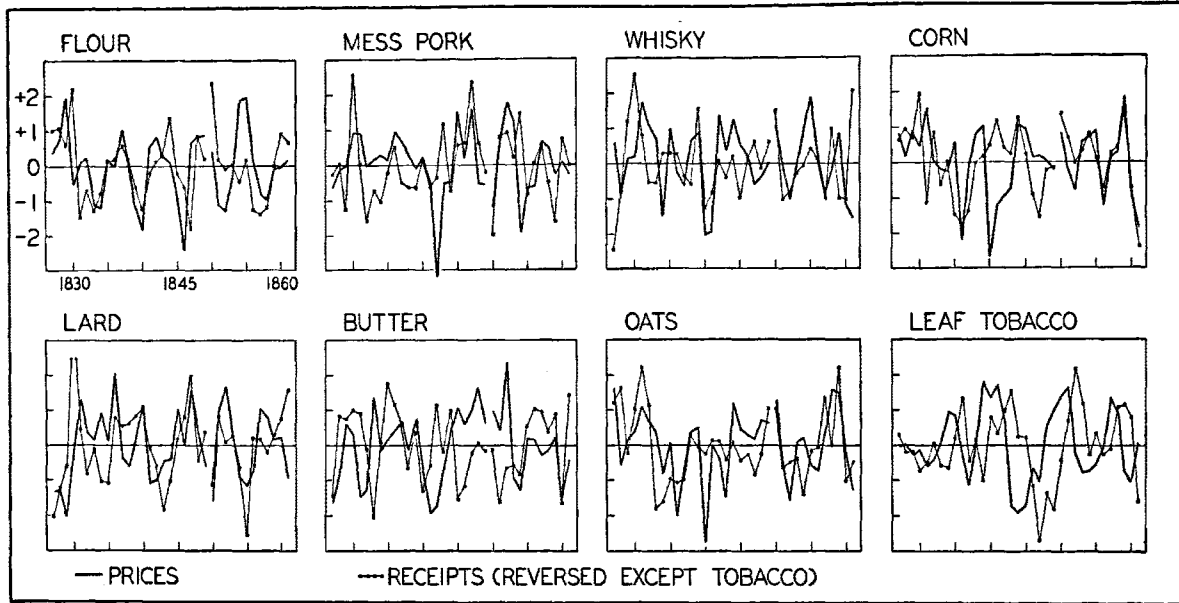
years of the century and again in the forties. In particular, one must not overlook the increase in acreage which followed peaks in the sales of public lands. One is entitled to judge, in view of the great increase in Cincinnati receipts of flour and wheat in 1862 and 1863, that a similar price depression would have occurred at that time had it not been for the intervention of the Civil War. A fourth boom in land sales, it will be remembered, had occurred in the fifties.

*Prices and Receipts of Flour and other Commodities, 1827-1861.* In order to perceive the historical turn of events (rather than to measure the precise statistical relationship between supply and price) we have arranged data in Chart XX which show the ups and downs of annual Cincinnati prices of flour (and other leading commodities) together with variations in receipts at New Orleans between 1827 and 1861. It should be stated at the outset that the New Orleans figures probably furnish only an imperfect indication of western production, and, furthermore, that even if complete data on western production were available they would represent only a small portion of the total supply, particularly in the earlier years. Western prices of the staples, we have seen, were bound more and more closely to seaboard prices; but it is doubtful whether western crops fluctuated in equally close harmony with crops in other parts of the world. The primary purpose of this analysis is to observe short-run change; and since it is almost axiomatic that the short-run movements of prices are strongly influenced by the money-credit-speculative situation, we have adopted the necessary if somewhat mechanical procedure of using "purchasing power" ratios—that is, the quotients obtained by dividing the price relative of a given commodity by a general index number of prices for the same year. Similarly, the figures representing supply are not receipts themselves but relative imports of each commodity in terms of imports in general.<sup>89</sup> The latter adjustment is predicated upon the idea that changes in the value of a certain article in terms of other goods in general (and not money alone) may best be matched with alterations in the production of that article in terms of the contemporary supplies of other goods. The mathematical procedure in the present

<sup>89</sup> The index of receipts at New Orleans is strictly not an index of general trade, since it covers only the leading products of northern agriculture.

### CHART XX

ANNUAL VARIATIONS IN AVERAGE CINCINNATI PRICES OF SELECTED COMMODITIES (CALENDAR YEARS) AND RECEIPTS AT NEW ORLEANS (COMMERCIAL YEARS). RATIOS TO THE MEAN OF THE PRECEDING FIVE YEARS, EXPRESSED IN TERMS OF STANDARD DEVIATIONS, 1827-1849, 1850-1861



For data, see Table 29, Appendix B.



analysis is explained in Appendix A below; but it may be said here that it was found (1) that ratios to averages of the preceding five-year periods were in general preferable to deviations from secular trends, and (2) that, since regressions were for the most part not perfectly rectilinear, in most instances higher coefficients of correlation could be obtained by employing logarithms of these "link ratios" instead of the ratios themselves.

Cincinnati flour prices appear to have been rather highly and inversely correlated with simultaneous receipts at New Orleans until 1850, but the agreement was impaired during the early fifties (Chart XX). These prices were even more closely related to receipts in the Cincinnati market between 1850 and 1861 (Chart XXI).<sup>90</sup> Indeed, the agreement is much more complete for flour than for wheat or most other commodities.<sup>91</sup>

Of particular note is the correspondence in the flour series in the years 1833-1843 — an interval of uncommon activity in commodity prices associated with speculative booms, depreciated paper money, and depression. It would appear that an answer has been found for the failure of flour prices to rise along with others during the second inflationary movement of 1838-1839 and also for the exceptional rise of flour and wheat prices in 1841-1842 — a time when the general situation was rapidly degenerating into the morass of a paralyzing depression. In only one year — 1847 — do we find prices and production highly correlated in a positive manner. This year was dominated by strong European demand at high prices, as during the Great War. The general lack of agreement as concerns New Orleans receipts in the early fifties, moreover, is not surprising in view of the changing position of the Cincinnati flour market and flow of trade at

<sup>90</sup> Using New Orleans receipts, the Pearsonian coefficients for prices and receipts are  $-.41$  for the period 1827-1849 and  $-.21$  for 1850-1861. The figure for Cincinnati receipts and prices (1850-1861 only) is  $-.84$  for flour compared with  $-.12$  for wheat. Furthermore, if no account is taken of the contemporary supplies of other articles, the coefficient between flour prices and receipts is  $-.24$  for the period 1827-1849 and  $-.73$  for the Cincinnati series of 1850-1861. Both these figures, it will be seen, are smaller than the corresponding coefficients above.

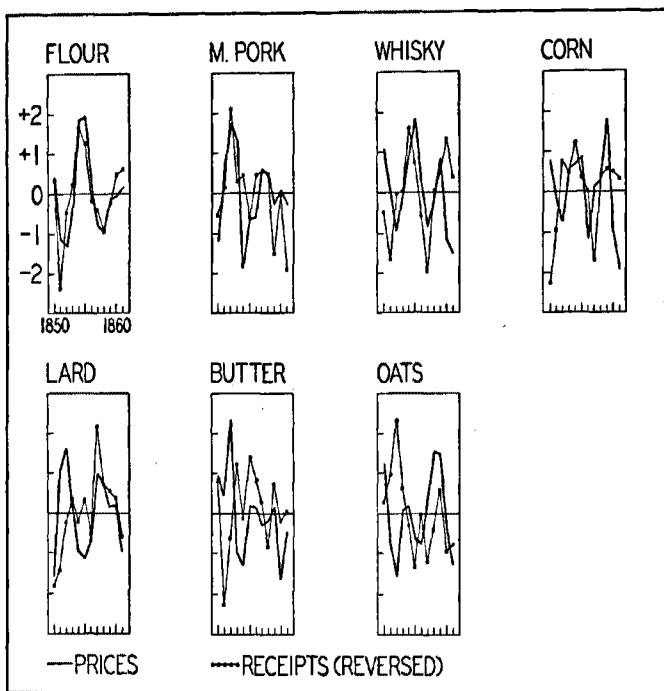
<sup>91</sup> Analyzing the period 1880-1914, Moore found a much smaller inverse correlation between price and yield for wheat ( $-.23$ ) than for corn, cotton, hay, oats, or potatoes; deviations of actual figures were measured from fitted curvilinear trends (*Generating Economic Cycles*, pp. 19-23).

that time—a view supported by the high inversivity of curves representing Cincinnati receipts and prices.

Attention may be called to a fairly regular rhythm in Cin-

CHART XXI

ANNUAL VARIATIONS IN AVERAGE CINCINNATI PRICES OF SELECTED COMMODITIES (CALENDAR YEARS) AND IMPORTS BY RIVER, CANAL, AND RAILWAY (COMMERCIAL YEARS). RATIOS TO THE MEAN OF THE PRECEDING FIVE YEARS, EXPRESSED IN TERMS OF STANDARD DEVIATIONS, 1850-1861



For data, see Table 30, Appendix B.

cinnati flour values between 1827 and 1861—a rhythm which was not entirely broken by comparatively large movements of general commodity prices. The New Orleans receipts also show a not too irregular undulation before 1852 or 1853, and the pattern is fulfilled by the Cincinnati import data for 1850-1861. It is established that complaints about the scarcity of flour in 1835 and 1836—while a speculative boom was getting under

way—were not wholly without foundation. Furthermore, the logic of the situation in 1837, when flour was being shipped here from Europe, is more readily understood. It is highly probable that the American inflation was a contributory influence in bringing about this shipment of coals to Newcastle, but it is basically true that American supplies were unusually short at the very time when population was increasing at an inordinate rate.<sup>92</sup> Thus, the relationship between flour production and prices acted as an element in generating the boom itself and removing a prop from under the movement in 1839 and 1840.<sup>93</sup>

A final word may be added as to the reverse effect of flour prices upon market receipts. If the latter data were plotted in original (rather than inverted) form, it would appear that price peaks were followed by production peaks three or four years later, and a similar observation applies to low points. Thus, we may associate the high flour prices of 1829, 1837, 1842, 1847-1849, and 1854-1855 with the large receipts of the years 1833, 1840, 1846, 1851, and 1858, respectively (the last two belong to the Cincinnati import series). The low prices of 1833-1834, 1840, 1846, 1851-1852, and 1856-1857 may be matched in a similar manner with light receipts in 1837, 1844, 1850, 1854, and 1861 (again taking the last two from Chart XXI). Such a long lag does not destroy the value of this interpretation in view of the slowness of farmers' response to price,<sup>94</sup> coupled with the aforementioned fact that the period of early western production was commonly prolonged by the necessity of floating the product to market in the flood waters of the spring following harvest.

*The Corn and Whisky Trade.* The student is compelled to note

<sup>92</sup> Western editors despaired of explaining the continuance of imports of wheat from Europe and the persistence of such high prices in the United States. But they admitted that the imports were made at a profit. Hessian fly, hard winters, and the grain worm had spoiled winter wheat to such an extent that spring varieties were superseding it in the northern belt and farmers in the middle states were advised to adopt them for a main crop. See, for instance, WCA, Dec. 22, 1837, and Mar. 2, 1838.

<sup>93</sup> The 1839 crop was the most abundant in several years, although severe drought affected many sections. The corn crop, on the other hand, was "yet within reach of recovery" in the middle of July (WCA, July 19, 1839).

<sup>94</sup> With a lag of three years in flour receipts at New Orleans, the correlation with purchasing power ratios at Cincinnati is +.24 (1827-1849).

a close similarity between the development of flour and wheat just discussed and the parallel growth of commerce in corn and whisky. For this reason treatment of the latter follows in this place, with a preliminary observation that relationships between corn, hogs, and hog products — which spoil the parallel — receive attention in the following chapter.

Consideration of the whisky trade brings us face to face with problems of social habits and their variations from time to time and place to place. Recent social historians and biographers have gone to great pains to summon evidence to prove that strong drink occupied a prominent niche in the life of early America, and especially in the pioneer sections of the country. Indeed, an impassioned rebuttal of contemporary European criticisms can do no more than call attention to equally bad conditions in the Europe of that day.<sup>95</sup> An examination of such an absorbing and important topic in all its aspects is obviously outside the province of this study. But one question may be raised: is it possible that the temperance standards of the time, in the comparative absence of religious and political interference, were set more or less in accordance with the economic background? There is no doubt that in the young America corn, always the leading grain from the point of view of acreage and production, was marketed in no way so easily as in the form of the distilled product. Therefore, the cheapness and ubiquity of the latter could not have failed to exert a powerful influence upon living habits of the common man.

*Growth of Whisky Receipts at New Orleans.* The production of and trade in western whisky increased with regularity between 1790 and 1860. Receipts at New Orleans averaged only 7,000 barrels per annum at the beginning of this epoch, against almost 160,000 at the end, and the steadiness of growth compared favorably with that indicated by any other commodity (Table 1 and Chart XIV). Each five years' average, without exception, surpassed the preceding one. It is to be noted, however, that the trend of whisky receipts had considerably less slope than those of other products (particularly corn and pork products), partly owing to the fact that New Orleans received a small and declining

<sup>95</sup> Gustavus Myers, *America Strikes Back* (1935), pp. 91 *et passim*.

proportion of the whisky manufactured in the Ohio Valley after other markets were opened by canal and railway.

*Cincinnati Whisky Trade.* Before 1815 the whisky trade of the trans-Allegheny region tended to concentrate in Lexington and Pittsburgh, and it was not until the twenties and thirties that Cincinnati came into first position. Factors bringing about this shift were very nearly the same as those discussed below in accounting for the location of the pork-packing industry. The position of Cincinnati with respect to whisky, however, became more similar to that with regard to flour. That is, the city's own production of spirits was only minor compared with receipts and shipments—the distilling industry remained even more decentralized than flour-milling. Whisky was brought to town in wagons, steamboats, flatboats and, after 1828, Miami Canal boats, but corn was shipped in bulk so rarely that it was not reckoned an item of trade.<sup>96</sup> Over the years 1833–1840 corn receipts at Cincinnati by canal were equivalent to less than 5 per cent of imports in the form of whisky.<sup>97</sup> Whisky exports increased from 12,000 barrels in 1826 to about 73,000 in 1839,<sup>98</sup> and the latter figure represents an aggregate value seven times local production in 1840.<sup>99</sup>

Improvements in the transport lines leading into regions remote from the rivers were accompanied during the forties and fifties by a noteworthy expansion in the corn trade, as well as an astounding growth in the distilling and rectifying industry of Cincinnati. In 1847 corn was listed separately among the articles of export for the first time (wheat was not admitted to similar standing until 1857).<sup>100</sup> Corn even became “the leading article of export” to New Orleans in the spring of 1850 when freights

<sup>96</sup> This was not the case with Tennessee, which exported a much larger proportion in bulk than Pennsylvania, Ohio, Kentucky, Indiana, or western Virginia (U. S. Commissioner of Patents, Annual Report [1848], pp. 643–45).

<sup>97</sup> Total corn receipts were 202,031 bushels; no data are given for 1835 and 1838. Whisky receipts for corresponding years totaled 327,134 barrels; and Cist figured the usual product of a bushel of corn at 3 gallons of whisky. (Huntington and McClelland, *Ohio Canals*, p. 177; U. S. Commissioner of Patents, *loc. cit.*)

<sup>98</sup> *Emporium*, June 22, 1826; *Chronicle*, Oct. 12, 1839. The latter data are for “last year” and probably refer to the year ended Oct. 1, 1839.

<sup>99</sup> *Chronicle*, *loc. cit.*; CCC (1859), pp. 8–9.

<sup>100</sup> CCC (1850), p. 12.

were extremely low.<sup>101</sup> Furthermore, the product value of the distilling and rectifying industry was estimated as close to twenty times that of ten years before.<sup>102</sup> Before the end of the fifties it had grown to exceed \$5,319,000, a figure nearly double that of 1850 and forty times the 1840 production.<sup>103</sup>

Nevertheless, up to the beginning of the Civil War, Cincinnati's local production was only a small fraction of her whisky trade. In 1847 Cist had found that the manufacture in the city and its suburbs probably amounted to but one-seventh of the imports from the local trading area, which at that time consisted of the greater part of Ohio, Kentucky, and Indiana.<sup>104</sup> This may be partly due to the fact that corn could stand the transportation costs for a moderate distance by canal, river, or railway, but could not yet be economically brought from many farms to the local depots. Then, again, the existence of a large market of itself attracted a great deal of the spirit, which was regarded by farmers as a cash article. The relative perishability of corn and the ease of distilling near home may have been factors of importance. Whatever the reason, the corn trade of the Queen City remained comparatively small. Miami Canal receipts show that corn, like wheat, went north rather than south between 1833 and 1860; and except for one year (1857) the arrivals at Cincinnati were generally only a small and diminishing fraction of those at Toledo.<sup>105</sup> The same was true of the Ohio Canal, with the exception that shipments to Cleveland declined so sharply after 1856 that the Portsmouth terminal attained a notable advantage.<sup>106</sup> In contrast, whisky receipts at Cincinnati were upon a considerably larger scale than those at any other western point for which data are available.<sup>107</sup>

During the years 1846-1861 Cincinnati exports of corn or whisky never equalled or exceeded imports, as in the cases of

<sup>101</sup> This is a reflection in seasonal variation of the principle that a lower freight structure tends to favor articles of more bulk in relation to value. The rate to New Orleans was 8 cents, probably per sack of 2 bushels (LH, May 16, 1850).

<sup>102</sup> Cist's estimate for the 1850 Census (CCC [1859], pp. 8-9).

<sup>103</sup> CCC, *loc. cit.*

<sup>104</sup> U. S. Commissioner of Patents, Annual Report (1848), p. 644.

<sup>105</sup> Huntington and McClelland, *Ohio Canals*, 177-79.

<sup>106</sup> Huntington and McClelland, *loc. cit.*

<sup>107</sup> Huntington and McClelland did not itemize the receipts of whisky separately

wheat and flour (Table 12). This may be partly owing to the fact that import data were considerably more complete. Nevertheless, the growth of whisky shipments was of unusual magnitude; and since it was marked by sudden spurts in 1850 and 1855, the five-year averages possess added significance. Exports after the beginning of the railway era were almost exactly double those prior to that time (not counting the rapidly growing alcohol production). The corn trade, on the other hand, failed to enjoy such a constant growth, and, although it undoubtedly received more attention in Cincinnati during the fifties than ever theretofore, corn failed to become a leading vehicle of local commerce. Corn meal, it may be added, almost vanished from the commercial scene.

*The Course of Whisky and Corn Prices, 1786-1861.* Several leading characteristics of early western whisky and corn prices have already been pointed out in connection with the discussion of flour and agricultural products in general. Among other things it has appeared that, although whisky and corn were sympathetic in their price movements from year to year, the trend or drift of grain values was much more sharply upward, particular towards the close of the period. A second observation was to the effect that whisky resembled flour in its high degree of month-to-month activity in the earlier years, compared with corn, wheat, and most other articles. Thirdly, it was noted that, of all the series studied, that for whisky easily constituted the most faithful

for terminals other than Cincinnati. Other sources for the years 1846 and 1847, when the canal systems were in full flower, permit this comparison:

Shipments of Whisky (barrels)	1846	1847
Lake imports at Buffalo .....	15,031	18,100
Ohio Canal receipts, Cleveland .....	17,774	29,310
Ohio Canal receipts, Portsmouth .....	18,185	21,814
St. Louis imports .....	29,832	30,247
New Orleans receipts, interior .....	117,104	126,553
Total Cincinnati imports .....	133,220	183,928

The Cincinnati and New Orleans data are for years ending August 31. The Cincinnati data for 1847 are somewhat more complete than for 1846, but neither figure purports to include wagon receipts, which amounted to between 15 and 20 per cent of receipts by other routes. (U. S. Commissioner of Patents, Annual Report [1847], pp. 584, 596, 634; Switzler, *op. cit.*, p. 216; CCC [1850], p. 12.)

reflection of the general course of commodity prices during this era.

The attribute of whisky prices just mentioned may be explained as due to several circumstances. In the first place, the liquor was not only an important article of consumption but also a favorite export, especially to Charleston and other markets in the South. Secondly, whisky shared with pork products the distinction of representing the most ubiquitous crop of the region in the fields of speculation and commerce. Third, whisky was a hybrid not only in that it belonged to the group of farm products and hence was susceptible to the influences of weather, money and credit, and speculation, but also in that it was to some extent a manufactured good and in this latter capacity was able to participate in effects associated with improvements in processing. Furthermore, changes in transportation facilities worked more towards the benefit of the more bulky articles, such as the grains themselves. The parallel between flour and whisky prices in the years 1840-1853 is worthy of remark in this connection. Both items failed to rise, while wheat and corn were clearly gaining ground along with hogs and hog products. The sales of public lands in the nation as a whole also remained at a roughly horizontal level between 1840 and 1853, in contrast to the steady rise between 1824 and 1836, and there is on the whole a noticeable resemblance between whisky prices and land sales.<sup>108</sup>

According to the data presented in Charts XIII and XVI above, the relative decline of western whisky prices began shortly after commerce developed on an appreciable scale. Whisky rose along with other commodities in the boom of 1796-1797, ruling in Pittsburgh as high as \$1.00 per gallon for several months, but between 1809 and 1812 the ordinary quotations in all the leading western markets were 50 cents or less. In Lexington the figure remained at 33 cents for over a year.<sup>109</sup> The wartime rise was appreciable, but, even with the addition of 20 cents per gallon in federal tax,

<sup>108</sup> A. H. Cole, "Cyclical and Sectional Variations in the Sale of Public Lands, 1816-60," *Review of Economic Statistics*, IX, 41-53 (Jan. 1927).

<sup>109</sup> The actual Pittsburgh quotations of 1796-1797 were 75. 6d. (Old Stone Tavern Accounts). Regular prices-current were given in the *Lexington Reporter* and *Kentucky Gazette* during several months in 1809-1811.



whisky did not reach the height of the preceding boom.<sup>110</sup> It depreciated rather more than other domestic commodities after the war, and by the end of 1820 it was selling at 30 cents in Cincinnati and even less in Pittsburgh. The hard times which ensued brought quotations in these two centers down to 14 and 16 cents respectively. These figures may be compared with 11¼ cents — the low point reached in the depression of 1842-1843 — and 12½ cents, which was the ruling price in Cincinnati in the spring of 1861. It is little wonder that whisky was ordinarily referred to as "common."

So far as interregional comparison is concerned, the whisky pattern was somewhat different from that of flour already discussed. The whisky differential between Cincinnati and seaboard points did tend to diminish in both the absolute and relative sense, but the rate of decrease was not so great as was characteristic of wheat, corn, pork, lard, or flour. It is also more noticeable that the margin between the West on the one hand and the South and East on the other tended to vary more widely according to the ups and downs of prices in general. Western whisky prices climbed as high as those in other markets in such speculative periods as 1816-1818 and 1835-1839 and even exceeded New York quotations on frequent occasions. On the other hand, the interior market declined, as a rule, after the others, and finally reached a considerably lower figure. In January 1843 the margin widened to 8 cents a gallon, or 40 per cent of the New York price then current.<sup>111</sup> From then until 1860 Cincinnati tended to gain on the East, although the spread underwent the vicissitudes characteristic of the times. In 1859 the average western quotation approached to within 7 per cent of the eastern.

If we scrutinize Charts XX and XXI, which depict the relative

<sup>110</sup>The first chapter of federal experience with an excise tax on home-distilled spirits began with the Act of March 3, 1791 (c. 151, 1 Stat. 199). By Act of December 21, 1814, the tax was 20 cents per gallon over and above distillery license fees then in force (c. 15, 3 Stat. 152). The tax was repealed by Act of April 19, 1816 (3 Stat. 291) and the fees were abolished by Act of December 23, 1817 (3 Stat. 401). The former statute became effective after June 30, 1816; the latter after December 31, 1817. Removal of the excises was accompanied by a drop in Cincinnati whisky prices (Chart XVI).

<sup>111</sup>Similarly, Cincinnati and Pittsburgh prices averaged only 63 per cent of the New York "currency" during the depression years 1821 and 1822.

variations of prices and receipts at New Orleans and Cincinnati, we find that whisky and corn failed to conform to the pattern laid down by other leading commodities. Whisky prices and receipts show no consistent tendency to vary inversely with each other so far as year-to-year movements are concerned. The demand, it is suggested, shifted back and forth sufficiently to bring this about. In long-run behavior, however, production increased relative to other commodities, whereas price declined. As for corn, the situation was unusual but not altogether inexplicable in view of the descriptive material already outlined. There appears to have been no significant relationship between Cincinnati prices of grain and receipts at New Orleans before 1850 or at Cincinnati between 1850 and 1861. Some years of high prices were identified with large receipts, and conversely. Corn, it is reasonable to infer, was at times attracted to the market in the form of grain by an unusually high price. Yet one notes that New Orleans corn receipts during the fifties behaved inversely to simultaneous prices at Cincinnati. In other words, the entrance of corn into large-scale shipment down the Mississippi was accompanied by a much closer relationship between prices and receipts than had previously been the case. Prices became more passive in their relationship to receipts, if we are to accept the findings portrayed in Chart XX; an increase in receipts was more commonly identified with lower prices, and conversely. It is curious that the Cincinnati corn market did not reflect this during the fifties in a manner similar to the New Orleans market.<sup>112</sup>

*Decline in Relative Importance of Whisky.* There is no question but that "common" whisky was not quite so common after

<sup>112</sup> Taking New Orleans receipts for 1827-1849 and simultaneous Cincinnati prices, the coefficients of correlation are: corn,  $-.07$ ; whisky,  $-.20$ . Corresponding figures for the interval 1850-1861 are: corn,  $-.80$ ; whisky,  $-.09$  (New Orleans receipts); corn,  $+.09$ ; whisky,  $-.20$  (Cincinnati receipts).

A significant relationship between Cincinnati prices of whisky and receipts two years later ( $+.84$ ) is limited in application to the period 1850-1861. No such relationship appears to have held between Cincinnati prices and New Orleans receipts. No consistent relationship appears to have held between whisky/corn price ratios and receipts at some later date. However, there is a resemblance between variations in the ratios of 1825-1845 and receipts five years later; a similar correspondence is visible in 1845-1861 if we accept a lag of two years in receipts.

1860 as it had been in preceding generations, and that the decline in its relative commercial importance was hastened considerably by government interference in the form of a heavy tax imposed during and after the Civil War. Among the leading factors contributing to this tendency towards sobriety may be mentioned the strong growth during the first half of the nineteenth century of a powerful competing demand for corn as fodder for hogs, which far more than offset the decline in the traffic in corn meal. A third factor, non-economic in character, was the reform movement headed by the liberal church and symbolized by the failure of the *Western Christian Advocate* to include spirits and wines in its otherwise complete Cincinnati prices-current. Finally, there were the gradual elevation of the standard of living and the spread of education. It was at one time thought that the best way to solve the hard-liquor problem in this country was to turn the common taste towards wines, and, curiously enough, it was in the environs of Cincinnati that the experiments of Nicholas Longworth and others with vineyards were carried out.<sup>113</sup>

The measure of the decline of whisky in importance in relation to the western economy may be gauged by statements made in 1847 and 1848 by Charles Cist. In the former year he records that "the corn raised in reference to the whiskey market is independent of that which is fed to hogs, no price that can be paid by the distillers affording adequate remuneration to growers of corn who have to transport it far by land carriage."<sup>114</sup> This may be coupled with the assertion that the quantity of corn requisite to supply Cincinnati with spirits in 1848, when it was "the greatest whiskey market in the world," was less than 3 per cent of the entire crop of the region from whence it came.<sup>115</sup>

In this connection it should be noted that, although the price of whisky steadily declined in comparison with corn throughout the period under investigation, the same was not true of hogs or pork products. A discussion of the relative behavior of the prices of corn, hogs, pork, lard, and bacon is deferred to the next chapter, but it may be related here that in general the latter products

<sup>113</sup> For brief contemporary accounts of this industry see U. S. Commissioner of Patents, Annual Report (1843), pp. 103-5; (1847), pp. 462-70.

<sup>114</sup> *Ibid.* (1847), p. 525.

<sup>115</sup> *Ibid.* (1848), pp. 643-45.

showed no tendency to depreciate in comparison with corn, which can be characterized as consistent or far-reaching as the behavior ascribed above to flour, whisky, and linseed oil.

*Other Commodities.* Cincinnati never became so highly specialized a market as New Orleans or Charleston, and the trend before the Civil War was unmistakably towards greater diversification. The latter is in part a reflection of the fact that local agriculture was so unusually diversified that the mere development of the region brought with it a greater surplus of a large number of products. Furthermore, Cincinnati became a metropolitan trade center in so far as it acted as a leading clearinghouse for intra-regional trade, a prominent point of collection for goods sent to other regions, and a place for the distribution for goods imported from a distance. The expansion of commerce in fruits, small grains, and vegetables is apparent in Table 12. As for products like cotton, hemp, and tobacco, the development was delayed and comparatively stunted.<sup>116</sup>

*Oats.* Oats are one of the articles which entered wholesale trade during the latter half of the period under examination. Charts XIV and XV show that, once oats were admitted to wholesale trade, their volume increased at a rapid rate. Such a growth in activity is also reflected in the price curve in Chart XVI — the price was apt to stay the same from month to month before 1835 but became most susceptible to change thereafter. So far as the general pattern of agricultural prices is concerned, oats tended to conform although there were exceptional variations such as the failure to rise in 1836. In year-to-year variations oats were rather closely related with the other small grains, particularly corn. And a study of relative New Orleans receipts shows that, as in the case with some other series already discussed, large receipts were not always accompanied by low prices, and conversely (Chart XX). It is notable that, as in the case of corn, Ohio prices of oats during the fifties were more consistently related to

<sup>116</sup> "Rye, oats, barley and buckwheat are produced quite extensively throughout the State, but exhausted mostly in home consumption, as is the case with all our vegetable products with the exception of potatoes. The great staple productions of Ohio, are corn and wheat; and her principal exports, flour, pork, lard, bacon, beef, cattle, horses, butter, cheese, apples, hay, and whisky" (Gallagher, *op. cit.*, p. 102).

receipts at New Orleans than to imports into Cincinnati itself.<sup>117</sup>

*Tobacco.* For the greater part of the period under investigation Cincinnati was not to be compared with Louisville, Richmond, or Baltimore in volume of tobacco business. Before 1840 the Ohio city functioned principally as a distributor of the "manufactured" article, but after that date it gradually acquired a not inconsiderable trade in leaf. In 1857 one newspaper quoted twenty-four distinct varieties, of which eight referred to Kentucky seed leaf and seven to Ohio seed leaf.<sup>118</sup> Ohio raised a modest quantity of both tobacco and hemp during the thirties and forties, but these two crops were favored in a more southerly latitude, particularly Kentucky and Missouri.<sup>119</sup> Receipts of leaf tobacco at New Orleans were extremely large before 1840 compared with those of flour, pork, whisky, and other familiar staples of the Northwest,<sup>120</sup> but trade in these latter developed during the forties and fifties at a considerably more rapid rate. At the same time Ohio undertook a more widespread culture of leaf tobacco during the fifties, and, though she fell far short of Kentucky, her production equalled Missouri's at the end of the decade.<sup>121</sup> The Civil War apparently effected a shift of much of Louisville's trade to Cincinnati; receipts at the latter market, which had averaged about 5,000 hogsheads before the beginning of the conflict, reached over 30,000 in the commercial year 1863.<sup>122</sup>

<sup>117</sup> The coefficients of correlation between oats prices and receipts are not dissimilar to those for corn. One finds little evidence of a consistent relationship in the Cincinnati market during the interval 1850-1861 (+.05). New Orleans receipts of oats, however, were related inversely to Cincinnati prices during both the period 1827-1849 (-.41) and the period 1850-1861 (-.59).

<sup>118</sup> LH, May 21, 1857.

<sup>119</sup> "Hemp and tobacco are articles of production in this State, but not to any great extent. . . . It [yellow-leaf tobacco] is still grown in one or two counties, out of the Reserve, and profitably" (Gallagher, *loc. cit.*).

<sup>120</sup> Imports of tobacco at New Orleans during the early part of the century were considerably greater in value than any single northern product. For instance, over 30,000 hogsheads were recorded in 1822; and in 1825, a light year, the total was over 18,000. A hogshead was worth ten or twelve times as much as a barrel of flour. (Switzer, *op. cit.*, p. 196.)

<sup>121</sup> Virginia led the nation in 1860 (124 million pounds) and Kentucky was second (108 million pounds or about 25 per cent of the total); Ohio and Missouri each produced 25.1 million pounds (U. S. Census of 1860 [Agriculture], II, xcviij).

<sup>122</sup> CCC (1863), p. 47. The Aldrich Report gives quarterly Cincinnati prices

No satisfactory series of Cincinnati prices of leaf tobacco could be found for inclusion in the index numbers, since the data were both discontinuous and low in quality. Market reports were accustomed to bunch many grades into one quotation having a broad spread (e.g., \$2.50-\$8.00). An arithmetic average of such a range is necessarily of limited significance, and the situation is not improved by a propensity on the part of reporters to alter the prices-current very infrequently. Fortunately there is available a comparatively complete series of New Orleans quotations which makes it possible to analyze the relationship between variations in prices and receipts (Chart XX). It was found, first, that the relative prices and receipts of tobacco followed a comparatively regular rhythm in that they periodically increased to a sharp peak and declined with comparable violence. Intervals between these peaks were marked by relatively low prices or production.<sup>123</sup> Furthermore, receipts were found to be related to prices both in a direct and an inverse manner. As Chart XX shows, the purchasing-power peaks definitely antedated the high points in receipts by intervals frequently two but occasionally three or four years in length. It is equally evident that a rise in price commonly followed two or three seasons' curtailed receipts and that a sharp acceleration in the latter was accompanied by a collapse of the market.<sup>124</sup>

Cincinnati prices of manufactured tobacco for 1816-1861 have been plotted in Chart XVII, and Pittsburgh data for the first seven years of this period may be found in Chart XVIII.<sup>125</sup> This

for twenty-two grades of tobacco, but none of the series covers the period prior to 1853, and many commence at the end of the Civil War. This indicates that the tobacco trade continued large during the latter half of the century. (Table X, pt. 2, pp. 44-58.)

<sup>123</sup> Note that the peak scheduled for 1861 did not occur in New Orleans receipts but was most pronounced in imports at Cincinnati.

<sup>124</sup> Collins gives average annual prices of leaf tobacco in the Henderson (Kentucky) market between 1820 and 1840 which match the New Orleans figures fairly closely. Like many of his contemporaries, he notes that the low prices of 1825-1832 (*sic*) occurred while the "high tariff system" was in operation (*op. cit.*, p. 335). Tobacco was dear in 1825.

For the period 1827-1861 the coefficients of correlation between New Orleans prices and receipts of leaf tobacco were as follows: receipts lagging two years behind prices, +.74; prices lagging two years behind receipts, -.56.

<sup>125</sup> Strictly, this series was formed by splicing together quotations for "tobacco,

commodity appears to conform quite closely to the "general pattern" of agricultural commodity series discussed above, with the exception that its trend during the twenties was horizontal rather than positively inclined.<sup>126</sup> But it is a matter of doubt, as with flour and whisky, whether the upward trend during the latter half of the whole period commenced in the early forties or somewhat later on (in this case, 1849). Another interesting characteristic of the tobacco curve is its general resemblance to the corn and whisky curves in respect to cyclical fluctuations. Here, again, the parallel is broken by the behavior of tobacco between 1824 and 1831; as a matter of record, it tended to proceed in the opposite direction. However, tobacco did follow whisky rather consistently in the decline of 1819-1821 and in the ups and downs between 1834 and 1843. Tobacco, like corn and many other agricultural products, reached a higher value in 1839 than in 1836, but the tobacco curve is so inflexible on the whole that its cyclical conformity may only be rough at the best and its seasonal variation practically nil.

*Butter.* Butter and cheese are other examples of commodities in which Cincinnati trade waxed after 1840. Located between the Ohio and Indiana dairy districts and southern markets, Cincinnati became a leading repacking center, importing butter in barrels and firkins and shipping it out in kegs. Local consumption of cheese apparently remained at about 70,000 boxes, but, since imports and exports both increased, the percentage of the former which was reexported increased. As a matter of fact, the exports of cheese in the quinquennium 1856-1860 averaged considerably more than double those in 1846-1850.

Several changes took place in the manner of quoting butter in the market. Between 1816 and 1820 two varieties were listed: fresh and keg. Fresh butter apparently maintained a premium

manufactured" (1816-1826), "tobacco, Kentucky manufactured" (1819-1839), and "tobacco, Kentucky 6 twist" (1838-1860). The choice of these series was dictated by overlapping quotations from different sources, and no "adjustment" was necessary.

<sup>126</sup> Note, however, the peak in 1825-1826. This variation, which also appears in New Orleans leaf prices and is in harmony with the rhythmical peaks mentioned above, separated two periods of low prices. For a discussion of the depression in tobacco prices between 1819 and 1834 see L. C. Gray and Esther K. Thompson, *History of Agriculture in the Southern United States to 1860* (1933), II, chap. 32.

of at least 50 per cent over the other grade. From 1823 (resumption of steady quotations) to 1840 keg butter was the only grade to receive regular attention in market reports. Between 1841 and 1857, however, quotations were given on "prime family" (also termed "fresh" or "in market"), butter "in rolls" (also called "store"), and "in kegs or barrels" ("shipping" or "to packers"). During the years 1858-1860 both source and quality entered into the system, with "choice," "prime," "good," and "inferior" on the one hand and "Western Reserve" and "Central Ohio" on the other (only the two best grades generally bore these place names). The reports used in this investigation were generally those on keg butter, but a seasonal dearth of quotations during the summer months of the fifties forced us to use "prime roll" figures for the period 1846-1861.

The butter curve (Chart XVI) is similar to many others in that it is more jagged with respect to the latter half of the period. Up until 1843 keg butter was wont to maintain a quotation for several months on end, but after that year change from month to month became the rule rather than the exception. Indeed, the prime butter series for the period 1846-1861 is one of the most volatile of all in its seasonal behavior.

To all appearances butter prices followed along quite closely with those of agricultural products in general, and, as might be expected, they fluctuated in sympathy with cheese prices (not plotted). Particularly of interest is the behavior of the Cincinnati keg-butter series for the period 1824-1846. A not too irregular cycle, roughly three years in length, appears to be superimposed upon the rising trend between 1824 and 1836. This article was certainly responsive to an upward pull beginning in 1834 and to all the major ups and downs between that year and 1846. A most surprising observation is the high degree of correspondence between the curves representing butter and whisky, especially as they refer to the turbulent years 1834-1843.<sup>127</sup> Visually, at least, the butter curve shows a higher correlation to spirits than corn itself, allowing of course for the clumsy manner in which the Cincinnati butter quotations of that era jerked from one level to another. Correspondence between these two series at later

<sup>127</sup> Taking the annual purchasing power link ratios as explained in Appendix A, the correlation between whisky and butter for the period 1827-1861 is +.24.



dates cannot be traced from the charts on account of seasonal variation.

Butter prices and receipts were related inversely in a bare majority of the years between 1827 and 1861, whether we use New Orleans or Cincinnati trade figures. It is notable that this relationship was far from perfect in that on many occasions high prices were accompanied by large receipts, especially at New Orleans, and in more than one year the converse was true.<sup>128</sup> This is contrary to what one would expect in view of the perishability of the product. It appears that the market for butter was subject to more sudden shifts in demand than other commodities analyzed.

<sup>128</sup> For the period 1827-1849 (New Orleans receipts) the coefficient is  $-.10$ ; for 1850-1861 the figure is  $-.08$  for New Orleans receipts and  $+.10$  for Cincinnati receipts.

## CHAPTER VIII

### HOGS AND PORK PRODUCTS

*The Provisions Trade in the West before 1816.* The trans-Allegheny region was from the start thought to be suited to the development of animal industries, but the latter failed to attain any great commercial importance until near the end of the first quarter of the nineteenth century. Pork alone ranked with tobacco in the shipments organized by General James Wilkinson in the late 1780's; similarly, cattle and hogs led the list of articles in which trade was fostered by the Miami Exporting Company in 1803 and the immediately ensuing years. Practically all settlers raised cattle, sheep, or swine for their own use and sold or bartered a limited quantity of surplus bacon or fresh meats in near-by markets; but several factors — such as lack of capital, transportation facilities to distant markets, and satisfactory means of preservation — combined to keep animal products from flowing to other regions in major quantities. A limited number of cattle were driven across the Alleghenies as early as 1805,<sup>1</sup> and in 1810 — the first year for which New Orleans receipts are available — there were received at that port 6,584 hogs, 5,856 barrels of pork, 352,200 pounds of lard, and 1,191,400 pounds of bacon.<sup>2</sup> These may be compared with 167 barrels of beef, 38,549 barrels of flour (a particularly light year), and 187,767 gallons of whisky. We may infer from these figures, first, that pork was then marketed in roughly equal quantities on the hoof, in the form of bulk meat, and in barrels; and, secondly, that it far surpassed beef in the export trade. It should be borne in mind, however, that over the years 1810-1812 the number of flour barrels received by river at New Orleans outnumbered pork 11 to 1, and the proportion

<sup>1</sup> The cattle were driven by George Renick from Chillicothe to Baltimore. Renick's son wrote in 1848 that the herd arrived in surprisingly good condition (Fred Kuhne, "History and Review of the Condition of Agriculture in Ohio," Ohio State Board of Agriculture, *Annual Report* [1859], pp. 453-54; see also L. N. Bonham, "American Live Stock," in Depew, *One Hundred Years*, I, 225).

<sup>2</sup> *Moniteur de la Louisiane*, Jan. 19, 1813. The year ended December 14, 1810.

was almost as large, according to estimates of traffic passing the falls of the Ohio, during the winter 1810-1811.<sup>3</sup>

There is a wealth of information to the effect that beef and pork were of comparable commercial importance before 1816 in many sections of the West. The Miami Exporting Company placed beef cattle at the very top of its list of offering prices in 1803 and 1804. Furthermore, Cramer always listed beef at the beginning of his (non-alphabetical) account of Pittsburgh prices and emphasized beef rather than pork in his comments on the situation.<sup>4</sup> In 1793 the Democratic Society of Lexington was worried about the surplus quantities of beef, pork, flour, hemp, tobacco, etc. (in that order) on hand, and several commentators mentioned beef first in their discussions of western provisions.<sup>5</sup> The *Western Spy* listed flour, beef, and pork, in that order, in its first Cincinnati prices-current (December 11, 1813); and Andrews & Shays, one of the earliest packing houses in Cincinnati, advertised as "packers of Beef, Pork, & Lard."<sup>6</sup> James Fowler, the postmaster at a town not far from Cincinnati (Xenia), wrote in 1809 that local trade consisted chiefly of hogs and cattle which were "purchased up in droves for the eastern markets and Detroit."<sup>7</sup> It is therefore not surprising to find that quotations on beef and pork before 1816 are available in approximately equal numbers. Such was not the case later on: Cincinnati trade reports gave more and more attention to hogs and their derivatives but mentioned beef only occasionally between 1816 and 1830, hardly at all in later years.<sup>8</sup>

<sup>3</sup> Naturally the disparity between flour and provisions is considerably smaller if the value of all pork products is balanced against the value of flour and wheat. (*Moniteur de la Louisiane*, Jan. 19-23, Feb. 6-16, 1813; Switzler, *op. cit.*, p. 187; see also Niles', I, 10 [Sept. 7, 1811].)

<sup>4</sup> Zadok Cramer, *The Navigator* (1814), p. 67; *ibid.* (1817), p. 43. See also later editions.

<sup>5</sup> *Annals of Congress* (10th Cong., 1st sess.), pp. 2776-2779. See also Imlay, *op. cit.*, pp. 97, 149-151. In September 1796, David Meade, recently arrived at Lexington from Virginia, discussed the merits of western mutton, beef, and veal but stated that "shoat or fresh pork" was "not common" (Still, *op. cit.*, p. 340).

<sup>6</sup> *Louisville Public Advertiser*, Nov. 21, 1821.

<sup>7</sup> Cumming, *op. cit.*, p. 457.

<sup>8</sup> Beef prices are included in computations of the annual index numbers for 1788-1817 but were necessarily excluded from all the monthly figures pertaining to the years 1816-1861.

All the prices gathered in the course of this investigation show that beef and pork, whether on the hoof, in bulk, or in barrels, tended to equal each other in price. Median annual western prices are plotted in Chart XIII, where it appears that both were comparatively low between 1788 and 1791 (pork was only \$2.00 per hundred in Frankfort in 1788), rose in company with other prices during the early 1790's to a peak in 1797 (\$4.00 for beef, \$4.44 for pork), then subsided to a level between \$2.50 and \$3.00. Comparatively little variation took place between 1800 and 1814. Provisions were comparatively sluggish in responding to wartime influences but finally reached high levels after the close of the war. By 1817 beef and pork had reached \$4.75 and \$4.50 per hundred, respectively. It is also noticeable in Chart XIII that curves representing the two articles bear a resemblance to the flour curve at the top of the chart, perhaps the greatest single point of difference being the sharp rise of the former in 1816 while flour and the grains remained at a comparatively low level.<sup>9</sup> An upward drift in provisions prices is exaggerated by the fact that the period begins with an epoch of unusually low prices and ends with a post-war boom.

A prominent reason why pork products forged ahead of beef in the trade of the Ohio Valley region was that the former cost less to produce, yet sold at a price roughly equivalent to the latter. The hog was a more efficient animal in reproduction and in acquiring weight, and feeding hogs was especially profitable in those districts where "mast" or forest nuts could be rooted from the soil in abundance. The South, which for many years furnished a leading market for western provisions, had developed a taste for pork products in the colonial era which has been traced to the fact that hogs were found much easier and cheaper to raise than cattle or sheep.<sup>10</sup>

The early western provisions industry labored under the severe handicap of not being able to secure a cheap and dependable supply of salt. This helps to explain why hogs were sent to the seaboard and only a minor share of the products received in New

<sup>9</sup> The pork and beef prices for 1788-1817 pertain for the most part to meat sold in the winter season preceding the year to which they refer. Quotations on other commodities cover calendar years.

<sup>10</sup> Cotterill, *The Old South*, p. 72.

Orleans in 1810 was pickled and packed in barrels. Good salt was scarce in the Ohio Valley, especially before 1821, partly because the cost of importing sea salt was prohibitive. As for domestic salt, a growing proportion was manufactured at the Kanawha works in western Virginia by a crude process of boiling brine from deep wells. Unfortunately the product contained varying amounts of the muriates of lime and magnesia. Western provisions, like flour, bore a low reputation in New Orleans during this epoch. The meat, it was held, was frequently found to be putrefied rather than preserved. Many ship operators refused to carry it for a sea voyage; nobody would venture to ship it to the West Indies; and boats from the interior were commonly forced to unload in New Orleans at a price fully 50 per cent below that paid for the competing article from the North Atlantic.<sup>11</sup> These difficulties, together with many others facing the young West, were finally removed in 1821 by the drastic reduction of upstream freight rates recounted above in connection with the introduction of steamboats to western rivers. Natural sea salt was admitted to the interior at a low price, and, at the same time, the Kanawha brand began to undergo a series of improvements in quality and reductions in price. During the forties and fifties, when the Cincinnati packing industry had reached a comparatively great scale, packers experienced the best results by mixing domestic and foreign salt.

*Growth of the Packing Industry, 1816-1833.* The Cincinnati packing industry grew rapidly during the 1820's, according to the few fragmentary reports and figures at hand. Daniel Drake had said in 1815 that pork, bacon, and lard were second only to flour as exports of the Miami country,<sup>12</sup> and in the winter 1818-1819 local packers put up 9,000 barrels of pork and corresponding amounts of hams and lard.<sup>13</sup> Thus, it is probably not accurate to say that the first slaughterhouse west of the Alleghenies was opened in 1818, but, on the other hand, one may not term the pork-packing business "great" at that time nor affirm that Cin-

<sup>11</sup> *Louisville Public Advertiser*, Dec. 5, 1821.

<sup>12</sup> *Op. cit.*, p. 148.

<sup>13</sup> The pack included 340 casks of hams (800 pounds each) and 5,600 kegs of lard (figured at 75 pounds apiece). The surrounding country also sent a great deal of pork products to market. (*Advertiser*, Feb. 23, 1819.)

cinnati had yet acquired the name of "Porkopolis."<sup>14</sup> Growth is indeed indicated by the fact that Andrews & Shays, originally a Boston firm, erected "extensive warehouses for packing beef, pork, and lard in the best manner" on Front Street in the fall of 1821, a year of extreme depression.<sup>15</sup> In the 1822-1823 season there were packed no less than 15,027 hogs, representing a total weight of 2,728,015 pounds; this is the earliest definite figure on the local hog pack which has come to light.<sup>16</sup>

Four years later the total pack was estimated at 40,000 head, three-fourths of which were slaughtered in the market and the remainder brought to town in wagons. The pork business of Cincinnati was thought to equal or exceed that of Baltimore.<sup>17</sup> The trade continued to grow at a high rate despite the fact that prices were uncommonly low. The 1822-1823 pack alluded to above was estimated to be worth 2 cents a pound; however, the newspaper report gave a range of 1½-2 cents. Some recovery took place in 1824 and 1825, but mess pork sold for only \$6.00 a barrel at the end of the 1825-1826 season.<sup>18</sup> It was of little advantage for farmers to turn to other products, because flour and the grains were also extremely low in price. Beef had already subsided into a minor position in the Cincinnati region, but it was hoped that Miami farmers would add it to their list of products. As for the destination of the exported products, the West Indies and South America were leading customers, although much pork was sent to Atlantic cities.<sup>19</sup>

<sup>14</sup> Local historians state that Richard Fosdick began to pack pork in Cincinnati in 1810, but other authorities mention the erection of the first slaughterhouse in 1818. (Henry A. and Kate B. Ford, *History of Cincinnati, Ohio* [1881], p. 328; cited by W. A. Mabry, "Ante-bellum Cincinnati and its Southern Trade," in D. K. Jackson [ed.], *American Studies in Honor of William Kenneth Boyd* [1940], p. 70. Cf. U. S. Census [1900], IX [Manufactures], pt. 3, p. 413; T. W. Van Metre, in E. R. Johnson *et al.*, *History of Domestic and Foreign Commerce of the United States*, I, 214.)

<sup>15</sup> *Louisville Public Advertiser*, Nov. 21, 1821.

<sup>16</sup> *Niles'*, XXIV, 32 (Mar. 15, 1823), citing LH, Jan. 21, 1823.

<sup>17</sup> Drake and Mansfield, *op. cit.*, p. 78. Figures pertain to the period beginning on November 15, 1826, and ending on February 15, 1827. The 1825 output (17,000 barrels of pork and 1,280,000 pounds of lard) was roughly double that of 1818-1819, whereas the production of bacon (1,425,000 pounds) increased almost exactly 400 per cent in this brief interval (*Emporium*, June 22, 1826).

<sup>18</sup> *Advertiser*, Jan. 20, 1823; *National Republican*, Feb. 17, 1826.

<sup>19</sup> Drake and Mansfield, *op. cit.*, p. 78. Cuba was a favorite market for western

The hog pack at Cincinnati and other points along the Miami Canal in the season 1830-1831 was reported at 150,000 head, two-thirds of which were slaughtered in the city itself. According to these figures local production increased almost 600 per cent within eight years' time. The local slaughter of "the year 1832" was placed at 86,000, to which may be added large quantities of pork, bacon, and lard brought into the city via the canal and the river.<sup>20</sup> Flint reckoned pork to be indisputably the chief export of the center.<sup>21</sup> By 1837 meat packing accounted for three of the eight millions of total annual production for export, whereas flour was assigned a mere \$600,000 and whisky only \$750,000. Two years later the value of pork had increased to \$4,000,000 out of a nine-million-dollar total. The industry retained its leadership until the Civil War, according to the Census figures compiled by Charles Cist, and the trend during the fifties was towards an exploitation of by-products of the hog in directions never before pursued to any great extent, notably the manufacture of soap, candles, and lard oil.<sup>22</sup>

lard. In 1822-1823 (November 1 to March 1) Andrews & Shays packed only 100 barrels and 163 half-barrels of beef, to be compared with 2,394 barrels of pork, 339 hogsheads of hams and shoulders, 3,406 kegs of lard, and 17,355 pounds of bacon.

<sup>20</sup> *Western Tiller*, May 27, 1831; LH, Feb. 7, 1833.

<sup>21</sup> Timothy Flint, *History and Geography of the Mississippi Valley*, I, 410.

<sup>22</sup> *Advertiser*, Mar. 1, 1837; *Chronicle*, Oct. 12, 1839.

The pertinent data for later census years are as follows:

CINCINNATI PRODUCTS	VALUE OF PRODUCT (thousands)		
	1841	1851	1859
Pork packing .....	3,075	5,760	6,300
Candles, lard, oil, etc. ....	354	4,491	6,114
Butchers .....	1,098	2,850	4,370
Whisky .....	145	2,858	5,319
Feed and flour .....	817	1,690	3,216

The returns for pork and beef packing were totaled together in 1859, but beef packing was never an important industry in Cincinnati (CCC [1859], pp. 8-9). So far as the 1841 figures are concerned, Cist stated that "ninety-nine per cent. of all these products are made and sold in Cincinnati itself. Some few, which could not be properly separated from the mass, are fabricated in Fulton, Newport and Covington. . . ." At that time there were forty-eight pork-packing houses, three distilleries, and seven "flouring mills" employing 1,220, 37, and 27 hands, respectively. (*Cincinnati in 1841* [1841], pp. 56-58.)

*Imports and Exports, 1846-1860.* The Chamber of Commerce figures on local imports and exports of leading animal products have been grouped in five-year averages in Table 17, where it appears that, although the lion's share of the pork trade took the form of imports of hogs and bulk meat and exports of barreled provisions, trade in the latter was steadily declining between 1846 and 1861. Exports of lard in kegs, it will be noted, were also decreasing, but the movement was compensated for by a healthy expansion in the exports of other by-products. Trade in beef, cattle, horses, and wool was on a comparatively small scale but was increasing at a more or less rapid rate. Hides were also growing in importance. In this connection one may observe that a limited number of hogs were exported from Cincinnati towards the very close of the period — an indication of the extent to which railways were altering the flow of goods in the Middle West at that time.

Annual figures on the imports of pork and bacon (in barrels) are given in Chart XV, which may be compared with the corresponding curves representing New Orleans imports in Chart XIV. If we take the New Orleans receipts for earlier years, as averaged in Table 1 above, we find that, while receipts of flour for the thirties were roughly two and one-half times those of the previous decade, the shipments of pork in barrels and bulk increased about eightfold. The increase of the river trade in provisions, however, came to an end in the latter forties, whereas receipts of flour and wheat continued to increase in volume.

The recorded exports of provisions from Cincinnati between 1846 and 1861 averaged about 40 per cent of the imports at New Orleans, the proportion varying rather widely according to the product and period compared. A comparison of the peak periods for the two markets, which are synchronized in every case, indicates that the decline of Cincinnati's river trade was most severe with respect to bulk meat. The Cincinnati proportion of bacon (hogsheads) and pork (barrels) expanded somewhat; and the same was true of lard, of which the percentage grew from 33 in 1846-1850 to 47 in 1856-1860. So far as lard oil and star candles are concerned, it seems that Cincinnati possessed such a monopoly in their manufacture that it shipped practically all the New Orleans receipts. On the average, however, the Louisiana market received less than one-half the Cincinnati surplus, because these



**TABLE 17**  
**VOLUME OF AVERAGE ANNUAL IMPORTS AND EXPORTS AT CINCINNATI BY CANAL, RIVER, AND RAILWAY FOR FIVE-YEAR INTERVALS,**  
**1846-1860 (YEARS ENDED AUGUST 31). SELECTED LIVE STOCK AND NATIVE ANIMAL PRODUCTS**

COMMODITY	UNIT	IMPORTS (thousands)			UNIT	EXPORTS (thousands)		
		1846-50	1851-55	1856-60		1846-50*	1851-55	1856-60
Cattle .....	head	....	....	38.6¶	head	0.5	5.4	20.6
Hogst .....	head	50.4	342.9	429.6	head	....	....	10.7¶¶
Horses .....	head	....	....	9.1¶	head	1.2	1.4	4.3
Sheep .....	head	....	....	22.4¶	head	0.5	0.9	5.2
Beef .....	bbl.	0.9	1.5	1.1	bbl.	10.8	21.1	19.9
Beef .....	tierce	0.1	1.2	0.3	tierce	7.7	11.6	4.1
Pork & bacon ..	hhd.	5.6	10.0	5.7	hhd.	29.4	42.6	41.2
Pork & bacon ..	tierce	0.6	3.3	3.4	tierce	10.8	40.1	36.3
Pork & bacon ..	bbl.	50.4	34.3	26.5	bbl.	148.5	125.7	108.4
Pork & bacon ..	box	....	....	1.0¶	box	13.4	10.6	20.8
Pork & bacon ..	lb.	9,242.9	20,728.8	18,057.9	lb.	1,575.5	2,725.3	705.3
Lard .....	bbl.	27.3	50.9	50.2	bbl.	46.2	44.4	45.5
Lard .....	keg	45.6	24.8	10.7	keg	159.0	86.6	52.3
Lard oil .....	....	....	....	....	bbl.	8.5	34.7	48.0‡
Stearine .....	bbl.	....	....	2.2¶	bbl.	....	....	2.2¶
Candles .....	box	0.3	1.2	2.2	box	31.3	133.2	180.9
Tallow .....	bbl.	1.8	4.1	4.6	bbl.	4.6	5.8	3.0
Grease .....	bbl.	0.7	3.6	6.5	bbl.	4.0	8.1	5.9
Soap .....	....	....	....	....	box	8.0	32.1	53.4
Hides .....	no.	26.4	40.4	110.5	no.	10.1§	28.2	94.0
Hides, green ...	lb.	12.3	51.9	56.8	lb.	90.4§	54.0	127.6
Leather .....	bundle	6.1	15.6	16.7	bundle	....	....	23.1¶

Source: Cincinnati Chamber of Commerce, Annual Report (1850), p. 12; (1855), pp. 26-27; (1859), pp. 36-37; (1863), p. 47.

\* Figures for 1846 include shipments to southern ports only.

† Figures for years prior to 1853 embrace only the number of hogs received by public conveyance, whereas later data include the estimated number driven to market during the packing season.

‡ Includes a small amount of linseed oil, perhaps 10 per cent.

§ 1847-1850.

|| 1850.

¶ 1858-1860.

TABLE 18

ESTIMATED NUMBER OF HOGS PACKED DURING THE WINTER SEASON IN CINCINNATI AND IN THE WESTERN UNITED STATES, FOR SPECIFIED YEARS (IN THOUSANDS), AND PERCENTAGE OF THE WESTERN PACK ATTRIBUTED TO CINCINNATI

Season ending	Cincinnati pack	Western pack*	Per cent	Season ending	Cincinnati pack	Western pack	Per cent
1833	85	...	...	1849	410	1,560	26
1834	123	...	...	1850	393	1,652	24
1835	162	...	...	1851	334	1,333	25
1836	123	...	...	1852	352	1,183	30
1837	103	...	...	1853	361	2,201	16
1838	182	...	...	1854	421	2,535	17
1839	190	...	...	1855	356	2,124	17
1840	95	...	...	1856	405	2,490	16
1841	160	...	...	1857	345	1,818	19
1842	220	...	...	1858	447	2,211	20
1843	250	675	37	1859	383	2,465	16
1844	240	1,245	19	1860	434	2,351	18
1845	196	790	25	1861	434	2,156	20
1846	305†	940	32	1862	474	2,894	16
1847	250	825	30	1863	608	4,070	15
1848	475	1,710	28				

Sources: LH, Feb. 15, 1854; CPC, Jan. 28, 1857; CCC (1861), p. 35; (1873), pp. 132-33; Depew, *One Hundred Years*, II, 384.

\* Early estimates of the total western pack varied widely. See *Cist's Advertiser*, March 11, 1846; April 4, 1848; Feb. 28, 1849; March 14, 1849 (cited in *Niles*, LXXV, 236).

† In later official reports the figure for 1845-1846 is 205,000 head, which is to be compared with the following reports: 275,000 (*Cist's Advertiser*, Feb. 25, 1846); 287,000 (*ibid.*, Mar. 21, 1846; LH, Feb. 19, 1846); 305,000 (*Peabody's Weekly Markets*, Feb. 20, 1846; LH, Feb. 15, 1854; CPC, Jan. 28, 1857).

articles were not injected into trade in large quantities until the currents of commerce had begun to run in other directions.

New Orleans receipts of provisions underwent between 1836-1840 and 1841-1845 an enormous increase which coincided with the opening of British markets to American exports. Receipts of breadstuffs at the mouth of the Mississippi showed their greatest increase between 1841-1845 and 1846-1850, and this spurt was also synchronized with the opening of the British market. Progressive changes in the direction of shipment of these articles, the routes of traffic, and the means of transportation have been described in Chapters IV and V in connection with the development and improvement of facilities, the decline of rates of freight from Cincinnati to the seaboard, and the tendency of prices in the interior to increase in relation to quotations at seaboard markets, particularly New York and New Orleans.

*The Annual Winter Pack, 1833-1863.* Data on the estimated annual hog pack, which are available for seasons beginning with 1833, are reproduced in Table 18 and Chart XXII. They demonstrate that the era of greatest growth in the Cincinnati branch of the industry occurred between 1840 and 1850. The latter thirties witnessed two cycles around an average of approximately 135,000 head. During the following decade the development proceeded at such a rapid pace that the pack of 1848, the largest for the pre-war period, was estimated exactly two and one-half times the slaughter of 1839, itself considered huge at the time. The industry appears to have regained comparative stability between 1848 and 1862, with the number of animals fluctuating around an average of about 390,000 head — a figure very nearly triple that of the thirties. Then came another huge pack in 1863. These figures are defective in several respects. In the first place, they do not represent accurate enumerations; secondly, they make no allowance for variations in the average weight of the hog; and, finally, they reveal nothing about changes in the relative production of different hog products. However, they harmonize with the data on the Cincinnati and New Orleans traffic in pork products.

*Cincinnati's Position in the Industry.* The precise extent to which Cincinnati dominated the early western hog-packing industry is not revealed by the statistical information available. Data in Table 18 for the winter packing seasons ending in 1843-1847

(the first five years for which figures on the whole western pack are to be had) show that the Cincinnati houses slaughtered about 28 per cent of the total on the average; and descriptive information leads one to believe that the proportion was equally large in preceding years. Cincinnati's ascendancy was due to several factors. The city was located in a most productive stock-raising region, developed superior facilities both in transportation and in credit and banking, had a relatively large force of skilled coopers and other laborers, and was generally well supplied with good salt. That these factors were reflected in geographical price differentials may be inferred from the statement that in the middle forties the local packers could afford to pay a price 10 per cent higher than their competitors at any other point in the Mississippi Valley.<sup>23</sup> Hogs were brought not only from a large part of Ohio but also from Indiana and Kentucky. In some years many animals contracted for during the summer were brought from Kentucky market at the commencement of the season (October–November). Louisville was so far behind in the race that the establishment of a packing house there in 1844 attracted attention.<sup>24</sup> However, the advisability of locating markets not too far from the districts where hogs were raised kept the industry more or less decentralized. At least fifteen other points of concentration developed during the thirties and forties in Ohio, Indiana, Illinois, and Kentucky,<sup>25</sup> to which many animals were driven or carried in wagons. Nevertheless, a respectable number of hogs continued to be driven to the East on the hoof.<sup>26</sup>

Cincinnati's average share of the total pack showed no appre-

<sup>23</sup> *Cist's Advertiser*, Feb. 25, 1846; CPC, Nov. 16, 1844, cited in C. M. Depew, *One Hundred Years of American Commerce, 1795–1895* (1895), II, 384.

<sup>24</sup> Kentucky hogs were early in market because the Bluegrass corn crop was the first to mature. In November 1845 no less than 190,000 hogs, including the mass of the Kentucky crop, had been contracted for long before the beginning of the season at \$4.00 per hundred pounds (*Cist's Advertiser*, Nov. 5, 1845; CPC, Nov. 16, 1844; WCA, Nov. 19, 1838).

<sup>25</sup> These included Columbus, Chillicothe, Circleville, Hamilton, Louisville, Lafayette, Lawrenceburgh, Madison, Terre Haute, Vincennes, Alton, Beardstown, Pekin, Peoria, and Quincy; Chicago rose rapidly during the late fifties and assumed definite leadership with the pack of 1861–1862 (U. S. Census [1900] IX, pt. 3, p. 413).

<sup>26</sup> As late as 1847 the number of hogs driven to Cincinnati was 212,000, compared with only 38,774 received by canal, river, and railway. In 1856 some 491,212 were

cial decline in the five-year interval 1848-1852 (26.4 per cent), but there was a remarkable drop in 1853 and later years. Although the Ohio market undoubtedly lost at least part of its advantage in credit facilities at that time (this point is discussed in later chapters), it is probable that the completion of through rail connections played a more important role. Railroads not only opened a vast new corn belt to the westward and penetrated more deeply in the landlocked sections of the Ohio Valley region itself but also encouraged the direct shipment of hogs to eastern markets. The latter development, which parallels the growth of long-distance traffic in wheat and corn, wrought steady if gradual effect. The Cincinnati hog pack had doubled during the forties but expanded little in the following decade. Then exports of live animals began to take place. They averaged only 10,000 head during the three years 1858-1860; but by the early seventies Cincinnati shipped over one-third as many animals as were slaughtered locally. Indeed, almost 400,000 head were exported in the single season 1873-1874. In spite of this, the Ohio city managed to retain an important position in the packing industry long after the Civil War, ranking second only to Chicago in the slaughter of 1876-1877.<sup>27</sup>

*Interest of Local Banks in the Industry.* As has already been said, Cincinnati's connections in the fields of banking and credit played no small part in her rapid development during the thirties and forties. Facilities of this kind were especially important because a large cash business was transacted in a short winter season. Respectably large sums were required on a day's notice. The raw material — the hog — constituted about 80 per cent of the selling value of the product.<sup>28</sup>

The market had been handicapped in this respect during the twenties. In 1824, when the manufacture of bacon for the Atlantic

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driven east out of a total western crop of 2,922,099. (LH, Sept. 23, 1847; CDG, Mar. 20, 1856.)

<sup>27</sup> CCC (1873), pp. 132-33; Ohio Secretary of State, *Annual Report* (1879), p. 694; Albert S. Bolles, *Industrial History of the United States* (1878), 3rd ed., p. 162.

<sup>28</sup> Tight credit conditions in 1854 necessitated many sales on time at a premium of 10-15 cents per hundred (LH, Nov. 23, 1854; see also *Cist's Advertiser*, Feb. 25, 1846).

seaboard was instituted on a fairly large scale, not a single local bank could be found with which to arrange credit. The depression of 1820-1823 had taken its toll of all credit institutions — even the Second Bank of the United States found it advisable to close its branch. Other factors in the situation were so propitious, however, that private eastern capital was invested in the venture.<sup>29</sup>

The credit situation was much improved ten years later. The branch of the Second Bank of the United States, which had been re-opened in 1825, made an effort to cater to the needs of packers, especially the smaller firms. Furthermore, the packers themselves found it possible to expand their investments out of profits. In addition, several new banks were launched in the early thirties, every one of which solicited the pork trade.<sup>30</sup> Among those interested in the pack of 1835-1836 were no less than three bank presidents, counting the executive officer of the Branch Bank.<sup>31</sup>

*Importation of Foreign Capital.* The capital which migrated from Boston, New York, and Philadelphia was composed of both long- and short-term funds. Some was brought by merchant capitalists who entered actively into the business and reaped huge profits during good seasons. For instance, it was estimated that the net proceeds of the 1834-1835 crop were "rising a *half million of dollars*," much of which was re-invested.<sup>32</sup> In later years this same group (now "old packers") became more conservative and yielded to "outsiders" of a more speculative turn of mind in a doubtful situation such as occurred in 1858-1859.<sup>33</sup> The speculators in this particular instance hailed from Kentucky; in other

<sup>29</sup> CDG, Oct. 13, 1839.

<sup>30</sup> CDG, Oct. 13, 1839.

<sup>31</sup> *Baltimore Patriot and Mercantile Advertiser*, Dec. 19, 1835. The bankers were: J. H. Groesbeck, Josiah Lawrence, and James Reynolds, presidents of the Franklin Bank, the Lafayette Bank, and the Branch Bank of the United States, respectively. Most of the other packers were bank directors who enjoyed a good line of credit. Leading firms in 1835 were: Pugh, Jones & Company, Miller & Lee, A. G. Gano, Scholley & Reeder, Samuel Langton (of Boston), Marcus & John Smith, William Irwin, Charles S. Clarkson, Hartshorn & Child, J. & J. Mahard, Jacob Aumack, N. W. Thomas, W. Thoms, David Loring, H. A. Amelung, and J. Rowan. A few more Virginians and Yankees who went to Cincinnati that year refrained from taking part because of the scarcity and high price of hogs.

<sup>32</sup> *Baltimore Patriot*, Dec. 19, 1835.

<sup>33</sup> CCC (1859), pp. 25, 28.

critical years the pack was financed in part by storekeepers, eastern buyers, drovers, or the farmers themselves.<sup>34</sup>

Eastern capital was also made available on a short-term basis, especially after 1840, by the draft of bills of varying maturity on New York. At the beginning of the 1847-1848 season it was reported that the banks had shortened the draft time on Atlantic cities from the ordinary three or four months to sixty days (the movement of pork from Cincinnati was hastened thereby).<sup>35</sup> The rate on New York exchange generally shrank during the winter months, as many bills were thrown on the market and rose again in the early spring to a more or less normal premium.<sup>36</sup> The proportion of packing done "on Eastern account" increased in 1841-1842 and 1842-1843, when short-term funds were moving back to the East in large amounts.<sup>37</sup>

The Cincinnati market became so highly speculative that the absence of money and speculation drew attention in 1843.<sup>38</sup> Nevertheless, the number of packing houses engaged in the trade grew steadily. In 1844 there were twenty-six; in 1859 this figure had increased to fifty-five.<sup>39</sup> The number of operators was also frequently very large. To cite an instance, a very unstable situation arose in connection with the bull market of 1835-1836, owing to the liberality of banks with discounts and renewals. All the dealers held on, including the executive officers of the banks, and the market assumed the appearance of a temporary monopoly. Prices soared.<sup>40</sup> "Over-trading" was a common feature of the market in later years and brought heavy losses to speculators from time to time.

<sup>34</sup> CCC (1858), p. 17.

<sup>35</sup> U. S. Commissioner of Patents, *Annual Report* (1848), pp. 636-38.

<sup>36</sup> Many packers sold the bills to the banks for bank notes which were used to pay the farmers, thus expanding the local circulation (C. C. Huntington, "History of Banking and Currency before the Civil War," *Ohio Archaeological and Historical Quarterly*, XXIV, 416, n. 13 [July 1915]).

<sup>37</sup> CDG, Dec. 22, 1841; WCA, Feb. 24, 1843.

<sup>38</sup> *Chronicle*, Jan. 2, 1843.

<sup>39</sup> U. S. Census (1900), IX, pt. 3, p. 413; CCC (1859), p. 26.

<sup>40</sup> See the editorial by Charles Hammond in the *Cincinnati Daily Gazette*, Oct. 13, 1839. All during the period of great speculative profits Hammond railed at the "monopolists" who charged the consumers high prices, yet maneuvered hog-raisers out of a fair share of the proceeds. And there is no doubt that compared to other leading products the price of mess pork was uniformly high between 1835 and 1839.

*Characteristics of the Hog Market.* The packing season was a fairly short one, depending entirely upon the weather. As a rule, operations were begun not before the middle of November and suspended not later than the middle of the following February; the date of commencement was advanced or retarded, however, by a fall or rise in the temperature. Packing stopped as arrivals began to fall off in the spring. During the forties, it is true, a butchers' market for domestic consumption developed which was fairly active during other months of the year. A summer pack with "ice curing," accomplished in 1857, was extensive and profitable because of high prices.<sup>41</sup> Regular summer operations on a large scale, however, did not develop until fifteen years later.<sup>42</sup>

In the wintertime the flow of hogs to market frequently assumed great dimensions. Immediate cash sales were the rule because so few pens were available. Prices varied from day to day and often from hour to hour, depending upon such factors as the weather and the number of arrivals. In general, a drop in temperature accelerated the flow to the slaughterhouses and enlivened bidding on the part of packers. Conversely, a "warm spell" served to slow up the market and cause prices to slump temporarily. The production process was of necessity geared to a high speed on account of the brevity of the season. Even as early as 1835 hogs were completely dressed in little more than a minute apiece, and large packers turned out 250 to 300 barrels of pork and 200 kegs of lard daily in one house. Packers also maintained smokehouses at that time with a capacity as great as 150,000 pounds.

The expansion of the hog market apparently brought with it a certain degree of specialization. Up until the twenties almost all the trade took place between farmers who, like Isaac Jackson, brought their hogs to town either on the hoof or in their wagons and the packers, who assumed responsibility from that point on. Some time before 1835 the latter gave all the slaughtering over to one firm, headed by John W. Coleman. Coleman had four houses that year employing sixty men; he expanded his capacity to ten houses the following year, with a daily output of 6,750 animals. Furthermore, he was joined temporarily in this depart-

<sup>41</sup> One house alone cured over 1,500,000 pounds with the aid of ice. Hogs of sufficient weight and number could not be procured so early in the year, or the business would have been doubled. (CCC [1857], pp. 22-23.)

<sup>42</sup> Depew, II, 384.



ment by two other concerns: Huke & Clarkson and Smith & Powers.<sup>43</sup> Drovers also intervened to a greater and greater extent as the market grew both quantitatively and geographically. The high prices of 1836-1837 prompted these individuals to scour the countryside for hogs. For some years they sided with the farmers in a haggle with packers over the December price of hogs; frequently the two groups delayed a week or two before coming to terms, and there were occasions when the drovers, unsatisfied by the packers' bids, went ahead and packed on their own account.<sup>44</sup> During the fifties there was a tendency to ship dressed meat to Cincinnati by river or railroad, thus displacing the drover; but this was done at first only at a considerable sacrifice, owing to a prejudice in favor of hogs slaughtered locally.<sup>45</sup> We have already mentioned the tendency for the packers to yield financial risks to professional speculators from time to time.

*The Leading Types of Hogs Sold.* During the greater part of the period the standard article of trade was the "corn-fatted" hog. The animals were crossbred for size, tendency to fat, and shape of the hams. Marketed as a rule at an age of from eleven to eighteen months, they were allowed to run in the woods until within five or six weeks of killing-time, then turned into the corn fields. The abundance of mast (acorns, beechnuts, etc.) and corn thus had much to do with the type of porker brought into market. Mast feeding had the general effect of rendering the meat too soft, especially for the English market.<sup>46</sup> Nevertheless, hogs fed largely on mast were common before 1816 and quoted regularly as late as 1829.<sup>47</sup>

The price of hogs appears to have pertained to the live animal before 1844, but was almost invariably quoted per hundred pounds

<sup>43</sup> *Baltimore Patriot*, Dec. 19, 1835; *Niles'*, LI, 341 (Jan. 28, 1837). Coleman slaughtered 121,562 hogs in the season of 1842-1843 out of a total local output of 188,562. Two new firms (Jaquess, and Clearwater) accounted for the remainder. Twelve thousand were handled in Covington and 40,000 additional animals arrived by wagon. This pack was "put up chiefly on foreign capital" (WCA, Feb. 24, 1843).

<sup>44</sup> See, for instance, the accounts in the *Western Christian Advocate*, January and December 1840.

<sup>45</sup> WCA, Jan. 1, 1851.

<sup>46</sup> U. S. Commissioner of Patents, *Annual Report* (1847), p. 526; (1842), p. 104.

<sup>47</sup> CDG, Jan. 15, Feb. 12, 1829. At that time corn-fed hogs bore a premium of 33 to 67 per cent over mast-fed.

net during later seasons: i.e., the weight was taken after the animal had been killed and dressed. Prices were "spot" prices, with some exceptions; but after 1834 contract prices for November or December delivery became more common during the late summer or early fall. About the latter half of the forties a considerable number of slop-fed and still-fed hogs commenced coming to market. Though generally on hand in the summer months to be purchased by butchers for the fresh provisions market, some were occasionally sold to packers in the winter at a discount of 10 or 20 per cent from the corn-fed price. The market for stock hogs, it may be noted, received little attention in contemporary reports.

The hogs of a hundred years ago averaged about 200 pounds on the hoof, but it was no rarity for a single shipment to average over 300 pounds per head, net.<sup>48</sup> This was partly due to the fact that the price was commonly graduated according to weight so as to encourage the breeders and drovers to bring in heavy animals. An especially common arrangement was to award a slightly higher price for animals over 200 pounds compared with those under that weight.<sup>49</sup> It is highly probable that cured meat and lard carried a higher value as compared with fresh meat than they do at the present time.<sup>50</sup>

<sup>48</sup> Hall, *Notes on the Western States*, p. 146. Continuous figures on the weight of animals were not compiled until 1859-1860. The pack of 1844-1845 averaged very close to 200 pounds all through the season, and that figure was employed in estimates in 1853. However, fairly wide fluctuations did take place. The average was put at 240 pounds in 1834-1835 and only 170 in 1835-1836. The weight fell off 20 or 25 per cent in 1848-1849 as compared with the preceding year. Between 1859-1860 and 1862-1863 it increased each year, the range being from 189 to 293 pounds. A large crop was practically always accompanied by a high average weight, and conversely. (CDG, Jan. 1, 1845; WCA, Mar. 23, 1853; *Cist's Advertiser*, Mar. 14, 1849; *Republican and Journal* [Springfield, Mass.], Jan. 16, 1836; Ohio Secretary of State, *Annual Report* [1879], p. 692.)

<sup>49</sup> For instance, quotations in the *Cincinnati Daily Gazette* for October 30, 1833, were as follows: 175-200 lbs., \$3.12 per 100 lbs.; 200-250 lbs., \$3.25-\$3.50; 250 lbs., \$3.62½-\$3.75. The Miami Exporting Company in 1803 and 1804 listed "cornfed pork, hogs over 150 lbs." at \$3.00 a hundred and lighter animals at \$2.50. The same prices prevailed in Lexington during the 1809-1810 season, but the dividing line was then established at 200 pounds (*Lexington Reporter*, Jan. 20, 1811).

<sup>50</sup> The premium on heavy hogs may also be explained by the supposition that the heavier animals yielded a meat of a firmer quality (they had been feeding on

Evidence of a progressively more exhaustive use of by-products is not wanting. The bull market of 1835-1836 gave a commercial value to spare ribs and feet, both of which had formerly been thrown away. Coleman did the slaughtering in 1836-1837 in return for the offal (gut lard, soap grease, and bristles), then figured to be worth 50 cents per head. An appreciation in these by-products was later accompanied by changes in this arrangement. In the middle forties a bonus of 10 to 25 cents per head was offered by the slaughterhouses. This increased to 40 cents by 1854 and varied between 25 and 50 cents five years later. When it was dropped in 1859, Cincinnati was reported to have lost 50,000 head to other centers.<sup>51</sup>

*Different Types and Grades of Pork.* There were three general classes of pork: fresh, smoked, and pickled. Fresh meat in the form of shoulders, sides, and hams was destined either for immediate use or for smoking and was therefore on the market only during the packing season or shortly thereafter. Aside from a limited quantity which was shipped to the East or South, the great mass of bulk meat was sent to the smokehouses to be kept until wanted for shipment, when it was packed in hogsheads. Hams, shoulders, and sides of bacon were packed separately for shipment to the iron manufacturing regions of Pennsylvania, Maryland, and Virginia, the Mississippi shore above New Orleans, and the larger Atlantic cities.<sup>52</sup> As for the pickled or barreled

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corn for a longer period of time). In recent years the relation of the prices of heavy hogs to light hogs has been of a variable character. Since light animals are preferred for fresh meat and heavy for lard and cured meat, the relative demands for these two types of food, as well as the relative receipts in market of heavy and light hogs, determine the ratio. The size of the corn crop is an important factor influencing the latter. (G. C. Haas and M. Ezekiel, *Factors Affecting the Price of Hogs* [1926], pp. 24-25.)

<sup>51</sup> *Baltimore Patriot*, Dec. 19, 1835; U. S. Commissioner of Patents, *Annual Report* (1847), p. 527; *LH*, Nov. 28, 1850, and Nov. 23, 1854; *CCC* (1859), p. 26. The bonus was apparently raised in 1850 so that it exceeded costs of transportation from a larger area and attracted a larger supply.

<sup>52</sup> The bacon prices used in this study apply for the most part to sides (where specified), although "hog round" prices were interpolated in 1828-1829, 1830-1831, and 1834-1840. "Hog round" consisted of two hams, shoulders, and boned sides; and its pound price tended to equal that of sides, since the latter was usually midway between hams and shoulders.

pork, several grades were recognized by inspectors, each of which served a more or less distinct use. The New Orleans inspection rules of 1821 named only three grades in this order: mess, prime, and cargo.<sup>53</sup> A quarter of a century later, a fourth and superior grade was in common use, denominated as "clear."<sup>54</sup> In all cases 200 pounds of meat were required by the inspectors, but it was trade usage in Cincinnati to pack only 196 pounds and rely upon absorption of brine before the meat was opened in eastern and southern markets. In 1850 clear pork was to consist of the boned sides of the largest class of hogs; it carried a premium of about 10 per cent over mess pork and was designed for the cod and mackerel fisheries of New England. Mess pork was to consist of good sides with an allowance of two rumps to the barrel.<sup>55</sup> The two inferior grades, prime and cargo (later, "rump"), applied to barrels containing meat from lighter hogs, a larger proportion of which was in the form of shoulders, heads, and tail pieces. Mess pork was marketed almost entirely to the merchant marine and the navy; prime and cargo (or "rump") were used in the southern markets as well as aboard ship.<sup>56</sup>

*Relations among Prices of Different Pork Products.* Prices of various provisions remained in fairly constant relation to each other. This is the formula of relationship used during the forties by a packer of long experience:

\$3.00 per 100 wt. net for hogs would be equal to —

2¼¢ for green shoulders — for bacon shoulders,

3½¢ for green sides — for bacon sides,

4½¢ for green hams — for bacon hams,

5¼¢ for lard, \$5.50 for rump pork.

\$9.00 for mess pork (\$7.00 for 200 green sides, and \$2.00 for cost of packing).

<sup>53</sup> LH, Feb. 14, 1821.

<sup>54</sup> De Bow, *Industrial Resources*, I, 376-77. The earliest quotation of clear pork appears in the *Gazette* of January 15, 1829.

<sup>55</sup> The inspection rules of 1821 permitted nothing but first-quality sides of good fat hogs in a barrel stamped as "mess pork."

<sup>56</sup> The "cargo" brand, which bore a heavy discount, dropped out of the market in 1836. Apparently the latest quotation occurred in the *Whig* of May 16 of that year. Two years later the "rump" brand appeared in the prices current (WCA, May 15, 1838). According to its price, rump pork was a superior article to the old cargo and was frequently priced the same as prime.

\$3.50 per 100 wt. for hogs would be equal to —  
 3¢ for green shoulders — for bacon shoulders,  
 4¢ for green sides — for bacon sides,  
 5¢ for green hams — for bacon hams,  
 6¼¢ for lard, and \$6.50 for rump pork.  
 \$10.00 for mess pork (\$8.00 for 200 green sides and \$2.00 for cost of packing).<sup>57</sup>

In 1835 a price of \$3.00 on hogs brought the cost of packing mess pork to about \$10.00, and a price of \$5.00–\$5.50 was figured to raise the cost of production to around \$15.00.<sup>58</sup> Such relationships varied between rather wide limits over short periods of time despite the fact that the meat itself usually accounted for about 80 per cent of the cost (salt and cooperage made up the remainder). For instance, the price of salt rose to an unusual height during the winter of 1838–1839 because of a crippling of transportation facilities by ice. A depressing influence was felt upon the price of hogs.<sup>59</sup> Outer limits to variations in different product-prices were fixed by the fact that a considerable degree of substitution took place in both production and consumption. Thus, in the depressed market of 1842–1843 about 70,000 hogs were “run into” lard entirely (except for the hams) on account of the relatively attractive cash price of this item.<sup>60</sup> Such an alteration in the relative outputs was, to be sure, limited by the fact that the supply of the various articles was determined to some extent by the size and condition of the animals in market. That is, a season of very heavy hogs was marked by a large production of lard, and conversely. At the end of 1835, for example, it was estimated that hogs were so small and so few in number that the

<sup>57</sup> LH, Sept. 13, 1849. In November 1843 the cost of packing was only \$1.62–\$1.75 per barrel of mess pork. Of this, 87½ cents represented the cost of the barrel alone. The other elements of cost were the price of salt (Turks Island, 60 cents; Kanawha fine, 28 cents); the wages of labor (\$.75–\$1.50 per diem); and a fee of 5 cents per hog for receiving, weighing, and cutting. (U. S. Commissioner of Patents, *Annual Report* [1843], p. 132.)

<sup>58</sup> *Baltimore Patriot and Mercantile Advertiser*, Dec. 19, 1835.

<sup>59</sup> WCA, Dec. 17, 1838.

<sup>60</sup> *Chronicle*, Jan. 2, Feb. 3, 1843. Manufacture of lard oil had just been introduced. In January 1843 the price relative for lard stood at 68; that for mess pork at only 51 (base, monthly average, 1824–1846). This gap had widened during the preceding year and was not closed until the ensuing fall.

approaching season would probably witness a shrinkage in the quantity of barreled pork and lard of about two-thirds compared with the preceding year, whereas bacon would fall off not more than one-third.<sup>61</sup> All in all, it appears that factors making for diversity in price behavior such as those commonly imputed to conditions of joint supply were frequently offset by substitution and submerged in more general forces acting upon the total demand for foods.

*Monthly Series of Provisions Prices, 1816-1861.* Short-term variations in the prices of provisions may best be seen through a number of comparisons. They may be compared (1) with each other; (2) with the general pattern of agricultural prices; (3) with other leading commodities such as flour (the tendency of pork and flour prices to develop in inversity has been pointed out in the preceding chapter); (4) with variations in receipts at New Orleans and Cincinnati; and (5) with simultaneous quotations in New Orleans, New York, and other leading markets. Still another fruitful line of inquiry is to ascertain the extent to which fluctuations in the price of hogs exerted an effect upon marketing in later years. It hardly needs to be said that none of these various approaches can be isolated to perfection because the whole system was bound together by a network of causes and effects.

The general sympathy among the various series of monthly provisions prices is quickly inferred from Charts XVII and XVIII. It may also be established statistically that the average annual prices of hogs, mess pork, sides of bacon, and lard moved considerably more in conformity with each other than with any other price series.<sup>62</sup> Data for other types of packed pork, bacon,

<sup>61</sup> *Republican and Journal* (Springfield, Mass.), Jan. 16, 1836 (taken from the *Baltimore Patriot* correspondence).

<sup>62</sup> If we take average annual deviations of price relatives from Index A for the period 1846-1860 (calendar years), in which these relationships, or lack of them, are particularly evident, we find that mess pork is correlated with the following series to this extent: hogs, +.86; bacon, +.79; lard, +.88; flour, -.83; whisky, -.83; cotton, +.17. Similar results are obtained by using hogs, lard, or bacon as basic series.

We may correlate also deviations of purchasing power ratios (general weighted index) from their own moving averages (preceding five years) for 1827-1861. A few sample coefficients for mess pork are as follows: lard, +.72; flour, -.49;

or hams are seen to display similar behavior when subjected to this analysis. This highly positive agreement is not confined to the general sweeps characteristic of the general pattern of agricultural prices but applies as well to yearly ups and downs around the pattern. Furthermore, there is no significant difference in the secular drift of one price series as compared with the others similar to that encountered in the previous chapter in connection with flour and wheat, whisky and corn, or linseed oil and flaxseed.<sup>63</sup> In respect to amplitude of year-to-year variations, however, one does find that hog prices generally rose and fell furthest in times of high and low prices, respectively.<sup>64</sup>

Little more need be said on the conformity of provisions prices to the general pattern. Although the data — particularly those on mess pork — are not complete for years prior to 1824, they follow the pattern so far as they are available.<sup>65</sup> Cincinnati quotations on barreled pork were higher at the end of 1820 than in 1816, it is true, whereas flour and other agricultural exports had begun to decline (the situation was similar in 1839-1840). However, pork must have taken a severe drop in 1821, judging from the fact that in the intervening winter hogs sold for only 45 per cent of the 1816 price and lard fell in value to almost the same extent between November 1820 and May of the following year. Recovery was slow. Lard was again at rock bottom (4 cents a pound) in the spring of 1822 and at the beginning of 1823. Cin-

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whisky,  $-.07$ ; corn,  $+.06$ ; butter,  $+.40$ ; and New Orleans leaf tobacco,  $-.15$ . Some of these relationships grew more definite and consistent towards the end of the period. Thus, the mess pork coefficients for the period 1850-1861 are: lard,  $+.69$ ; flour,  $-.80$ ; whisky,  $-.52$ ; corn,  $-.26$ ; butter,  $+.43$ ; and New Orleans leaf tobacco,  $+.20$ .

<sup>63</sup> If hogs prices (average for the packing season) are divided by bacon, lard, and mess pork prices (average for the first quarter), there appears to be a very slight appreciation of hogs in terms of bacon and lard between 1816 and 1861 and in terms of mess pork between 1825 and 1861.

<sup>64</sup> Over the period 1824-1846 the average annual deviation of hog price relatives from their average is 33.2 per cent. Corresponding figures are: mess pork, 25.5; lard, 22.9. In the twenties hogs were very cheap, relatively speaking, and in the following decade they were even more dear. However, there was little variation among the series in the depth of decline during the depression of the early forties.

<sup>65</sup> Cincinnati lapsed quotations in December 1820, and only scattered figures could be located for the Pittsburgh market. Pork was not listed in the *Statesman* prices-current; the *Gazette* prices were largely nominal.

cinnati simply had little or nothing to pay farmers for their produce.

Provisions prices also rose gradually between 1821 and 1840, declined sharply until 1843, and then staged a second long upward movement which lasted up to the outbreak of the Civil War, but at certain times they behaved at marked variance from other commodity values. Note particularly the firmness of the provision market in 1840 and its weakness a year later; compare the behavior of pork from 1848 to 1860 with that of flour, wheat, corn, and whisky. The corn and whisky curves in Charts XVI and XVII above resemble flour and wheat rather than provisions. That is, corn and whisky were "high" in 1850, 1855, and 1859 — years when provisions were at low points or recovering therefrom. Conversely, the former were "low" in 1852 and 1857-1858, at which time mess pork was decidedly "high." The high amplitude of variation and quasi-cyclical character of annual pork-flour price ratios alluded to in the preceding chapter are simply a reflection of this diversity. Furthermore, we have seen that variations in the different outputs are responsible to a measurable extent.

The Cincinnati prices of pork and lard are found to be inversely correlated with simultaneous receipts of these commodities in New Orleans (1827-1861) and Cincinnati (1850-1861) by employment of the technique already used in the preceding chapter and described in Appendix A. As in the case of flour, Cincinnati prices of provisions were related more closely to New Orleans receipts in the period 1827-1849 than in the interval 1850-1861. With one exception, moreover, the correlation between Cincinnati receipts and prices in the fifties is higher than that given by any other combination of data.<sup>66</sup> Since the prices of flour and pork possess a fairly high degree of inverse correlation, according to

<sup>66</sup> The Pearsonian coefficients, assuming logarithmic lines of regression, are as follows:

	1827-49 N. Orleans Receipts	1850-61 N. Orleans Receipts	1850-61 Cincinnati Receipts
Flour prices .....	-.41	-.21	-.84
Mess pork prices .....	-.41	-.22	-.52
Lard prices .....	-.50	-.41	-.42



the method of measurement we have adopted, and since each one of these price series is similarly correlated with market receipts, it follows that the production of wheat varied (from year to year) more or less differently from the production of hogs. This was particularly true in the forties and fifties. However, receipts of flour and pork at New Orleans were frequently in positive agreement during the thirties, and a shortage or excess in both commodities at once exerted an especially strong effect upon the western economic situation. Such a shortage occurred in 1836 and 1837.

*Interregional Price Variations — Mess Pork.* It has already been remarked that pork prices in various leading markets of the United States were arranged according to a fairly well-established geographical system and that the western price steadily and appreciably increased in comparison with seaboard quotations. In early years mess pork was generally at its highest value in Charleston, although New York and Philadelphia were frequently on top. New Orleans occupied a shaky position midway between Cincinnati and the other three.<sup>67</sup>

Price variations in the different markets were quite closely timed in view of the fact that Cincinnati and New Orleans were much more highly variable from month to month than New York or Philadelphia and an usually broad seasonal movement took place in New Orleans. Indeed, the major sweeps of cyclical fluctuations occurred almost simultaneously.<sup>68</sup> Cincinnati frequently lagged behind New Orleans between 1819 and 1834 to the extent of a full quarter of a year, and the lag was also evident in critical years such as 1839-1840, 1845, 1852, and 1857. Whenever the decline occurred first at the seaboard, the shipping margin was wiped out or turned into a negative quantity.

The relative amplitude of variation in western quotations was especially large before 1835. The depths reached in 1822 and 1842-1843 are worthy of notice, since they attest that deflation was particularly severe in its effects upon leading agricultural staples in the interior. However, eastern prices acquired so much

<sup>67</sup> Cole, *Wholesale Commodity Prices*, II, 110 ff.

<sup>68</sup> It is probable that seaboard prices could be used to "raise" the coefficients of simple correlation between interior prices and receipts.

more flexibility after 1835 that the individuality of the Cincinnati series tended to disappear, and by 1857 the various markets approached coincidence both in timing and amplitude. As has already been stated, neither New York nor New Orleans could offer an average premium over Cincinnati of more than \$1.27 (about 7 per cent) during the second half of the fifties, and the margin approached zero on several occasions between 1858 and 1860.

*Hogs and Corn. Prices and Production.* Samuel Benner, an Ohio farmer writing in 1876, was among the first to attempt to measure a periodicity in the crops and prices of hogs and corn. Intrigued by the bullish behavior of both hogs and corn during 1873, 1874, and 1875 — years of miserable business depression — he set out to discover a divine and universal law of cycles for each commodity. Working with Cincinnati data for the preceding quarter century, he concluded that corn and hog prices were positively correlated to a high degree and were subject to alternate six- and five-year cycles. Much emphasis was placed upon an eleven-year cycle compounded from the two shorter ones. Although his choice of turning points of these cycles was decidedly arbitrary in some cases, Benner's knowledge and reasoning about the hog market deserve respect. Failing to find a correlation between hog prices and the current pack, he reported it "an established fact that the quantity of hogs in this country is ruled and governed by the current price of corn."<sup>69</sup>

Numerous investigators have followed Benner in the quest for an answer to the ups and downs in both prices and production of hogs. In recent years crop forecasters, analyzing western data for 1871-1914, 1919-1931, and other periods, have found it possible to ascertain with a fair degree of precision the statistical relation between the size of the corn crop or the hog-corn price ratio on the one hand and the size of the hog crop in later years or the proportion of the crop to be marketed in winter or summer.<sup>70</sup> One investigator emphasizes the fact that a favorable ratio at breeding time (high hog price and low corn price) brings increased marketing of hogs twelve to eighteen months later, and

<sup>69</sup> *Benner's Prophecies* (1884 ed.), pp. 61 ff., 79 ff.

<sup>70</sup> For a summary of various methods and detailed references see F. L. Thomsen, *Agricultural Prices* (1936), pp. 324-51.

conversely; but others have stressed the importance of the ratio at marketing time or the fattening period immediately preceding.<sup>71</sup> More than one have found a cycle four years in length (two up and two down) in the hog-corn price ratio, the hog pack, or both; and several have emphasized the importance of the supply of corn. The influence of consumer demand, as reflected in payrolls, has also entered the picture. According to one authority, the fluctuation of hog prices between 1919 and 1931 was geared to demand rather more than supply, and another competent observer finds the correlation between meat prices and consumers' incomes too obvious to require proof. It is held that, since producers would not go on forever misjudging, a special cycle in the hog world is "entirely unwarranted."<sup>72</sup>

That early Cincinnati observers of the hog market kept close watch upon the corn situation is illustrated by the Chamber of Commerce forecast of August 1852. Noting that for some seasons prior to 1850-1851 low hog prices and relatively high corn prices had induced farmers to reduce their stock of hogs, the reporter reasoned that as a consequence the supply of provisions on hand had reached a very low point and the hog-corn ratio was increasing constantly (he might have added that corn was falling in price at the same time). On this basis he predicted that farmers would increase their stocks of hogs greatly, that the marketing of hogs for the approaching season (1852-1853) would increase from 15 to 25 per cent over the preceding year, and that the hog production for 1853-1854 would be even greater, this to continue until overproduction would "cause the same thing to happen all over again."<sup>73</sup> Subsequent events substantially confirmed the prediction. Hog production for 1852-1853 turned out 24 per cent greater than the preceding season and that for 1853-1854 was still larger. Here the cycle reached its turning point. Heavy crops of hogs began to result in a large surplus over current consumer demand; at the same time, the failure of the 1854 corn crop enlarged the denominator of the hog-corn price ratio and caused it to fall. During the summer of 1854, accordingly, hogs

<sup>71</sup> Oris V. Wells, *Farmers' Response to Price in Hog Production and Marketing* (1933), pp. 3-5.

<sup>72</sup> Schumpeter, *Business Cycles*, II, 531-32. See also Wells, *op. cit.*, p. 7.

<sup>73</sup> CCC (1852), p. 4.

were neglected by their feeders to such an extent that the pack fell off to a noticeable degree.<sup>74</sup>

*Early Hog-Corn Price Ratios.* The question arises as to the regularity of these affairs. For various reasons it is impossible here to follow all suggested lines of statistical approach through to a conclusion, given the data at hand, but several points do emerge from our more or less incomplete figures on the prices and production of corn and hogs. Let us begin with hog-corn price ratios.

If average winter hog prices in the Cincinnati market (gross basis) are divided by average corn prices for crop years (October-September), the results show that the two sets of prices were not at all similar in their variations from year to year. Chart XXII indicates that in certain years (1820, 1825, 1837, 1841, etc.) a hundredweight of hogs was worth over fifteen times as much as a bushel of corn, whereas at other times (1814, 1821, 1826, 1831, etc.) the ratio was less than eight to one. In fact the price ratio was barely five to one in 1855. This finding accords with the observation above on the range of variation in pork-flour price ratios. Furthermore, it indicates that differences in the behavior of corn and hog prices are quite as striking as the similarities Benner professed to discover or those which are expressed by the "general pattern" or agricultural prices.

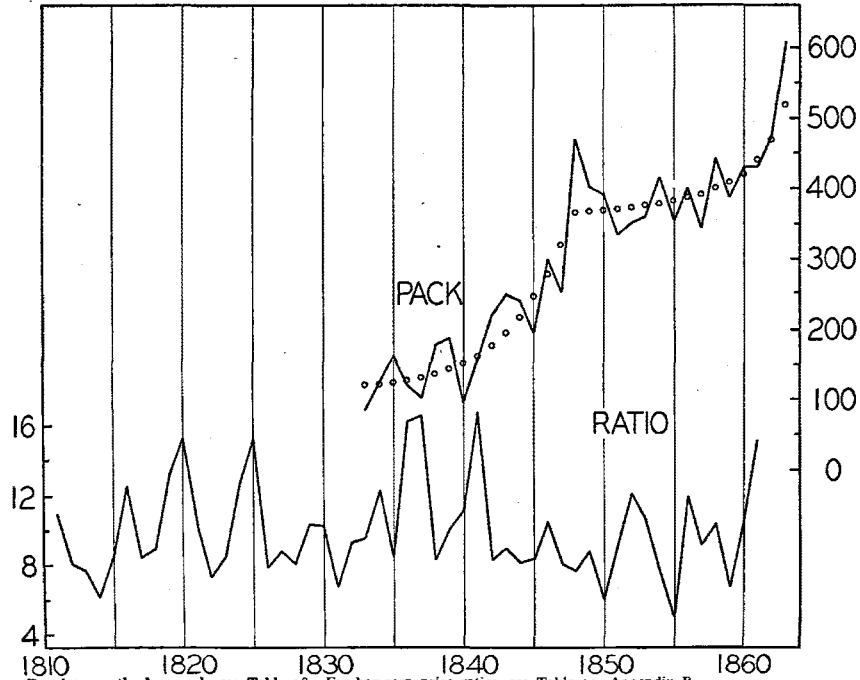
The regularity of a cycle in these price ratios is, however, a matter of opinion. Data for 1813 and prior years are too fragmentary to allow worthwhile judgment on this point. As for the period 1814-1861, there appear to be ten and a half cycles of varying length oscillating around a geometric average of approximately 9.5 to one. Between 1814 and 1859 the cycles fall into the following sequence as to length in years (counting from low point to low point): 3,5,4,5,4,3,6,6,5, and 4. If the ten complete cycles are classified as to length, the distribution is symmetrical with the mean and mode at four and a half years.<sup>75</sup> The interval

<sup>74</sup> CCC (1853), p. 3; (1855), p. 22.

<sup>75</sup> There appear to have been two three-year and two six-year cycles, together with three four-year and three five-year cycles. The results are highly similar if the average price of hogs for two consecutive seasons is divided by the average price of corn for the intervening calendar year. In fact, the general agreement between results emerging from different arrangements of the price data lends significance to them all.

### CHART XXII

ANNUAL WINTER PACK OF HOGS AT CINCINNATI, 1833-1863. ANNUAL RATIOS OF THE AVERAGE PRICE OF HOGS DURING THE SEASON TO THE AVERAGE PRICE OF CORN FOR YEARS ENDED SEPTEMBER 30, 1811-1861



For price ratios see Table in Appendix B

between 1842 and 1850 is admittedly difficult to interpret because the variations were more irregular than usual. Attention may also be called to three sets of twin peaks (the early twenties, late thirties, and early fifties), the low points between which were spaced at intervals of sixteen and seventeen years. As for the four-year cycle composed of two two-year phases, it may be remarked that only a single case occurred between 1814 and 1850 where a succession of two rising (or falling) years was followed by a sequence of two falling (or rising) years.

*Hog-Corn Ratios and the Hog Pack.* It has already been remarked that the correlation between corn marketings and average corn prices in Cincinnati is found to be comparatively low. The same is true of hog receipts and prices according to the methods employed in this study.<sup>76</sup> This, together with the fact already mentioned that the prices of hogs were inclined to be speculative and to vary in the same direction as general price movements but with an unusually high amplitude, and the observed correlation between western and seaboard pork and lard prices, leads to the conclusion that shifts in the demand for pork products were of prime importance in causing variations in their prices. This is not to say that variations in supply were entirely without influence. It is almost certain, for instance, that a shortage of the hog crop in 1836-1837 and the following season helped to lift and sustain the prices of hogs and pork products.

The general conclusion that hog prices were more important in determining production than vice versa is reinforced by a study of the relationship between hog-corn price ratios and the

<sup>76</sup>The correlation is  $-.23$  between deviations of the pack from ordinates of the freehand trend and simultaneous deviations of the purchasing power of hogs (general unweighted index) from a horizontal trend, for the period 1833-1861. The coefficient is reduced about 50 per cent if prices are lagged one year.

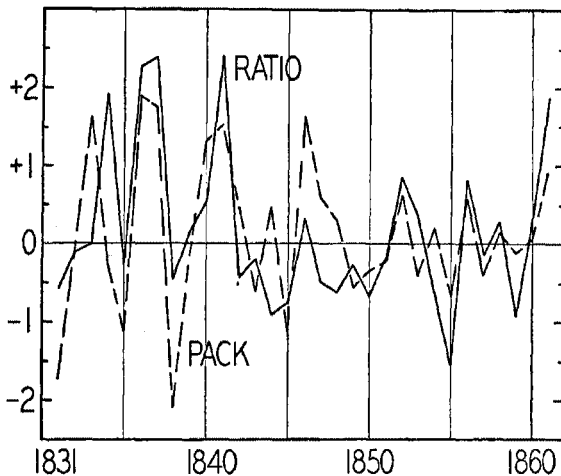
A coefficient of correlation of  $-.27$  is secured between the pack and simultaneous purchasing-power ratios if relatives based upon averages of the preceding five years are used. Benner remarked that high hog prices were frequently accompanied by a large pack, and conversely; and Sewall Wright found a "comparatively poor" correlation between the winter pack and the price of hogs. Wright's coefficient was  $-.68$  for the period 1871-1915—decidedly high compared with those secured in this study. He employed hog prices of January 1 and the figures on the whole western winter pack given in the *Cincinnati Price Current*. Deviations were measured from freehand lines of trend. *Benner's Prophecies*, p. 69; Wright, *Corn and Hog Correlations* (1925), p. 41.

pack in later years. In Chart XXIII, below, two series of annual data for the period 1830/31-1860/61 are plotted, one of which represents deviations of the price ratios from their own average and the other deviations of the hog pack from the free-hand line of trend shown in Chart XXII. Both series are ex-

CHART XXIII

ANNUAL DEVIATIONS OF HOG-CORN PRICE RATIOS FROM THEIR MEAN, 1831-1861.  
ANNUAL DEVIATIONS OF THE CINCINNATI HOG PACK FROM FREEHAND LINE OF TREND,  
1833-1863, PLOTTED TWO YEARS IN ADVANCE

(Unit: One standard deviation)



For data, see Table 32, Appendix B.

pressed in terms of standard deviations, and the production figures are advanced two years (the latter therefore actually pertain to 1832/33-1862/63). It appears that the hog pack was subject to more or less rhythmical ups and downs in the first twenty years of the interval but lost much of its variability during the fifties. In other words, it is rather more difficult to find a regular cycle in the Cincinnati hog pack series than in the price-ratio data. One is justified in concluding, however, that there was a fairly consistent relationship between a rise or fall of the hog-corn ratio and an increase or decline in the pack two years later. The relationship is found to be slightly higher if prices of lard or bacon during the first quarter of the year are

employed in place of hog prices for the season just ended.<sup>77</sup> The curves in Chart XXIII show that in twenty-one out of twenty-nine years the two series moved in the same direction and that in one of the remainder the diversity was negligible. Furthermore, coefficients of correlation are considerably nearer unity than those pertaining to production and prices analyzed with no lag. In other words, the prediction of hog prices, given data on production, was subject to a much wider margin of error than the forecasting of production, given the relative prices of hogs and corn.<sup>78</sup>

*Seasonality of Hogs Prices.* The general topic of seasonality in commodity prices is considered in Chapter V above, where it is pointed out by means of twelve-month patterns pertaining to various intervals of time that the prices of pork products and grains acquired more and more flexibility and amplitude of variation. In the fifties mess pork, bacon, and lard were disposed to rise to a much greater degree during the summer and early fall, decline sharply at the beginning of the packing season, and remain at a comparatively low level until winter was about over.

One such pattern (1848-1860) has been computed and charted for hog prices the year around (Chart XII, p. 133), though fluctuations between November and March were of far greater significance than those during the remainder of the year. It appears that hogs had a tendency to appreciate during the winter packing season. This may be partly due to the arrangement whereby packing commenced with Kentucky animals which had been contracted for during the preceding summer. Some contemporary observers were convinced that the buyers were better informed than growers as to the technical state of the market and placed summer contracts at relatively low prices;<sup>79</sup> and receipts of contract hogs were so large (and growing) that it was difficult to

<sup>77</sup> The correlation coefficients are as follows: hog-corn ratio and hog pack two years later, +.63; bacon-corn ratio and hog pack, +.70; lard-corn ratio and hog pack, +.70; mess pork-corn ratio and hog pack, +.54. The coefficients are much smaller if data for the western pack are substituted for Cincinnati data.

<sup>78</sup> Data on the corn crop are insufficient to make a thorough analysis. However, there appears to be but a slight degree of direct relationship between the Ohio corn crop and the Cincinnati hog pack one year later, using data for the period 1850-1865.

<sup>79</sup> Speculators appear to have been more often wrong than right during the



tell exactly where the market would settle. Spot sales were frequently delayed until the two parties could find a price mutually acceptable.

The timing of receipts obviously affected the behavior of prices during the season. The size of the corn crop undoubtedly exerted some influence in this department. When corn was dear, the growers sold earlier than usual, though animals which came to market in January or February were observed to be better fattened and hence more valuable than those driven in during the earlier part of the season.<sup>80</sup> The prices of pork products also had an effect upon the situation. When bacon, lard, or mess pork was low, this was immediately reflected (and perhaps intensified) in the hog market, and farmers and drovers were discouraged from fattening hogs or prolonging the feeding period.<sup>81</sup> In other words, a number of years when the hog-corn ratio was low are characterized by a low opening price and rise during the season. This happened in 1837-1838, 1844-1845, 1846-1847, 1849-1850, and 1854-1855. Conversely, when the ratio was high, hog prices declined after packing had commenced, as in 1840-1841, 1845-1846, 1851-1852, 1855-1856, 1857-1858, and 1860-1861. In several of these latter years the crop was later and larger than usual.

One must not overlook the fact that the general price situation and outlook had more to do with the behavior of the market when speculators took the lead in buying and selling. The complexity of the seasonal behavior of hog prices has induced some leading observers to conclude that a single index of seasonal variation is of limited value.<sup>82</sup>

latter fifties. Prices for spot hogs opened in 1857 a full dollar below summer contract figures (CCC [1858], p. 17).

<sup>80</sup> WCA, Dec. 30, 1842.

<sup>81</sup> WCA, Nov. 27, 1850.

<sup>82</sup> For an admirable discussion see F. L. Thomsen, *op. cit.*, pp. 259-60, 343 ff. One leading authority finds that seasonality in hog prices is inseparably bound up with cyclical behavior and trend as well as the corn crop. This has led to the computation of four indices, each intended to apply to a given set of circumstances (R. M. Green and E. A. Stokdyk, *Judging Price Risks in Marketing Hogs* [1928], pp. 2, 17 ff.).

Haas and Ezekiel computed a year-round seasonal pattern for the period 1896-1915 which is generally similar to that in Chart XII. The rise between November and April in the more recent pattern is from 93 to 106 (G. C. Haas and Mordecai Ezekiel, *op. cit.*, p. 41).

## CHAPTER IX

### FERROUS PRODUCTS AND COAL; DEVELOPMENT OF MANUFACTURING

THE OHIO VALLEY region, though primarily agrarian before 1861, witnessed the birth and energetic development of manufactures in certain centers, particularly Pittsburgh and Cincinnati. The character of this movement was largely determined by the type of resources available. As late as 1836 the governor of Ohio stated that manufacturing in the state was practically limited to the two articles of salt and iron.<sup>1</sup> Twenty-five years later much further progress had been made in the production of these two items (and coal as well) and the industrial sphere had broadened to comprehend a respectable number of more highly fabricated goods. Textiles were not so prominent a feature as in New England and the Middle Atlantic States, which continued to enjoy a generally more progressive state of industrial arts. Nevertheless, the old Northwest — later to become a leading manufacturing area of the world — was already developing a diversified economy in which agriculture was blended with industry and commerce.

Taking the period between 1780 and 1861 as a whole, Pittsburgh assumed and retained leadership in western manufacturing by reason of its location at the head of navigation and its proximity to the first resources to be exploited. Cincinnati, however, became a major point for the fabrication and distribution of industrial materials and products. The location which made the city a concentration point for agricultural products also assured it an advantage in these other departments. The growth of local industry proceeded at an increasing rate throughout the period, in the last two decades of which the western market as a whole underwent a great expansion, regional resources of coal and iron were employed to a progressively greater extent, and the foundation was laid for a technique and for the training of a laboring popu-

<sup>1</sup> Ohio Executive Documents (1836), no. 1, p. 23; cited in Bogart, *Financial History of Ohio*, p. 36. The steamboat industry receives consideration in Chapter II, above.

lation—developments the effects of which are visible to the present day.

*Western Iron Prices and Trade, 1788-1815.* Practically no statistical data exist as to the actual quantity of metals or metallic products entering into western commerce during the pioneer period. The New Orleans receipts from the interior for the years 1810-1812 include comparatively large shipments of pig lead (presumably from the Missouri mines) and "a quantity" of shot, but imports of iron products from above were understandably small in view of the fact that the course of trade in these latter items was mainly in the other direction.<sup>2</sup> Some 1,200 iron bars and 95,000 pounds of castings were reported sent down in 1810, and a limited number of "hoops" and "hollow hoops" (possibly made of wood) were recorded in 1811. Contemporary observers and travelers in the interior paid almost no attention to metals; and in view of other known facts in the situation, it appears unreasonable to dispute the unanimous verdict of historians that the use of ferrous materials in the Ohio Valley was limited to such items as horseshoes, kettles, bolts and tires for wagons, knives and other tools, and nails for the more advanced types of construction. Iron was rare and highly prized.

The scarcity of metal is reflected in price data gleaned from account-books, newspapers, and travel accounts. In the first place, few iron quotations are to be had, and of these a majority apply to transactions on a small scale. Secondly, prices were extremely high in comparison with contemporaneous quotations at the seaboard and with local prices at later dates. The average of the median annual prices of iron was slightly under 12 cents a pound for the interval 1788-1817.<sup>3</sup> Third, a relatively wide spread existed among various markets, particularly between Pittsburgh, on the one hand, and Kentucky and Ohio points, on the other. Fourth, iron quotations were for the most part on a pound or hundredweight basis: only a few scattered Pittsburgh figures pertained to the ton.

It is not certain that these data relate to exactly the same

<sup>2</sup> *Moniteur de la Louisiane*, Jan. 19-Feb. 16, 1813. The 1810 figure for "plomb en saumon" was 2,280,402. Pig lead totaled 1,736,000 pounds in 1811 and 1,582,000 pounds in 1812. The figures for shot are fragmentary. Two barges of cannon balls (for the government) were itemized in 1812.

<sup>3</sup> Interpolated data are included in the summation and average.

article. In several instances only the word "iron" was employed; in others "bar iron" was the expression used; and the Pittsburgh figures for 1815 related to "Juniata bar iron." The employment of different monetary units is another factor rendering difficult the appraisal of the behavior of early iron prices from year to year. The Virginia shilling used in Kentucky as late as 1814 was commonly figured at six to the dollar. The Pennsylvania shilling employed in Cincinnati accounts at the same time was converted at the rate of seven and a half to the dollar. The dollar itself was largely limited to scattered Pittsburgh quotations beginning in 1801.

The curve for median iron prices in Chart XIII above (p. 157) shows a pronounced decline between 1788 and 1801, followed by a seesaw movement from the latter year to 1809 and moderate stability for the succeeding seven-year interval. The high points of 1788, 1789, and 1806 represent almost 17 cents a pound, the low point of 1801 less than 7 cents, and the plateau towards the end of the period is at a height of 9 or 10 cents. Perhaps a more accurate interpretation of the same materials is gained by disregarding Pittsburgh and Louisville figures for the time being, since there are reasons to believe that the data available for these two localities give results which are comparatively low and high, respectively. It is indeed unfortunate that paucity of information makes it impossible to state the relationship of prices in the various localities with no margin of error.

Iron grew progressively cheaper in Frankfort and Lexington between 1788 and 1813, and scattered Cincinnati quotations of the 1790's do not clash with this interpretation. Judge Harry Innes and Amos Farra (a Lexington wagonmaker) paid a shilling a pound in 1788 and 1789, whereas James Wilkinson rated iron at only 10 pence in 1790 and 1791.<sup>4</sup> There are insufficient data at hand to tell whether iron appreciated in the middle 1790's along with flour, salt, and other commodities.<sup>5</sup> At the beginning

<sup>4</sup> Innes Papers; Wilkinson Papers; Farra Account Book.

<sup>5</sup> Pig and bar iron rose substantially in Philadelphia after 1793. The former went from \$24 a ton at the end of 1793 to \$40 five years later and then declined to \$30 in 1802-1804. Bar iron rose from \$82.70 per ton to \$117.50 (November 1796) and subsided to \$100 in 1799. It rose again in 1800, but later figures pertain to "country" bar iron (a more expensive variety). (Cole, *Wholesale Commodity Prices*, II, 103 ff.)

of 1794, Smith and Findlay, storekeepers in Cincinnati, sold eighteen pounds to Jonis Simmons at 11 pence (Pennsylvania) a pound—ostensibly a retail transaction. Two sales by the same firm in 1798 were at the slightly higher rate of a Pennsylvania shilling a pound (sheet iron sold for two and a half times this price). Using dollar equivalents, the prices of 1791, 1794, and 1798 were 14, 12, and 13 1/3 cents, respectively. Central Kentucky iron prices continued to decline gradually. In Frankfort metal brought only 9 pence in 1799—an amount 25 per cent less than a decade previously. Farra's exchanges were at 8 pence in 1802 and 1805 and 7 1/2 pence in 1809, 1810, 1811, and 1813 (in the last-named year the price was given at the decimal equivalent—10 cents). It appears that iron fell very nearly 40 per cent between 1788 and 1813. In 1814, however, Farra's book listed iron at 9 pence—an advance of 20 per cent over the preceding year.

The Louisville Salt Works made three transactions in 1806 and 1808 at a shilling a pound—a figure somewhat higher than the Lexington prices given above for 1805 or 1809. However, prices of salt in the same account book are also above those ruling in other localities. Fitzhugh & Rose, Louisville merchants, entered 1,010 pounds of iron at \$12 per hundredweight in 1808—equivalent to about 8 1/2 pence.

The earliest Pittsburgh quotation (1801) was \$149.66 2/5 per ton at the works.<sup>6</sup> Though the lowest western price for the pioneer era which has come to light, this is some \$25 higher than contemporary figures in New York and Philadelphia. Cramer stated that "Barr iron of country manufacture" brought \$160 in 1803—higher than the Pittsburgh quotation for 1801 but almost 4 cents a pound less than the Lexington price at the end of 1802.<sup>7</sup> No strictly comparable prices are available for the Pennsylvania center until 1815, although R. & J. Patterson made several transactions in 1812 (each a little over 100 pounds) at a price shading 9 cents a pound. Furthermore, a somewhat larger purchase took place in 1813 at the Kanawha salt works in western Virginia at \$166.67 per ton.<sup>8</sup> Juniata bar iron was quoted in the first Pitts-

<sup>6</sup>Shane Papers.

<sup>7</sup>Zadok Cramer, *The Navigator* (1804 ed.), cited in G. H. Thurston, *Pittsburgh and Allegheny County* (1876), p. 55.

<sup>8</sup>The quantity involved was 10 cwt., 1 qr., 0 lbs. (Donnally & Steele Account-Book, May 26, 1813).

burgh *Mercury* prices-current at the beginning of 1815 at \$200 a ton. Unbranded bar sold as low as \$180 that spring, but Juniata advanced to \$210 in November of the same year.<sup>9</sup> Thus, the fragmentary Pittsburgh data indicate a rising scale of iron prices between 1801 and 1815. There is certainly nothing to show a decline such as apparently took place in Kentucky, but it is impossible to tell exactly how much of the appreciation in Pittsburgh accompanied the war. We do know that Juniata bar went as high as \$215 in March 1816, about 30 per cent more than the Kanawha price in May 1813.

The mixed trends in western iron prices before 1815 — with Pittsburgh rising after 1801 and Kentucky falling after 1788 — canceled each other to some extent in the composite series portrayed in Chart XIII. Moreover, the presence of such intra-regional movements may be responsible for the apparent failure of the margin between western and eastern iron prices to shrink in a consistent fashion. The differential, it will be recalled (Table 7, above), was smaller in 1801-1805 than in the two succeeding quinquennia. Inclusion of Pittsburgh ton quotations necessarily lowered this particular average.

Materials available on other types of iron are even more fragmentary than those applying to bar, but the indications are that the former were priced more or less in proportion. Castings were considerably cheaper, according to scattered Pittsburgh quotations. Ormsby & McLaughlin sold 599 pounds at 37s. 6d. (\$5.00) per hundredweight early in 1798. Five years later Cramer gave the price of castings ("country manufacture") at \$100 per ton, to be compared with \$160 for bar; and the *Mercury* listed castings at from \$120 to \$130 a ton in 1815. Thus, castings appear to have sold at a discount of about one-third off the bar price. Nails, on the other hand, were much more expensive. Smith & Findlay, for instance, paid 2s. 3d. (30 cents) a pound for these valuable articles in 1793, 1794 and 1796; and the price advanced to the equivalent of 38 cents in 1798. However, the fact that Isaac Jackson paid only 20 or 25 cents in 1814 suggests that the price of nails in Cincinnati fell during the first years of the nineteenth century. Prices at other points are difficult to summarize because of the variation between sizes (which were frequently not men-

<sup>9</sup> *Mercury*, Jan. 11, May 9, Oct. 14, Nov. 25, 1815.

tioned in the accounts). At Pittsburgh in 1801 nail rods sold for \$200 at the works, compared with \$150 for bar iron. Cramer listed cut nails at 18 cents a pound in 1803 — bar was slightly over 7 cents at the time. The Patterson firm accounted nails at 15 cents a pound in 1812, and the *Mercury* listed them at prices varying between 15 cents (10D) and 23 cents (3D) in the spring of 1815. Tenpenny nails, therefore, were worth about 75 per cent more than bar iron while those of smaller sizes were more valuable in proportion. The threepenny, as a matter of fact, sold for nearly three times as much as bar.

The War of 1812 stimulated the location and growth of industrial establishments in the West. In 1815 Daniel Drake reported many blacksmiths in Cincinnati as well as several naileries and arms makers, one plant which had turned out considerable numbers of cotton and woolen machines and cotton gins since 1809, four cotton-spinning enterprises and several wool carders, two ropewalks, six tan yards, a paint factory, a distillery and two breweries, besides the steam flour mill (in building), a steam sawmill, and a host of miscellaneous industrial enterprises. In addition, a sugar refinery was in the final stages of construction.<sup>10</sup>

*Cincinnati Manufacturing and Trade, 1816-1861.* Conditions immediately after the war continued favorable to this industrial growth, and the town boasted two iron foundries by the beginning of 1819, besides a nail-cutting machine and new glass and oil factories.<sup>11</sup> Several of these enterprises succumbed in the depression and price collapse which ensued, but the metal works appear to have weathered the storm satisfactorily in spite of the fact that English iron was underselling domestic.<sup>12</sup> Foundries and machine-shops continued to settle in Cincinnati during the twenties. Josiah Hawkins, a Londoner, opened the Eagle foundry

<sup>10</sup> Both power mills depended upon Oliver Evans engines. Operators found it advisable to abandon the condenser as troublesome and expensive; they preferred to pour a current of cold water on the waste steam and use the water to replenish the boilers (Drake, *op. cit.*, pp. 142-45).

<sup>11</sup> *Advertiser*, Feb. 23, 1819. See also James Flint, *Letters from America*, pp. 125-27.

<sup>12</sup> Pittsburgh manufacturers felt the depression of 1820-1822 most severely, and Lexington's ascendancy was definitely lost at that time. The liquidation in Cincinnati was principally confined to banking and town real estate. See *Pittsburgh Gazette*, Feb. 26, 1821.

in 1824 for casting machine parts up to 1,000 pounds, and the Aetna foundry was opened the following year.<sup>13</sup> In his enumeration of 1826 Benjamin Drake found that local establishments were producing to the extent of \$1,850,000 annually, to which five steam-engine and finishing plants contributed \$134,000 and four foundries contributed \$59,000. Dry goods was easily the leading import of the market, accounting for \$1,100,000 out of \$2,528,590, but receipts of metal products were by no means negligible. The latter included 1,450 tons of bar, sheet, and spike iron valued at \$181,250; 350 tons of castings worth \$21,000; 768 tons of pig iron totaling \$23,040; 7,000 kegs of nails valued at \$63,000; 550,000 pounds of lead and shot worth \$37,600, besides quantities of copper, tin plate, and coal.<sup>14</sup>

In 1831 the value of sugar mills and steam engines sent to Louisiana and into the steamboat trade, respectively, was fixed at more than \$300,000, whereas the total value of Cincinnati manufactures during the following year was \$1,000,000 "at the lowest calculation." This latter figure represented almost exactly one-fourth of the total exports of the market.<sup>15</sup> In 1835 Drake placed the local production at \$5,000,000, the leading items again being steam engines, cotton gins, sugar mills, and steamboats.<sup>16</sup> In the spring of 1837 it was figured that manufactures of iron alone accounted for \$2,000,000, or about 25 per cent of the exports of Cincinnati, and some two years later manufactures worth at least \$3,000,000 were exported, out of a total of \$9,016,000.<sup>17</sup>

<sup>13</sup> *Emporium*, Aug. 26, 1824; Oct. 20, 1825 (advertisements).

<sup>14</sup> Drake and Mansfield, *op. cit.*, pp. 64-66. Food-processing was counted as manufacturing.

<sup>15</sup> LH, Feb. 7, 1833.

<sup>16</sup> Over fifty-five steam engines were in successful operation in Cincinnati, Newport, and Covington, to be compared with fifteen noted by Drake in 1826. The 1835 production included more than a hundred steam engines, about two hundred forty cotton gins, upwards of twenty sugar mills, and twenty-two steamboats. (Hall, *Notes of the Western States*, p. 269.)

<sup>17</sup> In 1837 the exports of iron goods were exceeded only by those of pork products. The figures follow. Pork, \$3,000,000; flour, \$600,000; whisky, \$750,000; manufactures of iron, \$2,000,000; manufactures of other articles (chiefly hats, clothing, books, beer, furniture, ship carpentry, &c.), \$1,350,000; miscellaneous, \$400,000; and total, \$8,100,000. These were held to be conservative estimates. (*Cincinnati Advertiser and Ohio Phoenix*, Mar. 1, 1837; see also CCC (1855), p. 8.)

The 1839 total does not include the production of flour, pork, or whisky. Pork exportations were held to be \$4,136,000 — a figure inflated by high prices of the time. (*Chronicle*, Oct. 12, 1839.)



The boom of the latter thirties was still very much in evidence, and these dollar figures are accordingly somewhat inflated.

Cincinnati production expanded still more rapidly between 1841 and 1860, according to figures compiled by Charles Cist, the local census official. The total annual product-value in the former year, including local construction and building trades as well

TABLE 19  
ANNUAL VALUE OF THE PRODUCTS OF CINCINNATI INDUSTRIES (AFTER CHARLES CIST)  
(In thousands)

Products	1841	1851	1859
Manufactures of wood* .....	2,394	5,502	15,306
Manufactures of iron .....	1,563	6,740	15,160
Manufactures of other metals ....	436	1,076	2,239
Leather products .....	1,173	2,811	4,322
Products of hair, bristles .....	197	306	555
Textile products .....	474	1,327	1,244
Drugs, oils, chemicals, etc. ....	571	2,672	4,706
Glass, stone products .....	213	734	2,259
Paper and publishing .....	744	1,895	3,977
Food and tobacco .....	5,740	12,714	18,816
Alcoholic beverages .....	360	5,304	13,769
Building trades .....	886	3,528	5,271
Clothing .....	2,014	4,349	20,080
Fuel and lighting .....	454	4,709	7,314
Miscellaneous .....	176	897	1,469
<b>TOTAL .....</b>	<b>17,395</b>	<b>54,564</b>	<b>116,487</b>

Source: CCC (1859), pp. 8-9.

\* Includes steamboats and agricultural implements.

as the processing and packing of farm products, was reported at \$17,328,651, and 10,608 hands were then employed in 1,594 establishments. A decade later the product had tripled in value, the working force increased to 33,098, and the number of plants grown to 3,350.<sup>18</sup> Iron manufacture counted for a large share of this growth; for during the forties the number of plants increased from 109 to 205 and the labor force grew from 1,250 to 6,075. In 1855 it was reported that the increase in the export of manufactured articles exceeded that in any other branch of trade and amounted to at least 150 per cent over the preceding

<sup>18</sup> CCC (1855), p. 8.

four years. Exports of iron were said to have augmented fully 300 per cent; those of castings, 200 per cent.<sup>19</sup>

Detailed data for each type of establishment in the spring of 1859 are summarized in Table 19, together with comparable data from earlier estimates. In this table the products are classified slightly differently than was originally the case, but the underlying scheme of classification (by material) is retained.

The accuracy of these estimates has been cast in doubt, and no allowance has been made for changes in prices which took place in this interval or for the double-counting inherent in statistical data of this character. Nevertheless, the fact remains that the local industries of Cincinnati, considered as a whole, underwent decided growth during the generation preceding the Civil War.<sup>20</sup> Indeed, this center outstripped Pittsburgh in several departments,

<sup>19</sup> CCC (1855), pp. 26-27. In the single year 1847 the Cincinnati firm of Niles & Company erected sixty-eight sugar mills in Louisiana, other local establishments furnishing twenty mills. Niles estimated that thirty-two mills were built by manufacturers in Pittsburgh, New York, and New Orleans taken together. Applications were received by this concern for seventy installations in 1850. (U. S. Commissioner of Patents, *Annual Report* (1848), p. 783; LH, Sept. 13, 1849.)

<sup>20</sup> The Hamilton County returns in the 1860 census (year ended June 1), which Cist himself compiled, gave much smaller totals than the 1859 estimates (*cf.* J. L. Bishop, *A History of American Manufactures . . .* (1864), II, 796-97). The discrepancies may be explained in part by the fact that production and values both declined in 1860 compared to the preceding year. Then again, Cist included the Kentucky suburbs, Newport and Covington, in the 1859 figures.

The 1860 census returns for Hamilton County were:

Establishments	Number	Value of Annual Production
Boots and shoes .....	285	\$1,392,943
Clothing .....	222	6,381,190
Flour and meal .....	31	1,773,003
Furniture (excl. beds, chairs) .....	48	1,830,136
Liquors, distilled .....	9	818,600
Liquors, rectified & manufactured ....	48	2,837,809
Machinery, steam engines .....	39	2,081,300
Meats, cured .....	32	4,654,465
Lard oil, candles .....	18	3,176,021
Soap and candles .....	3	31,252
Iron, bar .....	1	200,000
founding .....	9	920,000
perforated .....	1	8,750
railing .....	4	168,785

notably furniture, oils, spirits, foods, and clothing.<sup>21</sup> Iron and iron products, it will be noted, expanded tenfold and reached a position coordinate with the food industries. In spite of this progress, however, the leadership of Pittsburgh in the metal trades was not seriously challenged.

*Statistics of Trade.* The expansion of local manufacturing is naturally reflected in the receipts and shipments of industrial products. Table 20 represents a comparison of average annual imports and exports of leading commodities.

According to these figures, the average annual consumption of all industrial raw materials except blooms showed a sizable increase between 1845 and 1860. Cincinnati was heavily dependent upon other production centers, particularly Pittsburgh, for articles such as glass, lead, and nails.<sup>22</sup> Pig iron and blooms also remained in the import column for the most part, but the same was not true of other forms of metal. Exports of castings in "pieces" and "tons" grew steadily in the fifties. A favorable balance of trade was also enjoyed in ferrous metals in "tons." As for miscellaneous products of iron and steel ("pieces"), the balance was overturned.<sup>23</sup> A continued growth in importance on the part of other manufactures is reflected by changes in classification in 1858 — articles like chairs and furniture were admitted to separate listing for the first time.<sup>24</sup>

*Destination of Exports.* Only a small portion of the ferrous metals exported were destined for New Orleans. Over the triennium ended in 1852 other southern ports absorbed slightly over

<sup>21</sup> Cist interpreted manufactures as works of the hand. Much more of Cincinnati's production was of a handicraft nature in 1840 than was the case in Pittsburgh. Lofts and rear shops in warerooms housed a great deal of the productive equipment. (*Op. cit.* (1859), pp. 58, 239.) In 1841 there were eighty-six clothing stores, employing 813 and producing to the extent of \$1,223,800, but nearly 4,000 females were employed to sew in their homes. In the state as a whole, domestic manufacturing was predominant in 1834 (see Governor's Message in *Ohio House Journal* [1834], p. 8; cited in Bogart, *op. cit.*, pp. 35-36).

<sup>22</sup> A good proportion of these articles was re-exported, although separate figures for each were not recorded until the year ended August 31, 1858. Up to that time all were lumped together in "sundry manufactures." The import of blooms reached a peak in 1857, then declined during the remainder of the fifties.

<sup>23</sup> The year 1855 marked the final transition of this item from a net import to a net export basis. After 1857 imports dropped much more sharply than exports.

<sup>24</sup> Comparable data on the coal trade are not available. *Cf. infra*, p. 278.

TABLE 20

VOLUME OF AVERAGE ANNUAL IMPORTS AND EXPORTS AT CINCINNATI BY CANAL, RIVER, AND RAILWAY FOR FIVE-YEAR INTERVALS, 1846-1860 (YEARS ENDED AUGUST 31). SELECTED PRODUCTS OF MINE AND FOREST, AND MANUFACTURED GOODS

COMMODITY	UNIT	IMPORTS (thousands)			UNIT	EXPORTS (thousands)		
		1846-50	1851-55	1856-60		1846-50*	1851-55	1856-60
Iron, pig	ton	16.7	27.5	33.2	ton	....	....	4.1¶
Blooms	ton	4.0	4.0	3.5	ton	....	....	....
Iron & Steel†	piece	178.2	319.9	512.1	piece	63.2	289.5	679.1
Iron & Steel†	bundle	36.9	64.5	123.0	bundle	17.5‡	52.5	102.8
Iron & Steel†	ton	1.3	9.0	6.5	ton	5.2	13.1	9.6
Castings	....	....	....	....	piece	54.4§	63.2	69.9
Castings	....	....	....	....	ton	2.4§	1.6	3.4
Nails	keg	57.4	89.7	114.7	keg	....	....	60.5¶
Hardware	box & cask	....	....	17.1¶	box & cask	....	....	7.1¶
Lead	pig	40.6	58.9	56.0	....	....	....	....
Lead, white	....	....	....	....	keg	40.3§	50.7	62.5
Shot	keg	0.9	2.0	2.0	....	....	....	....
Cement, plaster	bbbl.	....	....	22.0¶	bbbl.	....	....	4.8¶
Lime	bbbl.	44.5	69.6	74.9	bbbl.	....	....	5.5¶
Glass	box	24.0	40.5	43.0	box	....	....	13.2¶
Glassware	pkg.	17.6	35.5	37.9	pkg.	....	....	9.8¶
Crockeryware	crate	....	....	3.2¶	crate	....	....	1.4¶
Cooperage	piece	164.2	160.0	210.1	piece	45.0	102.4	124.4
Pitch	bbbl.	....	....	0.5¶	....	....	....	....
Rosin	bbbl.	6.9	15.4	9.6	....	....	....	....
Tar	bbbl.	....	....	4.2¶	....	....	....	....
Turpentine	bbbl.	....	....	6.2¶	....	....	....	....
Chairs	....	....	....	....	dozen	....	....	9.0¶
Furniture	....	....	....	....	pkg.	....	....	126.8¶
Sundry mfrs.	....	....	....	....	piece	44.9	195.9	{ 385.2¶
Sundry liquors	hhd. & pipe	3.6	3.0	2.2	bbbl.	7.9	39.2	{ 22.5¶

Sources: See Table 17, above (p. 222).

\* Figures for 1846 include shipments to southern ports only.

† Listed as "iron" until after 1855 (exports only).

‡ 1847-1850.

§ 1850.

¶ 1856-1857.

¶ 1858-1860.

one-half of the finished products ("pieces" and "bundles"), and northern interior markets took most of the remainder via canal or railway. As for raw material (iron in tons), practically three-quarters of the whole trade went by the latter routes. Corresponding data about a decade later show that western markets gained considerably at the expense of the southern trade. Over the three years ended in 1861 about 60 per cent of the finished iron goods was shipped out by canal or railway against only one-third by river to southern ports. In rails (iron and steel in tons) and pig iron the proportion sent north and west was maintained at slightly over 75 per cent. On the other hand, most of Cincinnati's furniture and "sundry manufactures" continued to be marketed along the Mississippi at the outbreak of the Civil War.<sup>25</sup>

*The Cincinnati Iron Market.* Although castings were included in the Cincinnati price lists of the year 1816, practically as soon as the latter were inaugurated in sizable form, bar iron was not mentioned until 1819. Quotations then appeared not only for Juniata iron but also for Russian, Swedish, and English bar.<sup>26</sup> No attempt was made to differentiate between various shapes and styles; and though the Russian quotation was nominal for a great part of time, sales of the other foreign varieties were reported at

<sup>25</sup> The percentages according to destination:

1849-1852	N. O.	O. D. R. P.	U. R. P.	C. & R.	Total
Iron, pieces .....	3.8	50.3	5.6	40.4	100.0
Iron, bundles .....	3.6	56.1	6.2	34.1	100.0
Iron, tons .....	0.8	15.6	8.5	75.1	100.0
1858-1861					
Iron & steel, pcs. ....	4.2	32.6	2.0	61.2	100.0
Iron & steel, bdls. ....	4.3	33.1	4.1	58.5	100.0
Iron & steel, tons .....	4.6	10.8	6.9	77.8	100.0
Pig iron, tons .....	1.1	14.3	9.3	75.2	100.0
Furniture, pkgs. ....	24.8	56.6	3.4	15.1	100.0
Sundry mfrs., pcs. ....	20.9	40.0	4.9	34.2	100.0

Source: CCC (1852), p. 13; (1861), p. 50.

<sup>26</sup> "Juniata bar iron was made in the Juniata region in central Pennsylvania and was brought to Pittsburgh in the first two decades of the century chiefly in the form of finished bar and thereafter in the forms of large slabs of wrought iron called blooms which were reduced to bar iron in the Pittsburgh mills" (Louis C. Hunter, "A Study of the Iron Industry at Pittsburgh before 1860", [Harvard Doctoral Dissertation, 1928], p. 384).

rather inflexible prices. English metal was usually priced at \$175 to \$210 per ton, Juniata from \$220 to \$230, while Russian and Swedish were valued at \$240 from July, 1819, until June of the following year and \$220 in succeeding months. The price advantage enjoyed by English metal over domestic is notable in view of comparative distances from points of production, customs duties, and the inflation of Cincinnati currency.

After the depression of 1821-1822, during which Cincinnati newspapers omitted quotations, few market reporters paid specific attention to foreign iron. The market in domestic broadened out sufficiently to warrant separate listing of different domestic types. To be sure, sporadic prices on English sheet were available in the late twenties and the thirties, and Russia sheet was a steady if nominal fixture in the prices-current of the latter forties and the fifties, but domestic iron—the Juniata brand in particular—played a dominating rôle.<sup>27</sup>

It was in 1823 that puddled bar iron, rolled or hoop iron, and nail rods were first given separate listing on the Cincinnati market. The first-named was a cheaper form of metal. Hoop and rods, on the other hand, each tended to preserve a fairly high premium over Juniata bar. Other varieties, such as boiler and sheet iron, were added to the lists from time to time after 1828; in general, they were even more expensive. In that very year the *Gazette* inaugurated publication of prices for pig and thirteen other varieties of iron. The list was suspended a few years later.<sup>28</sup> Juniata hammered iron continued to be a main item of trade. During the latter half of the thirties only three kinds of iron were quoted: bloomed, hammered, and hoop bar, the first two of which were

<sup>27</sup> Until 1834 the favorite brand was Juniata; bar iron seldom carried a geographic notation thereafter.

<sup>28</sup> The list is furnished for purposes of comparison:

Pig (brisk), ton .....	\$30.00	Bar, Amer. puddled ..	\$90.00-\$100.00
Juniata, hammered .....	\$130.00	Boiler, Juniata ...	\$165.00-\$175.00
Bloom .....	\$130.00-\$135.00	puddled ...	\$150.00-\$155.00
Ky. hammered .....	\$125.00-\$130.00	Firebed iron, Jun. ..	\$180.00-\$190.00
Sheet, Eng. cwt. ....	\$6.50-\$8.00	puddled .....	\$160.00
Hoop, American .....	\$6.00-\$6.75	Nail rods, Jun., fag. ....	\$3.75
English .....	\$6.65-\$7.00	puddled .....	\$3.00-\$3.25

generally equal in price, while hoop cost about 50 per cent more. In 1829 the higher-priced articles began to be quoted per pound again, and after 1834 all varieties of iron except pig and blooms were traded according to that unit of weight.

A stringency in the credit situation is reflected in the iron quotations of 1841-1843. At that time, possibly because of the depression of trade and manufacture, figures were quoted on bar iron alone ("All other sizes at proportionate prices.")<sup>29</sup> Between December 1840 and May 1842 the cash price was uniformly one-half cent (about 10 per cent) below the credit. In the latter month the "time" price was advanced one cent. This is one of the few instances during this period where terms of payment entered specifically into Cincinnati price quotations.<sup>30</sup>

Once the depression was over, demand on the part of growing foundries, forges, and machine shops assured a more steady market for several grades and types of iron. Juniata boiler attained listing at the beginning of 1844, and both pig and boiled-and-puddled bar were added later in the year.<sup>31</sup> Two years later American and Russia sheet were quoted regularly for the first time, and in 1853 the *Price Current* placed Tennessee blooms and three varieties of pig iron on the list. No further changes were made up to 1859, although no price was named for Russia sheet after 1853.

The Chamber of Commerce and *Gazette* used terminology in their surveys of the fifties considerably at variance with that employed by the *Price Current*. All sources quoted two forms of so-called bar, one of which was generally about 50 per cent higher than the other, but the *Price Current* termed the former "bloom bar" and the latter "puddled and boiled do." whereas other sources favored "charcoal" and "common" as marks of identification.<sup>32</sup> The agreement of simultaneous quotations makes it almost a

<sup>29</sup> CDG, Dec. 19, 1840-Dec. 15, 1843.

<sup>30</sup> Similar arrangements prevailed in the nail market. Further, the price of bloom bar between 1846 and 1859 was specified "cash," although no credit quotations were furnished. In December 1860 pig was sold for \$20 cash and \$23-\$24 at six months.

<sup>31</sup> A limited number of pig prices are available for 1843 and earlier years, but a continuous series does not commence until September 1844.

<sup>32</sup> The *Gazette* quoted "Cincinnati boiled iron" upon a few occasions, and the Chamber of Commerce used "merchant bar" in its annual report for 1857-1858.

certainty that common or merchant bar was puddled and boiled, while bloom bar was smelted with charcoal.<sup>33</sup>

Cincinnati was dependent upon western Pennsylvania for its iron during much of the period under survey, especially after improvements in domestic production and transportation, coupled with generally higher customs duties, rendered the foreign metal a less important factor. The situation was considerably changed after 1835 as a result of the tapping of iron deposits at the southern tip of Ohio and the development of ores in Tennessee. Cincinnati became a natural market for "Ohio River" pig iron, whether hot- or cold-blast.<sup>34</sup> Its rolling mills and foundries also attracted both blooms and cold-blast pig iron from the southern state.<sup>35</sup>

<sup>33</sup> This is corroborated by an illuminating discussion in Hunter's study of the early Pennsylvania iron industry. The higher-priced charcoal iron, which was wrought in a forge and generally shipped in the form of a bloom, was neither red-short nor cold-short and hence far better suited to the needs of agriculture than either puddled or boiled metal. The price-differential noted above was an important factor in the delay of the introduction and use of the coke process of smelting. "Oliphant in Fayette County appears to have successfully utilized coke in the blast furnace but discontinued the manufacture of coke pig iron because 'charcoal iron was more valuable.'" Rail mills furnished the first significant demand in the West for coke pig iron. (Hunter, "A Study," pp. 72, 113, 120.)

<sup>34</sup> Pig iron was an important article of river and canal trade on certain occasions long before it became a fixture in Cincinnati prices-current. The first Ohio River furnace was built as early as 1826; ten years later the product of Ohio works was placed by Hildreth at \$650,000; and in early 1838 the Ohio River district boasted twenty-five furnaces (ten in Kentucky) with an average annual output of 1,000 tons of pig metal and castings. The mean price at the works was \$40 per ton at that time, making the total product worth \$1,000,000. "The produce of our iron works is sold principally at Cincinnati, for the supply of the States of Indiana and Illinois. A large portion of the pig metal is sent to Pittsburgh, Steubenville, Wheeling, and Louisville, where it is manufactured into machinery for steam engines, &c. &c." (William D. Gallagher, "Ohio in 1838," *Hesperian*, I, 183-84 [July, 1838].)

Other accounts of the early Ohio iron industry, especially the important branch at Hanging Rock, are given in the *Cincinnati Price Current* (June 13, 1849) and in the Ohio Geological Survey (1884), IV, 438-554. The latter was written by W. W. Lord. See also Frank H. Rowe, *History of the Iron and Steel Industry in Scioto County, Ohio* (1938), pp. 6, 7, 23, *et passim*.

<sup>35</sup> Indiana blooms were quoted infrequently. For some years Tennessee pig bore a discount, since very little cold-blast iron was then used for castings. Rather, it found its market in rolling-mills where it was made into malleable iron. Ohio



*Monthly Cincinnati Iron Prices, 1816-1861.* According to Chart XXIV, opposite, the leading feature of iron prices in Cincinnati after 1815 was their downward trend.<sup>36</sup> The movement was not only broad in scope, covering all forms of ferrous materials for which lengthy series are available, but it was also far-reaching in extent and so steady that it was seriously interrupted upon only two occasions (1836 and 1852).<sup>37</sup> Bar iron itself averaged between 8 and 10 cents a pound during 1819 and 1820; at the end of the period it fetched less than 2½ cents for the common grade. Sheet iron approximated 11 cents a pound between 1828 and 1833; it was down to almost 4 in the early part of 1852 and remained substantially below 6 cents between 1855 and 1859. Cut nails in assorted sizes averaged 16 cents early in 1819 (before the inflation reached its height) and declined at such a rate, particularly after 1840, that the tenpenny size sold for slightly more than 2½ cents a pound during the greater part of the year 1861. The story is not greatly different in the case of steel. Furthermore, the quoted prices underestimate the fall in values because of improvements in quality which took place during the interval.

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River cold-blast, however, commanded an average premium of \$3 to \$4 per ton over the hot-blast because the former was preferred for the casting of car wheels. The employment of charcoal in the smelting process was given as the principal reason for its superiority. Prices in 1856 were: pig metal, Ohio River cold-blast, \$36-\$38 per ton; Ohio River hot-blast, \$34-\$35; Tennessee cold-blast, \$28-\$30; Tennessee blooms, \$65-\$70.

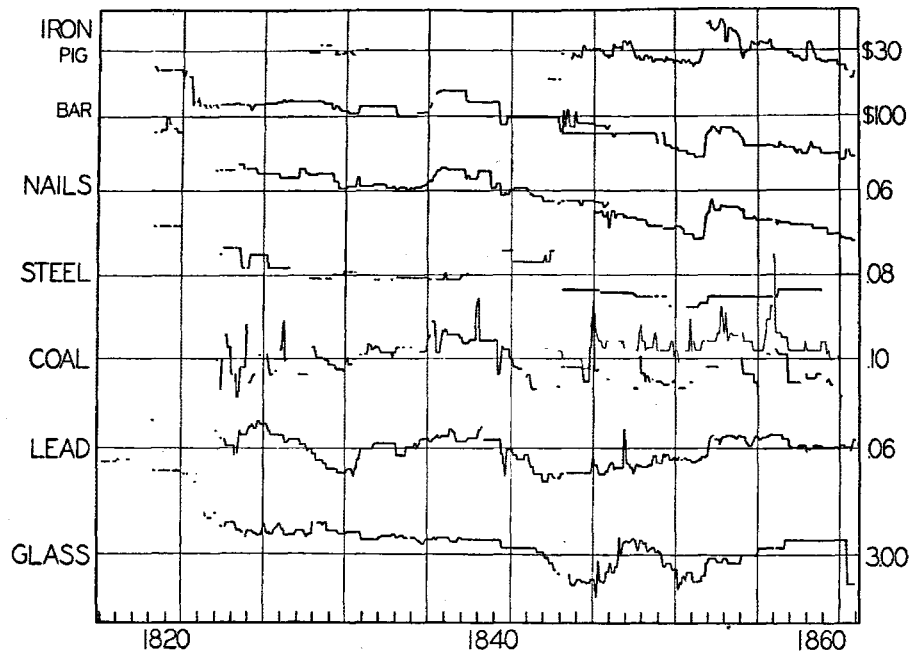
In 1857 all three types were practically equal in price, and at the end of the year the Ohio River hot-blast fell below Tennessee; this new relationship was maintained through 1860, although the two products were frequently at parity with each other (CCC (1856), 19-20; CPC, Aug. 13, 1856).

<sup>36</sup> The price data for lead and window glass are given in Appendix B, Tables 33 and 34. Practically all other data plotted in Chart XXIV (some in slightly different form) are in the supplement to A. H. Cole's *Wholesale Commodity Prices in the United States, 1700-1861*.

More exact specifications follow: pig iron—Ohio River hot-blast (1843-1861); bar iron—Juniata, etc. (1819-1834); bloomed (1835-1846); puddled and boiled, or common (1843-1861); cut nails—assorted, or fourpenny to tenpenny (1819-1846); tenpenny (1846-1861); coal—river (1823-1861); Youghiogheny at the yard (1843-1861).

<sup>37</sup> It is regrettable that a comparison is not possible between foreign and domestic iron prices. The supposition is that the latter, though higher in 1819, were considerably lower by 1860. The upturns of 1836 and 1852 were comparatively short-lived in nature and wrought no essential change in the downward trends.

MONTHLY MEAN WHOLESALE PRICES OF LEADING INDUSTRIAL COMMODITIES IN CINCINNATI, 1816-1861  
 (Vertical logarithmic scale at different levels)



For lead and glass prices, see Tables 33-34, Appendix B. For 1861 prices, see Table 56, Appendix B. For other data, see Cole, *Wholesale Commodity Prices*, II, 174 ff.

Cincinnati prices of pig iron, according to the incomplete data at our disposal, fell to a low level in years of depression such as 1843 and 1861 but underwent no long-range decline comparable in magnitude with those already discussed. Benjamin Drake figured pig metal at \$30 a ton in 1826, and between 1828 and 1833 newspapers' quotations averaged about the same figure. In 1843 it sold as low as \$19, but the price suddenly recovered to \$29 at the beginning of the following year. It can be seen in Chart XXIV that pig prices fluctuated around \$30 until the end of the fifties, but in 1861 they were at extreme low once more — Ohio River hot blast averaged \$19 in the autumn of that year. There is reason to believe that over the long run the raw material gradually appreciated in relation to more highly fabricated forms. Thus, through the years 1828–1833 the price of puddled iron averaged slightly more than three times pig, but during the latter half of the fifties the ratio was nearer two to one. Similarly, the comparative value of bloomed bar fell from over four to one to considerably less than two to one. The narrowing of these spreads is not unlike that already observed in connection with wheat and flour, corn and whisky, and flaxseed and linseed oil.<sup>38</sup>

A closer examination of the bar iron curve in Chart XXIV reveals that the market for "Juniata iron" held firm until the end of 1820 at a price of \$220–\$230 per ton, though newspaper reports for the latter half of that year are more inflexible than figures taken from the books of Pierce & Brightwell, a local mercantile firm.<sup>39</sup> The manuscript source shows a slight decline in December, followed by a partial recovery in January of 1821

<sup>38</sup> The failure of pig iron and blooms to decline to a great extent between 1839 and 1860 and the marked downward movement of finished Juniata bar iron have already been noted by a student of Pennsylvania prices. Reasons given are: (1) unchanging conditions in rural furnaces of that state; (2) improvement in transportation facilities between the Juniata district and Pittsburgh; (3) establishment of improved rolling-mills in that city (Louis C. Hunter, "A Study of the Iron Industry," p. 77). The relative stability of pig prices was noted in 1849. It was explained that supply was seldom more or less than demand and that the article was not speculative in character. At that time twenty-two hot-blast and eleven cold-blast furnaces in Kentucky and Ohio were producing some 56,000 tons, of which Cincinnati foundries usually consumed 22,000 (CPC, June 13, 1849).

<sup>39</sup> Pierce & Brightwell reported sales at 10 and 12½ cents a pound and at \$200 a ton in June 1820. However, sales were at 12½ cents in October and November.

(newspapers gave no prices). The market settled at 10 cents a pound during the second quarter of the latter year, then suddenly collapsed. Iron failed to rise above 7 cents during the latter half of the year 1821 or above 6¼ cents during the entire year 1822.<sup>40</sup> The latter price was also current in 1823, according to the account book, and newspaper reports, which were resumed in January, 1823, adhered rather closely to \$125 a ton until the end of 1826.<sup>41</sup> Thus, the price readjustment — very nearly 50 per cent — was accomplished for the most part in July 1821.

The decline in Pittsburgh prices of bar iron between 1819 and 1822 was timed quite differently (a similar difference is noted below in connection with sugar and coffee prices). Juniata bar was comparatively stable in Pittsburgh between 1816 and 1819 at prices varying between \$205 and \$210 a ton. As the latter year approached a close, however, the market dropped rapidly, reaching \$105 in August 1820 and touching bottom in November 1821. An encouraging recovery was reported in June 1822, where the record ends. The low for 1821-1822 (\$90-\$95) signifies a decline of over 55 per cent from the level of early 1819, and a corresponding decrease is indicated in all other forms of iron, with one exception (English boiler iron).<sup>42</sup> Nevertheless, the abrupt decline in the Pittsburgh market occurred almost a year before Cincinnati. Louisville, on the other hand, was quoting iron at \$270 as late as October 1822 — a price five dollars more than that current in the summer and autumn of 1818. The quotation went to \$240 in November and \$140 in December 1822. These market differences receive more attention below in the consideration of western currencies.

<sup>40</sup> Figures taken from the accounts of Pierce & Brightwell apply to nondescript iron, although "Juniata" is specified in December 1822. They are as follows (in cents per pound):

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
1820	..	..	..	..	..	10-12½	..	..	..	12½	12½	10
1821	..	..	..	10	10	..	6¼	6¼-7	..	6¼-7	7	6¼
1822	..	..	6¼	6¼	6	..	6¼	6	..	6¼	..	6¼
1823	..	..	..	6¼	..	6¼	6¼	6¼	..	..	..	..

<sup>41</sup> Later in 1823 newspapers began to list puddled iron at only \$90 per ton.

<sup>42</sup> Monongahela iron fell from \$180 to \$90-\$95. Juniata boiler dropped from \$350 to \$157-\$180, and Juniata rolled iron declined roughly in proportion; but English boiler opened at \$350 and closed at \$325 per ton.

To return to Cincinnati: Juniata bar retained its new and lower level until 1829, appreciating only slightly in value. This was more than offset by declines in 1830 and at the beginning of 1834. Then, too, the first pound quotations of 1835 were somewhat below the lapsing ton prices.<sup>43</sup> A sudden turn came in December of the latter year as continued demand seriously depleted stocks which — according to market accounts — could not be replenished from Pittsburgh on account of the closing of the river.<sup>44</sup> Iron continued to advance during 1836, reaching 7 cents a pound in October.<sup>45</sup> The total rise during nine months was over 60 per cent — not greatly different from agricultural products — but it is to be noted that the movement of iron prices was delayed almost a year and also that, once it was under way, it proceeded rapidly and uninterruptedly.<sup>46</sup> For some months no price was given in the newspapers for bloomed bar — the article was simply “scarce” in the face of an apparently insatiable western demand.

Cincinnati iron failed to change in price during 1837 despite the collapse of the produce market. In the spring of the year

<sup>43</sup> Ton prices ceased at \$100, and pound prices were resumed at 4-4½ cents. On a long-ton basis, this represents an average drop of ¼ cent per pound.

<sup>44</sup> Note, however, that Pittsburgh iron prices also rose ½ cent a pound. It was reasoned that wages of day laborers in Pittsburgh had been raised on account of the high cost of provisions (CDG, Dec. 10-21, 1835).

<sup>45</sup> Pittsburgh prices of iron and nails continued “high and firm” at the end of June with immediate sale on all offerings, although money was a little scarce and banks were discounting only half the good paper presented (CDG, June 30, 1836).

Other instances indicate that the western price of iron was more or less set in Pittsburgh. A rise of \$10 a ton in that market compelled an advance in Cincinnati of the same proportion in 1831 (*Niles*, XL, 405 [August 6, 1831], citing the *Cincinnati Gazette*).

The condition of the Conemaugh River frequently affected the price of Juniata iron in Pittsburgh. In late 1826, for instance, a reduction to \$112 or \$115 was anticipated with a rise of water; large quantities at the works were ready for shipment (*Statesman and Pittsburgh Public Advertiser*, May 27, 1826).

<sup>46</sup> At the end of 1836 it was remarked that “the iron industry, in all its branches, is firm at present prices, — and so must continue while the demand for the article is so great as it has been for the last two years; Pig Iron and Bloom now bring higher prices than they have at any former period in the last two years.” The demand came to Cincinnati from the West; stocks were low everywhere. Agricultural prices were also high at that time, but they had just recovered from a serious decline in mid-1836. (CDG, May 31, Dec. 22, 1836.)

iron and nails were in brisk demand and stocks of the former were rather light.<sup>47</sup> On the other hand, country produce of all kinds was "very dull" or "still very much depressed." As the year wore to a close, both iron and nails continued to sell at "former prices" with demand fair and the market well-equipped.<sup>48</sup> However, hoop iron finally tumbled 20 per cent at the beginning of 1838, and bloom bar and nails followed a few months later. Quotations were then maintained for two years, a significant decline not taking place until March 1840. By that time bar iron was down to 4 cents a pound, slightly less than it had been quoted in 1835 and more than 40 per cent below the level of 1837.

The behavior of the iron market between 1840 and 1845 was most unusual in view of the condition of general trade, banking, and prices. The *cash* price of bar increased  $\frac{1}{2}$  cent towards the end of 1840 and held the same figure through three years of severe deflation. In the meantime the *time* price rose from 5 to 6 cents a pound. Furthermore, iron wobbled and lost ground in 1844 and 1845 while recovery was taking place in other important lines. Prices in Pittsburgh, which ordinarily governed the price of western iron to a great extent, behaved in a similar manner.<sup>49</sup> Either these quotations were nominal or else the iron markets were under some measure of control. Pig iron prices also behaved peculiarly. Though quotations rested at \$18-\$20 a ton during most of the year 1843 — a value matched only in 1861 — they suddenly jumped to \$29 early in 1844 and remained firm thereafter. A Cincinnati observer who expected the new rates to be "permanent for the present" cited the *Pittsburgh Gazette* to the effect that all local mills put out cards with advanced prices on the same day (one establishment had done so shortly before).<sup>50</sup> The resistance of bar iron prices to change in 1844-1845 also suggests that a certain amount of administration was effective in the market.

All iron prices — pig, bar, and sheet — settled between 1845 and 1852, rose sharply at the end of the latter year, then resumed

<sup>47</sup> Yet it was noted by a mechanic that 1,500 were walking the streets (CDG, Mar. 29, Apr. 5, May 31, 1837).

<sup>48</sup> CDG, Oct. 18, Nov. 15, 1837.

<sup>49</sup> Hunter, "A Study of the Iron Industry," pp. 387-88.

<sup>50</sup> "The advance was rendered absolutely necessary by the appreciation of raw

a downward movement which lasted through to the end of the period. By 1860 they had returned to the lows of early 1852; Ohio River hot-blast pig approached \$25 at both conjectures; common bar was sold at 2½ cents a pound; and bloom bar fetched a cent more in a cash transaction.<sup>51</sup> And the scattered data on Tennessee blooms suggest that it conformed to the same pattern.<sup>52</sup>

Pig iron appears to have enjoyed a wider and freer market than the more highly fabricated products after 1845; it is represented by the most active series from all points of view.<sup>53</sup> Not only were the frequency and amplitude of monthly variations altogether of a higher degree, but the range from year to year was of considerably greater dimension. Furthermore, pig prices moved several months in advance of other iron quotations. Thus, in 1852 pig iron turned upward in July, puddled-and-boiled (or common) bar in September, bloomed (or charcoal) bar in October, and sheet in January (1853). Pig practically doubled in price within six months, common bar increased slightly over 50 per cent, charcoal bar rose somewhat less than this amount, and sheet iron appreciated only about 25 per cent in the same length of time. Western manufacturers of pig realized large profits and built several new furnaces. The order and the extent of decline in 1854 and early 1855 were similar in general character. It brought numerous and heavy failures in 1854 and 1855.<sup>54</sup>

*Regulation of Pig Prices.* Steps were taken by the Ohio River furnace men to avoid the evil consequences of a falling market like that encountered between 1845 and 1852, not to mention the collapse engulfing them in early 1855. Ample precedent was available in the salt industry's attempts to stabilize selling prices since early in the century. The proprietors of iron furnaces along the

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materials, coal, price of labor, &c." Note that pig prices remained high in 1844-1845, but quotations on bar relapsed (WCA, Feb. 9-23, 1844).

<sup>51</sup> American sheet iron, however, declined to 3¾-4¾ cents in 1852 but maintained a price of 5¼-6 throughout the years 1855-1859. No data are available for 1860.

<sup>52</sup> As might be expected, Tennessee blooms and bloom bar maintained a fairly constant relation to each other in price.

<sup>53</sup> Hence, the pig series was chosen to bear the highest weight of all the iron series for the period 1846-1861.

<sup>54</sup> To the Cincinnati reporter the iron speculation of 1853 was centered in England, where the reaction of 1854 was generated. (*Cf.* CCC [1855], p. 19.)

Ohio came to an understanding as to production in the fall of 1855 — a time when the Cincinnati price had already recovered to some extent from the low point of the past spring.<sup>55</sup> "Arrangement" of production to meet demand was carried out so well during 1856 that an "unusual uniformity" in the price of Ohio hot-blast was reported in Cincinnati; few forced sales were made, and the market was "remarkably steady," although Tennessee cold-blast sold at comparatively irregular quotations.<sup>56</sup> The trade was maintained in a "healthy state" until the autumn of 1857, but a sizable reduction was sustained at the beginning of that year. Stocks were supposedly prevented from accumulating, and new arrangements were consummated with western railways whereby iron was shipped more efficiently through to Indiana and Illinois.<sup>57</sup> Nevertheless, the local iron trade and manufacturing industry were helpless in the panic which ensued. In the year ended August 31, 1858, the fabrication of machinery fell off at least 30 per cent, and shops and foundries went on half-time.<sup>58</sup> Even at that, inventories began to pile up at the same time that collections in the West were totally suspended. In spite of this distress, prices were supported for some time. Late in 1858 Ohio hot-blast pig fell to around \$25 — a figure almost \$10 lower than the "stable" price two years before.

"Improvement" after the panic of 1857 was much slower in the iron trade than in other departments. Agricultural prices rebounded sharply during 1858, and the movement was proceeding at an increasing rate at the end of the year. Perhaps this suggested to Ohio River furnace men the legitimacy — indeed, necessity — of advancing pig prices. Ohio hot-blast was boosted from \$26 to \$30 in January, \$35 in February, and \$36 in April 1859. Bars and blooms responded to a smaller degree.<sup>59</sup> The manipulation

<sup>55</sup> CCC (1856), pp. 19-20.

<sup>56</sup> CCC (1856), pp. 19-20.

<sup>57</sup> CCC (1857), p. 24.

<sup>58</sup> Local exports of iron and steel "pieces," which had steadily expanded from 43,025 in 1849 to 944,538 in 1857, dropped to 486,789 the following year. Only a slight portion of the lost ground was regained by 1860. Imports of pig iron reached their peak in 1856 (41,976 tons), fell almost one-third the following year, and slid to 23,153 tons in 1858. However, recovery was both rapid and substantial. (For sources, see Table 17, p. 222; see also CCC [1858], p. 19.)

<sup>59</sup> CCC (1859), pp. 21-22.



was short-lived in its success—the market turned sharply in May and declined to the *status quo ante* by July.<sup>60</sup> Local manufacturers naturally adopted a cautious buying policy during the succeeding year, but the furnace men held their ground until the very end of 1860 by regulating shipments of metal down to Cincinnati.<sup>61</sup> In December of that year conditions in both trade and credit evidently took another turn for the worse, for the pig price fell abruptly from \$25–\$26 to \$20 (cash) and \$23–\$24 (six months). Prices continued to fall in 1861.

*Annual Prices and Receipts, 1845–1861.* It is rather difficult to ascertain clear relationships between iron prices and production in the West before the Civil War. So far as long-range movement is concerned, attention has already been called to the obvious fact that the production of iron pursued an upward trend, whereas prices (except possibly of pig iron) declined from decade to decade. In year-to-year variations, however, no such clearly inverse relationship is evident. The curves in Chart XXV show annual variations in the receipts of leading manufactured goods, together with certain commodities brought to the Cincinnati market from beyond the confines of the Ohio Valley. It will be noted that the data are limited to the years 1845–1861. One may infer that the aforementioned administration of prices and production tended to dull the effect of supply upon price at certain times when it was effective; as a matter of fact, if the receipts of “iron and steel, tons” are matched with the prices of pig iron (using the method employed in Chapter VII and described in Appendix A), a positive relationship appears to have existed. That both series rose in 1852–1853 and declined in 1854–1855 doubtless was a factor in bringing this statistical result; and although the coefficient of correlation is not sufficiently high to warrant a great deal of confidence, it suggests that variations in the demand for iron from year to year constituted a leading determinant of its current price. In the case of nails, on the other hand, the situa-

<sup>60</sup> At first Tennessee pig failed to react to the change in the situation. It rose in March from \$27 to \$30, bounded to \$52 in April, and settled back to \$30 in the following month (*Cincinnati Price Current*).

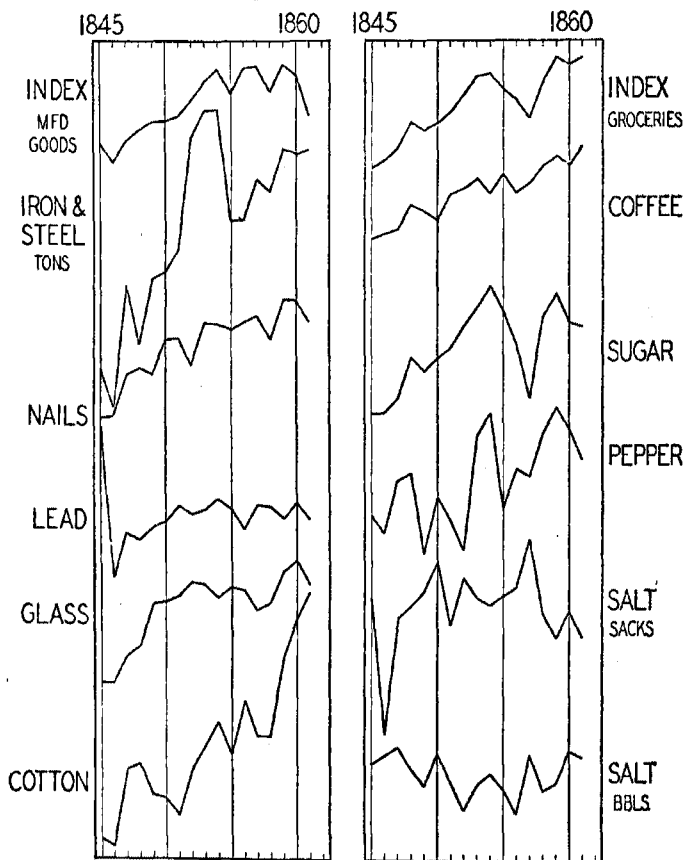
According to the annual report of the Chamber of Commerce, Ohio hot-blast pig was down to \$26 in July, rather than \$28–\$30 as reported in the *Price Current*.

<sup>61</sup> CCC (1860), p. 26.

CHART XXV

WEIGHTED ANNUAL INDICES OF IMPORTS OF MANUFACTURED GOODS AND "GROCERIES"  
 AT CINCINNATI, TOGETHER WITH RELATIVES REPRESENTING IRON AND STEEL (IN TONS),  
 NAILS, LEAD, GLASS, FOREIGN SALT (SACKS), DOMESTIC SALT (BARRELS), COFFEE,  
 SUGAR, PEPPER, AND COTTON, 1845-1861

(Vertical logarithmic scale at different levels)



For data, see Table 44, Appendix B.

tion was more similar to that of flour, pork, lard, and other commodities to be noticed below—prices varied inversely with receipts in a comparatively consistent manner.<sup>62</sup>

*The Nail Market.* This branch of commerce was so closely linked to other iron products that reference was frequently made to "the iron and nail market." Cut nails in different sizes furnished the staple line, although wrought nails were quoted more or less regularly in Cincinnati between 1819 and 1835. The prices of cut nails and bar iron were, accordingly, generally similar in behavior. Between 1817 and 1822 the Pittsburgh nail market followed iron rather closely, with a lag of two or three months.<sup>63</sup> As for Cincinnati at that time, cut nails rose 25 per cent during the winter of 1819–1820 but settled during the following year to the original 1819 quotations. A wide gap opened between the Cincinnati and Pittsburgh markets during 1820 owing to the comparatively early decline in the latter.

Over the years 1823–1831 the Cincinnati nail trade was split among several brands, of which the most important were Juniata, Boston, and Pittsburgh common.<sup>64</sup> All quotations were for "assorted sizes," which at that time signified a mixture ranging from fourpenny to tenpenny. The Boston product generally carried a premium of about one cent a pound over the Juniata, while Pittsburgh common sold at a discount of the same amount. However, this last brand displayed considerable individuality in its behavior. All cut nails were drifting downward in price: Boston ruled at 9 cents (average) in 1825 and at 7 in 1831; Juniata at 8½ in 1823 and 6½ in 1831; and Pittsburgh common fell from 7 to 5¾ over the same interval.<sup>65</sup> However, the last-named was down to 4½ in 1826 after a sudden decline of over 30 per cent. It recovered to a new high at the beginning of 1828 at the same time that other nails were rising in price. All three brands maintained

<sup>62</sup>The coefficient of correlation for pig iron prices and receipts of iron and steel in tons is +.47. In nine cases out of sixteen, however, relative prices and receipts moved in opposite directions compared with the preceding year. The coefficient for nails is -.53. Prices and receipts, related to general prices and receipts as above, varied inversely compared with the preceding year except in 1852, 1853, 1854, and 1860.

<sup>63</sup>No recovery in Pittsburgh cut nails was evident in the middle of 1822.

<sup>64</sup>Others were Zanesville, Philadelphia, and Bowen's (probably local).

<sup>65</sup>In Cincinnati nails sold at 16 cents (average) in the last quarter of 1820.

high levels during 1828 and 1829 but fell sharply in the spring of 1830.

In 1832 the brands were replaced in price lists by sizes ranging from threepenny to tenpenny or twentypenny. For two years or so the market remained decidedly firm and even rose a trifle; and in 1836 nails joined iron in a 60 per cent advance. Thereafter, the former commodity increased in relative activity; it fell along with iron in the spring of 1838 and recovered most of the lost ground at the commencement of the following year. Then nails continued through another cycle (low in 1840, high in 1841), and — in contrast to bar iron — the market fell noticeably in 1842 and settled still further in the following year.

Nails held to a fairly level course until towards the end of 1846 before starting upon another downward drift that culminated some six years later. The behavior of the market from 1852 until 1861 was similar to that of other series representing ferrous metals, the decline after 1854 being both steady and well-defined. The price of the tenpenny variety in late 1861 (\$2.50-\$2.65) averaged about the same as in 1852 (\$2.50-\$2.75).<sup>66</sup>

*Wrought Nails.* The progressive cheapening of cut nails in the western market, which was carried to greater lengths than was the case with other ferrous materials, did not apply to wrought nails.<sup>67</sup> Between 1819 and 1835 the latter type showed a strong disposition to resist fluctuation in price. Indeed, quotations over the years 1824-1828 were practically uniform with those of 1819-1820.<sup>68</sup> In 1828 the price dropped a cent, but no further change

<sup>66</sup> During the latter part of the period nails were quoted in terms of a hundred-pound keg rather than a pound. Prices of the different sizes fluctuated according to a rather fixed relationship.

<sup>67</sup> Nails were quoted in Natchez at 25-33 1/3 cents in the spring of 1799 and provoked the following comment forty-two years later: "The price of nails — wrought nails, I presume — serves to point out the value of cut nails, an article of such daily use and indispensable necessity, and which, even at their reduction to one-fourth the price quoted here, constitute a heavy share in building expenses" (Cist, *Cincinnati in 1841*, p. 158, citing *Western Spy*, June 25, 1799).

<sup>68</sup> A plausible explanation of the failure of wrought nails to behave like cut nails is that the former were imported from abroad. At least they were listed among the foreign goods in prices-current of 1819-1820. Only a comparatively moderate decline took place in the Pittsburgh quotations between 1819 and 1822; and, incidentally, wrought nails were about five cents cheaper in Cincinnati than in Pittsburgh in 1819. The margin practically disappeared the following year.

was recorded until six years later, when a succession of minor declines began. Wrought nails were about 10 per cent more expensive than cut in 1819-1820, but by 1835 they cost about three times as much.

*Steel.* Before 1861 this item was strictly a specialty even in those parts of the world furthest advanced in an industrial sense. The "steel age" had not yet arrived; iron was the staple material for "railing," while machinery and parts were largely cast from the same metal. It is not to be wondered, therefore, that comparatively little attention was bestowed upon steel in Cincinnati.

The western steel market was divided according to price in a manner not dissimilar to the nail market: American blistered steel sank steadily in value between 1816 and 1860, whereas foreign brands continued to be quoted from time to time at relatively inflexible rates.<sup>69</sup> Over the five-year interval 1816-1820 the former type of metal was priced in Pittsburgh at 17 cents a pound; it was one cent higher in Cincinnati during the last two of those years. Yet shortly after the middle of the century the quotation averaged only  $4\frac{3}{4}$  cents, the low for the entire period, and it never exceeded  $6\frac{1}{4}$  cents in the latter fifties (Chart XXIV, p. 263). Foreign steels declined to a much smaller extent. English brands, which fetched between 20 and 25 cents in 1819 and 1820, were priced from 16 to 17 throughout 1854-1859.<sup>70</sup> German steel opened at 29-31 in 1824 but weakened to 17-18 within four months; it tended to maintain the latter figure until the late forties, then began to decline again. The quotation during the following decade averaged 12 cents, considerably below the English steels but at the same time approximately double the price of American blistered.

A large part of the depreciation of domestic steel took place before 1828. Between November of 1820 and January 1823,

<sup>69</sup> Monthly prices of domestic steel in Cincinnati are given in the supplement to A. H. Cole's *Wholesale Commodity Prices in the United States, 1700-1861*. Prices in both this market and Pittsburgh were uniformly given in cents per pound. The foreign brands: English blistered, (London) Crowley, German, and Swedish, were occasionally given per faggot. Cast and "shear" steel entered the market in 1828.

<sup>70</sup> English Crowley cost \$30 to \$35 and German \$25 per faggot in Pittsburgh throughout 1819-1822 (July).

American blistered fell from 18 to 12½.<sup>71</sup> Slightly more than five years later the ruling price was only 7-8½. Steel responded practically not at all to the speculative fever of the late thirties, but it attained a comparatively high level in 1840 which was maintained through 1843. Closing at 12 cents in August of that year, it opened in 1844 at 6-6½. Steel then declined gradually until the middle of the century. Prices rose on several occasions during the fifties.

The rise of steel prices during the fifties gives this series a complexion slightly different from those representing other ferrous materials. It has already been remarked that from the long-range point of view the various articles did not decline all at the same time or in the same degree, but exact comparison is rendered difficult by the paucity of data for steel, particularly after 1859, and for pig iron before 1828. During the decade between 1819-1820 and 1828-1830 steel and cut nails both fell about 55 per cent in price, compared with 44 per cent for bloomed or charcoal bar. It appears that more highly fabricated articles were depreciating to the greatest extent. This general rule also appears to have held between 1828-1830 and 1857-1859, with one exception — steel. Pig iron declined 7 per cent, charcoal and common bar each about 33 per cent, and cut nails some 56 per cent. American blistered steel, however, decreased only 22 per cent over the thirty-year period. It is fair to state that steel was comparatively dear in the West just before the Civil War, judging by the prices of nails and bar iron at that time and steel itself at a later epoch.

*The Prices of Castings.* Despite the fact that, over the period 1816-1861 as a whole, the series of quotations on iron castings is not of first quality from a statistical point of view, it furnishes a clue as to the character of the growth of this department of the iron industry. Between 1816 and 1836 the price was quoted for

<sup>71</sup> The Pittsburgh quotation dropped 5 cents in February 1821, and another cent six months later. In 1824 steel was 4 cents, or more than one-third, cheaper there than in Cincinnati.

The steel prices given in Pierce & Brightwell's accounts show an advance from 37 to 50 cents between November 1820 and May 1821, followed by a drop to 25 cents in July. The latter price was unchanged in entries up to July 1823. Transactions were small.

a ton of "assorted" castings only; in the latter year sugar kettles commenced to be quoted by the pound, generally at a price one-half cent higher than "small" castings. In 1837 an experiment was tried of using high-grade Scotch pig iron in mixture with the domestic article according to a formula developed by New York manufacturers. However, it was soon discovered that hot-blast pig iron from Hanging Rock was superior for the casting of stoves and hollow-ware.<sup>72</sup> The latter product became a staple of the market in the spring of 1840 after castings had been entirely out of quotation for slightly more than a year; it remained so up through 1860.<sup>73</sup>

The prices of castings in Cincinnati and Pittsburgh were rather inflexible compared to those of raw materials, but it would not be accurate to say that the former were not responsive to changes in conditions. Between October 1819 and January 1821 the Pittsburgh price fell from an average of \$122.50 to \$70 a ton; and Cincinnati quotations, which ruled at \$110 in 1820, opened at \$60 at the beginning of 1823. Only minor changes in the latter market occurred from then until 1837, when the price rose to \$70. Hollow-ware retained a value of 3 cents a pound from May, 1840 to November 1842, then yielded to 2¼. The market was still in the doldrums in August of 1844, but the price had mounted to 4 cents by the summer of 1846. It rose further in 1853, when all iron products were at a premium, then settled by stages to 3¾ in the late fifties.

*Growth of Coal Imports.* Perhaps no commodity in Ohio River markets developed in importance before the Civil War as rapidly as bituminous coal. As with iron, the expansion was especially great between 1840 and 1860. In the early days "stone coal" or "river coal" was more or less a specialty; indeed it was hardly an article of West-wide commerce at all. Wood was the chief fuel in Cincinnati in 1815. Neighboring hills abounded with beech, hickory, maple, oak, locust, and other hardwoods which were brought in wagons or boats.<sup>74</sup> Manufacturing plants furnished the:

<sup>72</sup> Cist (1841), 245-46.

<sup>73</sup> Other types listed separately during the fifties were "furnace" and "foundry" (on which quotations were rarely available) as well as tea kettles (per dozen). After 1827 it was customarily stated that "handage" on all castings was extra.

<sup>74</sup> Drake, *Cincinnati in 1815*, p. 140.

earliest market for coal. Samuel Wyllys Pomeroy, a Boston enterpriser who in 1803 had purchased coal lands at the site named for him, initiated an inquiry in 1818 as to the prospective market for coal between Pomeroy and the falls with a view to opening his mines. A Cincinnati merchant replied to the effect that Cincinnati, Maysville, Louisville, and Madison used some 116,000 bushels annually, practically all of which went into manufacturing.<sup>75</sup> Coal was also tried on the western craft almost from the beginning, and its substitution for wood at the seaboard was considered no novelty by westerners.<sup>76</sup> Wood, however, remained the staple fuel on the river at least as late as 1834 — shortly before then it was estimated that a steamboat consumed one cord daily for every twelve tons' burden.<sup>77</sup>

The extension of the mining industry and employment of coal as an industrial and domestic fuel during the twenties and thirties attracted a great deal of attention on the part of contemporary editors.<sup>78</sup> Until about 1832 importations to Cincinnati originated for the most part in western Pennsylvania and the panhandle region of Virginia;<sup>79</sup> but, before another decade had elapsed, large deposits of bituminous coal were tapped within the boundaries of the state of Ohio. In 1833 Pomeroy coal entered into domestic use in Ohio River towns. The operators of the mines tackled the transportation problem with towboats and barges, and approached housewives with a "specific price to families" in an effort to induce them to change their cooking and heating habits.<sup>80</sup>

<sup>75</sup> Cincinnati was reported to consume 44,000 bushels annually, of which the foundry took 20,000, the Steam Mill used 12,000, and the Cincinnati Manufacturing Company (woolens), Steam Saw Mill, and Sugar Manufacturing Company used the remainder (Ohio State Mine Inspector, *Annual Report* [1877], p. 104).

<sup>76</sup> *Mercury* (Pittsburgh), Nov. 2, 1816.

<sup>77</sup> Hall, *Notes on the Western States*, pp. 235-37, citing Morgan Neville. In 1829 the two hundred boats then in operation consumed 525,060 cords annually, which was bought at the average price of \$2.25. Neville did not mention coal as a fuel.

<sup>78</sup> *Niles'* abounds with references to the young industry of that period. For example, it was noted that coal was required for the operation of the Juniata rolling mill in Pittsburgh. The price on the Allegheny River was 3½ cents a bushel (*Niles'*, XXXVII, 121 [Oct. 17, 1829]).

<sup>79</sup> The first notation in the prices-current referred to Wheeling and Leading Creek (*Western Tiller*, 1826-1827).

<sup>80</sup> Ohio State Mine Inspector, *Annual Report* (1877), p. 104.



By 1838 this brand was reported to be a favorite in households from Portsmouth to New Orleans.<sup>81</sup> By 1842 no less than twenty-three Ohio counties, all east of the Scioto river, were under production; some of these bordered on the Ohio, while others were located in the Hocking and Muskingum valleys.<sup>82</sup> The total production of the state was estimated at 3,513,409 bushels.<sup>83</sup> The descending coal trade of the Ohio, which drew from all fields, was put at 12,000,000 bushels four years later.<sup>84</sup> From then until 1860 production and consumption increased at such a high rate that coal became a principal item in river traffic.<sup>85</sup> Railroads proved themselves utterly unable to handle the huge volume of shipments at rates to compete with the river.<sup>86</sup>

Cincinnati became a leading market for up-river coal, receipts mounting from 2,600,000 bushels in the commercial year ended August 31, 1847, to 6,000,000 six years later.<sup>87</sup> Manufacturing plants constituted the chief users, but displacement of wood in the household proceeded more rapidly than ever.<sup>88</sup> The unreliabil-

<sup>81</sup> William D. Gallagher, "Ohio in 1838," *Hesperian*, I, 184 (July 1838).

<sup>82</sup> Meigs County on the Ohio, where the Pomeroy mines are situated, led in production with 843,400 bushels; Jefferson County, near the northernmost point of the river, was second with 334,700 (*Cincinnati Daily Chronicle*, Aug. 17, 1842).

<sup>83</sup> *Cincinnati Daily Chronicle*, *loc. cit.*

<sup>84</sup> "Coal and Iron Trade of the Ohio Valley," *Hunt's Merchant's Magazine*, XVI, 450-55 (May 1847). Estimate as of February 1846. Although it was customarily figured that a ton of coal contained twenty-eight bushels of eighty pounds, the figure above was equated to 480,000 tons.

<sup>85</sup> The Ohio River coal trade between 1845 and 1858 has been figured as follows:

Year	Bushels	Year	Bushels
1845	2,660,340	1852	9,960,950
1846	5,236,500	1853	11,590,730
1847	7,200,450	1854	14,632,580
1848	7,150,355	1855	18,560,158
1849	7,145,150	1856	8,165,196
1850	8,560,120	1857	25,684,550
1851	8,250,120	1858	24,696,669

(Ambler, *History of Transportation*, p. 307, n., citing U. S. House Exec. Doc., vol. XX, no. 6, pt. ii, 462 [50th Cong., 1st Sess.]; *Cist's Weekly Advertiser*, Apr. 11, 1848.)

<sup>86</sup> This was especially true after steam tugs and barges were substituted for flat boats.

<sup>87</sup> CCC (1853), p. 12.

<sup>88</sup> CCC (1855), p. 21.

ity of the river from month to month forced the erection of larger storage yards, but even with their aid it was not possible to avoid coal famines entirely. The city depended upon a "coal boat rise" in the autumn before the close of navigation; and if that rise did not occur, as was the case in 1856, supplies were extremely short throughout the following winter.<sup>89</sup> Coal consumption in Cincinnati was then increasing about 25 per cent per annum, but it was estimated that with ample supplies at all times the increase would be 30 per cent. Towards the end of the fifties the Kanawha fields became an important source of supply, and during the commercial year 1859 about 25,000,000 bushels were sent down the Ohio altogether.<sup>90</sup>

*Cincinnati Coal Prices.* In view of the preceding account it is not surprising that few western coal prices are available for years prior to 1823. Farmers, tavern-keepers, and merchants failed to include coal in their items of account, and with one exception the newspapers neglected to mention coal in their prices-current.<sup>91</sup> This was true even of the journals in Pittsburgh, the leading market of the region.

Between 1795 and 1798 all the coal transactions of Ormsby & McLaughlin, a Pittsburgh firm, were at the rate of sixpence (6 2/3 cents) a bushel, with two exceptions. In January 1795 coal was traded at eight pence; and in March 1798 the price was sixteen bushels to the dollar — a price very nearly equivalent to those stated in Pennsylvania currency. Melish reported the "delivered" price at 5-6 cents in August 1811, and the books of R. and J. Patterson give the figure to be 5 cents on three occasions in 1812. By the beginning of 1814, however, the Pattersons were paying 10 cents for coal. In Cincinnati, Melish reported the price at 8-10 cents in September 1811. Four years later it had risen to 10-15 cents, according to Dr. Drake. In July 1817 it sold for much the same price — 12½ cents — but rose further to 18-20 cents by the spring of the year 1819.<sup>92</sup> Nothing is known as to

<sup>89</sup> CCC (1857), p. 10.

<sup>90</sup> Barge shipments totaled 11,667,792 bushels, of which 9,625,186 were destined for Cincinnati alone. Other receiving points were Louisville (1,283,606 bu.), St. Louis (90,000 bu.), Memphis (481,000 bu.), and New Orleans (198,000 bu.). (CCC (1859), pp. 16-17.)

<sup>91</sup> The exception was *Liberty Hall* (price lists for March and April 1819).

<sup>92</sup> Ormsby & McLaughlin Accounts; R. & J. Patterson Accounts; John Melish,

the behavior of coal prices during the depression which ensued, but during the same season of 1823 the article was selling at 6¼ cents in Cincinnati. Newspapers were then quoting coal more or less regularly.

Irregularities in the series of monthly Cincinnati coal prices between 1823 and 1861 were largely caused by the interruptions in supply mentioned above. Strictly, there were two coal markets in Cincinnati after 1827; sales were made at the wharf in comparatively large lots, and transactions were also made in the coal yards. The latter business ranged over a greater part of the year and was carried at considerably higher prices.<sup>93</sup> Indeed, it was commonly denominated "retail." For some months in the late twenties "Wheeling & Leading Creek" coal was mentioned by name, and the "yard" market was definitely subdivided according to brand after 1841. Although coal at the river was rarely specified as to origin, separate reports on "yard" coal were rendered during the forties and fifties on Youghiogheny, Pomeroy, Brownsville, and Wheeling coal, besides charcoal.<sup>94</sup> A different system of grading appeared in 1860 ("best, delivered," "second rate," etc.), and cannel coal also made its first specific appearance in the files of the *Gazette* towards the end of that year.

The various types of yard coal generally preserved a definite relationship to each other; thus, Youghiogheny usually was priced at 2 cents a bushel above Wheeling and Pomeroy. But the margin of the latter brands over river coal sometimes exceeded 5 cents a bushel (average) and occasionally fell below 2 cents. Furthermore, yard quotations themselves were composite in nature in that they covered various grades of coal.<sup>95</sup> The heavy line in

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*Travels in the United States of America* (1812), II, 57, 128; D. B. Warden, *Statistical, Political, and Historical Account of the United States* (1819), II, 260-61; Daniel Drake, *Cincinnati in 1815*, p. 140; LH, Mar. 23, Apr. 23, 1819.

<sup>93</sup>One important source, the *Western Christian Advocate*, failed to specify as to the market between 1837 and 1841. It is suspected that the quotations may represent "river" and "yard" coal indiscriminately; yet since the data of 1837-1839 show fair agreement with "river" prices in other sources they have all been treated as "river" quotations.

<sup>94</sup>Carr's Run was quoted in 1844, and Peach Orchard and Winnefred were added in 1856. However, Youghiogheny and Pomeroy are the only brands for which quotations were available to any extent after 1851.

<sup>95</sup>Thus, C. R. Pomeroy & Co. advertised at the beginning of 1835 at the prices

Chart XXIV, above, pertains to coal prices at the river (1823-1861), whereas the lighter line between 1842 and the end of the period applies to Youghiogeny at the yard.

Despite these annoying features, the coal prices in Chart XXIV do point to some general conclusions of value. In the first place, it is evident that western coal did not behave in price like manufactured products such as bar iron and American blistered steel. In its general drift between 1823 and 1861 it was not unlike Kanawha salt; that is, both tended to work upward until 1839, to decline to a significant extent in the years immediately following, and to resume a rising tendency thereafter which was reversed towards the end of the fifties. However, the parallel is far from exact; for, although coal and salt were closely related from the point of view of geology and transportation, factors affecting the production and demand of each commodity from year to year were extremely diverse. Coal prices ruled comparatively high between 1829 and 1834 while salt was steadily falling. Furthermore, coal showed a stronger disposition towards long-time stability after 1841. This was especially true of yard coal; except during the winters of 1845-1846, 1853-1854, and 1856-1857 Youghiogeny moved between 12 and 14 cents a bushel, and Pomeroy and Wheeling remained two cents lower in price. As for coal afloat, the quotation during the fifties gravitated towards 7 cents in time of plenty and was even somewhat under this price at the end of the period.<sup>96</sup>

*The Coal Shortage of 1856-1857.* On some thirteen occasions between 1816 and 1861 the price of coal skyrocketed in Cincinnati during the winter because of rising demand and choked-off supply; especially acute situations arose in 1826-1827, 1838-1839, 1845-1846, and 1853-1854. Nevertheless, the coal famine of 1856-1857 probably caused more suffering in Cincinnati than

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following: "as delivered from the boats," 10 cents; coarse (screened) coal at the yard, 11½ cents; small coal at the yards, 8 cents. Deliveries were made to most parts of the city at 25 cents per load, cash with order. (CDG, Jan. 1, 1835.)

<sup>96</sup> River coal never fell below 8 cents between 1825 and 1842, and only infrequently undercut 10 cents. The latter tended to be a maximum after 1841. In the first quarter of 1861 common coal afloat sold for 5 cents, prime afloat for 6 cents. The market was dull and received little attention during the rest of the year. (WCA.)

any others by reason of its longer duration, coupled with the fact that both the populace and the industrialists had begun to depend heavily upon the supply. Trouble started in the spring of 1856 when shipments were cut in half by a wage strike in the western Pennsylvania diggings.<sup>97</sup> By the time this was adjusted, the river fell to such a low point as to preclude shipping, and no rise took place before the closing of navigation by ice.<sup>98</sup> At the end of the year coal advanced to 50-60 cents — and it was difficult to secure even at this unheard-of price.<sup>99</sup> Industry was forced to shut down to some extent, and the city authorities were forced to buy the article in Jackson and Vinton counties and arrange for its import by railway.<sup>100</sup> Such fuel was sold at a “cost price” of 25 cents,<sup>101</sup> which was a little more than double the ordinary price of the higher grades. During the entire winter coal prices “were merely fancy, regulated altogether by the whims of those who had it to sell” — relief finally coming with the opening of navigation in February.<sup>102</sup> Youghiogheny (yard) was then down to 16 and river coal to 12 cents a bushel.

*Lead and Glass.* The prices of two other industrial materials, lead and glass, are plotted in Chart XXIV, above, for purposes of comparison. Although pig lead was a standard item in most American markets of that day, a far more continuous series of Cincinnati prices could be obtained for bar. As in the case of other industrial materials and products, few western prices of lead are available for years before 1816. It appears that exploitation of the mines in Missouri acted to keep the commodity at a moderate level in spite of its great weight. In November 1805 bar lead sold for 12½ cents a pound in Cincinnati. Other fragmentary reports place it at sixpence in 1791 and 6¼ cents in 1808, both prices pertaining to Lexington. However, lead was selling in this same market as high as 15 cents a pound by the end of 1815.

<sup>97</sup> CCC (1856), p. 9.

<sup>98</sup> CCC (1857), p. 10.

<sup>99</sup> Wood rose to \$10-\$12 per cord (CCC [1857], p. 10). *Liberty Hall* reported coal at 60 cents in the middle of January (Jan. 14, 1857).

<sup>100</sup> Subscriptions for Cincinnati's poor were taken up in several western cities. The railways made prompt arrangements to meet the shortage but proved unable to cope with the situation. (LH, Jan. 14, 1857.)

<sup>101</sup> LH, Jan. 21, 1857.

<sup>102</sup> CCC (1857), p. 10.

Prices in Louisville and Pittsburgh were so similar to those in Lexington as to require no comment.<sup>103</sup> After 1816 Cincinnati lead prices were comparatively stable from a long-run point of view, resembling pig iron in this respect. Lead, however, was subject to ups and downs not visible in the series representing other metals. There was a boom in the middle twenties followed by a depression at the end of the decade. Furthermore, the steady rise in lead prices during the forties and fifties is not duplicated in any other series in Chart XXIV.

Though fairly regular reports are available on the prices of several sizes of window glass after 1816, data are so fragmentary for prior years that it is hazardous to attempt to generalize as to the market situation. It is known, however, that in 1815 the settlers became impatient because of the high cost of the article and looked forward to the time when the establishment of a factory at Cincinnati would save the freight from the East.<sup>104</sup> And a glass factory was among those enterprises founded in the flush of war prosperity. Prices of the homemade article appeared in local prints between April 1816 and January 1823. The 8 x 10 size sold for \$14 or more in 1816 and 1817 (Chart XXIV), \$12 in 1819 and 1820, \$10 in 1821, then slumped to \$5.50-\$6.00 in 1822.<sup>105</sup> Another sizable reduction came in May 1823 (\$4.75), and newspapers ceased to specify the origin of the item.

In later years the price of glass was fixed at Pittsburgh, since the industry was largely located in western Pennsylvania. Country brands, which were standard in the *Cincinnati Price Current*, sold for about 25 per cent less than city brands. Taking the period

<sup>103</sup> Shane Papers; Morton Invoice; Trotter Account Book; *Kentucky Gazette*, Dec. 4, 1815; Fitzhugh & Rose Accounts; Pittsburgh *Mercury*, 1815. See Isaac Lippincott, "Industrial Influence of Lead in Missouri," *Journal of Political Economy*, XX, 695-715 (July 1912).

<sup>104</sup> Frank P. Goodwin, "The Rise of Manufactures in the Miami Country," *American Historical Review*, XII, 761-75 (July 1907), citing LH, Aug. 14, 1815.

On Christmas Day, 1797, Smith, Findlay, & Harrison of Cincinnati bought thirty-six lights of "glass" from A. Hunt at a price equivalent to \$17.80 per box; and a "Beardstown" invoice dated November 2, 1790, entered 8 x 10 window glass at 100 shillings (\$16.67) a box. This same size sold for \$13 in Pittsburgh in October 1812 and in Louisville in February 1814. By July 1815 the price at the Kanawha salt works was \$14. (Patterson Accounts; Fitzhugh & Gwathmey Accounts; Donally & Steele Account Book.)

<sup>105</sup> The prices for 1821-1822 are taken from the accounts of Pierce & Brightwell.

1816-1861 as a whole, one notes a decline of great magnitude from 1816 to the middle forties (a minimum of \$1.50 in March 1846), followed by an irregular rise until 1861, when the price collapsed. The series of glass prices was therefore more similar in general outline to steel and the groceries (sugar, coffee, pepper) than to other manufactured goods. In one particular — periods

TABLE 21  
PERCENTAGES OBTAINED BY COMPARING THE NUMBER OF MONTHLY PRICE CHANGES OF INDUSTRIAL GOODS WITH THE NUMBER OF POSSIBLE CHANGES, BY TWELVE-YEAR INTERVALS, 1824-1859

SERIES	PERCENTAGE		
	1824-35	1836-47	1848-59
Iron, pig .....	a	a	57
Iron, bar .....	18	14	24
Castings .....	10	6	2
Steel, American blister ....	6	6	4
Nails, cut .....	17	22	24
Coal, river .....	32	25	21
Coal, yard .....	23 <sup>b</sup>	27	29
Glass, 8 x 10 .....	33	20	33
Lead, bar .....	26	31	44
Shot .....	26	21	35
Gunpowder, Kentucky ....	16	a	a
Gunpowder, Dupont's ....	a	a	6
Salt, Kanawha .....	48	52	34
Salt, Turks Island .....	21	37	40
Tar, North Carolina ....	24	22	42
Cotton yarn .....	39	21	39
Thirteen industrial goods <sup>c</sup> .	25.2	24.1	28.8

a Data not available.

b 1827-1835.

c Pig iron and gunpowder omitted from the average.

of high activity alternating with those of marked stability — glass was not unlike Kanawha salt.

The repeated elevation of glass prices after 1852 and the failure of the latter to vary from month to month both suggest price-fixing on the part of producers. It was reported that prices had been so low for several years that seventeen out of twenty-seven manufacturers in western Pennsylvania had suspended operations and stocks had been reduced fully 50 per cent. Furthermore, it appeared that transactions were smaller shortly after the market began to rise — an indication that growth in demand was not

primarily responsible for the situation.<sup>106</sup> The sudden collapse in 1861 also suggests that the market had been supported more or less artificially. The information at hand is insufficient, however, to ascertain beyond reasonable doubt whether the glass manufacturers — like the saltmakers discussed in the following chapter — grew tired of unfettered competition and took steps to restore the market to a “fair” level.<sup>107</sup>

*Month-to-Month Activity.* Recent writers have paid particular attention to two features of the behavior of industrial prices: (1) their general inflexibility and (2) their resistance to downward revision during depressions. The present study has uncovered several cases where industrialists found it possible to maintain prices during years of severe stress; moreover, there can be no doubt that the prices of industrial articles in the West a century ago were much more inflexible than those of farm products. The charts of monthly prices allow no other interpretation; and if the former series are subjected to the Mills test for frequency of change from month to month, it is apparent that the growth of the market, together with other factors, brought no alteration in the field of industrial goods comparable with the change noticed in the behavior of the prices of farm products. Indeed, the figures in Table 21 show that in several instances (castings, steel, gunpowder, river coal, Kanawha salt) prices were rather more inflexible during the fifties than they had been a quarter century previously.

<sup>106</sup> LH, July 29, Sept. 2, 1852.

<sup>107</sup> The correlation of Cincinnati prices and receipts between 1845 and 1861 is low for glass and lead. The coefficient for glass is  $-.35$ , that for lead  $-.17$ .



## CHAPTER X

### THE SALT TRADE

THE twentieth-century observer is apt to underestimate the importance of salt in early economic development. This commodity was of particular value in the Ohio Valley not only as a food for humans and live stock but also, in the absence of refrigeration, as a preservative for meat. Indeed, as has already been mentioned, the Cincinnati packing industry for some time labored under a handicap because good salt was unobtainable in sufficient quantities and at moderate prices. Apart from this, however, the Ohio Valley salt manufacture and trade are of interest to the economic historian because they involve a unique series of experiments in collective action on the part of early American entrepreneurs. A leading feature of western salt prices was a recurrent tendency to decline sharply. Fresh resources were opened to exploitation from time to time, and technological improvements were occasionally most disturbing in effect. Furthermore, foreign salt preempted a progressively larger share of the market as world prices, rates of ocean and river freight, and customs duties were repeatedly reduced. In order to arrest these forces the saltmakers of western Virginia tried various methods of planning and control of prices, production, and distribution — methods which became rather more elaborate than those in shipping and iron production mentioned above. Nevertheless, all foreshadow the trust movement which gathered momentum after 1865 and finally became a prominent feature of the world industrial sphere.

*Prices, Production, and Trade, 1788-1815.* During the last quarter of the eighteenth century salt played a significant role in the settlement of the West. Pioneers filtering through the wilderness found themselves forced to rely upon the same sources of supply as the Indians with whom they fought and made treaties — the salt licks and springs scattered throughout the Ohio River's watershed.<sup>1</sup> It has been held that employment of these springs

<sup>1</sup> Isaac Lippincott, "The Early Salt Trade of the Ohio Valley," *Journal of*

not only made settlement possible — given the facilities of transportation then in vogue — but also signaled the liberation of the interior from political and social dependence upon the coast.<sup>2</sup> Only small amounts of sea salt penetrated the mountains from foreign shores or from domestic plants such as those which had sprung up on Cape Cod during the Revolutionary War, and the encouragement of home production consequently found recognition in the land policies of federal and state governments, the revenue policies of some states, treaties with the Indians, and in one case (Illinois) was even sufficient to modify opposition to the introduction of slave labor into the Northwest.<sup>3</sup>

In 1777, for example, Kentucky settlers complained to the Virginia Assembly that salt was scarce, owing to interference by Indians at the wells, and petitioned that the colony take over production immediately unless those in possession resumed operations. Among the laws later enacted in Kentucky to encourage salting we may cite the grant of certain salt lands in Pulaski and Wayne counties, at 10 cents an acre (1811).<sup>4</sup> Beginning in 1803, Ohio passed a long series of acts relating to the public salt works on the Scioto, and in 1809 she placed the Muskingum works under similar regulation. A state agent leased the wells to licensees at rentals proportional to furnace capacity, generally supervised the district, and inspected the salt.<sup>5</sup>

It appears, however, that the richest deposits of brine passed into private hands, and the establishment of commercial produc-

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*Political Economy*, XX, 1029-52 (Dec. 1912), and references there cited. R. G. Thwaites' *Early Western Travels* abounds with references to salt (*cf.* index), as do all other accounts of similar character (Imlay, *op. cit.*, pp. 121-23).

<sup>2</sup>F. J. Turner, *The Frontier in American History* (1920), p. 7. It may be noted that John Cleves Symmes discussed water, salt, and provisions in that order in his Cincinnati prospectus. *Cf.* "Terms of sale and settlement of Miami lands, . . . at Trenton, Nov. 26th, 1787" (Burnet, *op. cit.*, p. 489). Victor Hehn's *Das Salz* (1873), traces the effect of salt upon the course of early European development, measured in centuries rather than decades.

<sup>3</sup>Lippincott, *loc. cit.* A need of laborers at the Shawneetown salines afforded an exception to a provision in the constitution of Illinois against persons "bound to labor in any other state." It expired after 1825.

<sup>4</sup>J. R. Robertson, *Petitions of the Early Inhabitants of Kentucky* (1914), pp. 43-44; L. and R. H. Collins, *op. cit.*, I, 26-27.

<sup>5</sup>Ohio Laws, cc. 32, 36, 98, 142, 162, 187, 235, 711 *et passim*.

tion at favorable locations was an important accomplishment of this period. Capitalistic enterprise began in the Great Kanawha basin in 1797, and along the Conemaugh and Kiskiminetas in western Pennsylvania between 1811 and 1814. Another development of some moment was the introduction in 1796 of salt from the Onondaga district via Presque Isle, French Creek, and Pittsburgh.<sup>6</sup> An improvement of the portage road was carried out largely to accommodate this traffic, and Onondaga salt was advertised as far south as Cincinnati in 1808. Imports along this route increased year by year until the trade was interrupted by the war. As for the Kanawha product, it was carried to both extremities of the Ohio in quantities which increased steadily after 1810.<sup>7</sup> By 1815 many of the smaller western saltworks, some of which had been operated noncommercially at first, had dropped out of production. The process of concentration at points favored with stronger brine was, of course, accompanied by the development of shipping in flatboats, keelboats, and barges on the Ohio, the Mississippi, and their tributaries.

Kanawha County easily led the nation in the production of salt in 1810, according to the somewhat imperfect census returns of that year (Table 22, p. 289). All the large producers were located in the interior, particularly in Kentucky, New York, and Illinois (the two last-named failed to report production estimated at 300,000 and 130,000 bushels respectively). Indeed, the districts along the Ohio River and its tributaries accounted for approximately three-fourths of the total output in the United States at that time.<sup>8</sup> We may infer that the coastal regions were almost exclusively dependent upon an imported article.

<sup>6</sup> U. S. Census (1860), III, ccii; J. P. Hale, "Salt," in M. F. Maury and W. M. Fontaine, *Resources of West Virginia* (1876), pp. 304-5; *Pittsburgh Gazette*, Nov. 29, 1811.

<sup>7</sup> *Mirror* (Presque Isle), Dec. 21-28, 1809; *Commonwealth* (Pittsburgh), July 17, Aug. 2, 1809, and Jan. 24, 1810. J. Armstrong & Company advertised 100 barrels in *Liberty Hall*, Aug. 20, 1808. In the years 1812-1815 J. P. McNickle of Pittsburgh was a leading dealer in Kanawha salt (Donnelly & Steele Account Book; see also Lippincott, *op. cit.*, p. 1047; Zadok Cramer, *The Navigator* [1811], p. 24; and Timothy Flint, *Recollections of the Last Ten Years*, p. 25; Niles', V, 339).

<sup>8</sup> U. S. Treasury Department, *A Statement of the Arts and Manufactures . . .* (1814), p. xlvi. The western states' output totals some 1,220,000 bushels out of 1,668,000. The figure in Table 22 is for Kanawha County alone; Westmoreland County production brings the western Virginia production to 740,000 bushels.

Although consumption was expanding at a fairly rapid rate, western salt prices definitely declined during this epoch. According to the series of annual medians plotted in Chart XIII (p. 157) the decrease between 1788 and 1817 measured about 60 per cent. The boom of the middle 1790's was powerful enough to interrupt this trend, but the same was not true of the War of 1812. In

TABLE 22  
ANNUAL PRODUCTION OF SALT AT SPECIFIED DATES, 1810-1860  
(Thousands of bushels)

	1810 <sup>a</sup>	1829	1840	1850	1860
Kanawha County . . . . .	540	925	1,600	3,025	2,077 <sup>b</sup>
Western Pennsylvania ..	1	500 <sup>c</sup>	549 <sup>d</sup>	919 <sup>b</sup>	1,012 <sup>b</sup>
Ohio . . . . .	24	426	297	550	1,743
Kentucky . . . . .	325	137	220	246	170
Indiana . . . . .	"	"	6	"	"
Illinois . . . . .	"	138	20	20	35
New York <sup>e</sup> . . . . .	"	1,291	2,868	4,500	7,521
United States . . . . .	1,238	3,804	6,179	9,764	12,717

<sup>a</sup> New York produced about 300,000 bushels; Wabash salines in Illinois made 130,000 in 1809.

<sup>b</sup> Figure for entire state.

<sup>c</sup> Low estimate.

<sup>d</sup> Also applies to the entire state, since none was reported for eastern Pennsylvania.

<sup>e</sup> Not reported.

<sup>f</sup> United States and New York employed a fifty-six-pound bushel for revenue purposes; the ordinary commercial bushel weighed fifty pounds.

Sources: U. S. Census (1810, 1840, 1850, 1860). House Exec. Doc. 55 (21st Cong., 1st Sess.), pp. 2-9. The Census of 1820 failed to yield usable production data. Cf. Lippincott, *op. cit.*, p. 1051.

Frankfort salt brought 36 shillings a bushel in 1785 but sold for only 3 cents a pound in the spring of 1810 (equivalent to 9 shillings for a fifty-pound bushel). In other words the price fell 75 per cent over a quarter of a century. The Lexington price dropped between 50 and 60 per cent over the same interval of time: salt was worth between 15 and 18 shillings from 1788 to 1790 and only \$1.25 in 1811 and 1816.<sup>9</sup> The Louisville price was high in 1796 — salt sold at Bullitt's Lick for 20 shillings. The quotation at Mann's Lick was only 10 shillings in 1800; and the most common entry in the books of the Louisville Salt Works was 12 shillings between 1806 and 1809, and 9 shillings in 1810. Fitz-

<sup>9</sup> It should be noted that few of the transactions were as large as those common in later years. In Kentucky six Virginia shillings were equivalent to one dollar. (Wilkinson Papers; Innes Papers; Farra Account Book; Trotter Account Book; Shane Papers.)

hugh and Gwathmey rated the article at 6 shillings on several occasions in 1813 and 1814 but advanced to 7s. 6d. in 1815. The newspaper quotation at the end of the latter year was \$1.12 per bushel.<sup>10</sup> Pittsburgh was an especially dear market in the middle 1790's—salt brought 30 shillings a bushel in 1795 and advanced to 35 and 45 shillings in the following year.<sup>11</sup> The latter figure is equivalent to 12 cents per pound. Yet importations of Onondaga or lake salt brought a reduction of more than 60 per cent by 1803 and 75 per cent by 1810.<sup>12</sup> This decline persisted even while the lake trade was hampered by the war, since supplies were brought up from the Kanawha or floated down the Conemaugh and Kiskiminetas. The ruling Pittsburgh price settled to \$7.00–\$7.50 per barrel in 1815.<sup>13</sup>

As for Ohio, salt was traded in the interior during the final decade of the eighteenth century at prices ranging between \$6.00 and \$16.00 a bushel, although it rarely reached these figures near the main highways of commerce.<sup>14</sup> In Cincinnati salt sold for \$2 in October 1792, rose as high as \$3.25 and \$4.50 per bushel between 1797 and 1800, then dropped to \$2.50 or \$3.00 during the first decade of the new century. After 1812 the Kanawha trading company (Donnally & Steele) began delivering large quantities at \$1.00. Yet in August 1813 salt brought \$1.10 in Philadelphia and \$1.25 in Baltimore, and the market rose to approximately \$5.00

<sup>10</sup> Collins (1877 ed.), p. 100; Shane Papers; Louisville Salt Works Account Book; Fitzhugh & Rose Account Book; Fitzhugh & Gwathmey Account Book; *Kentucky Gazette*, Dec. 25, 1815, and Jan. 22, 1816.

<sup>11</sup> Tench Coxe alluded to this fact in his refutation of Lord Sheffield: "The price of salt in Kentucky, where it is home made, is about one third of the market rate at Pittsburgh, where foreign salt is used" (*A View of the United States of America* [1794], pp. 65, 77–82). One dollar was equivalent to 7s. 6d. in Pennsylvania currency (Old Stone Tavern Accounts; Marshall Jones Account Book; Ormsby & McLaughlin Papers).

<sup>12</sup> Zadok Cramer, *The Navigator* (1804), (cited in Thurston, *Pittsburgh and Allegheny County* [1876], p. 55); *ibid.* (1808, 6th ed.), p. 37; *ibid.* (1811 ed.), p. 65; Cuming, *Sketches of a Tour*, p. 247; *Commonwealth*, Aug. 2, 1809.

<sup>13</sup> Donnally & Steele Account Book (1812–1815); *Commonwealth*, Nov. 4, 1815; *Mercury*, Jan. 11–Nov. 25, 1815. Barrels, which were sold by marked weight, tended to average 280 pounds.

<sup>14</sup> In April 1799 the carriage alone from Cincinnati to Fort Wayne was charged at 10 cents a pound (Smith & Findlay Accounts; Lippincott, *op. cit.*, p. 1036, and sources there cited).

in Baltimore and Charleston slightly more than a year later.<sup>15</sup> For some time, therefore, salt was considerably cheaper in the interior than at the seaboard. Easterners looked with envy upon the salt springs of the West and took steps to open better avenues of transportation between the Onondaga district and tidewater.

*The Kanawha Industry, 1797-1815.* Looking more closely at conditions near the Kanawha salt works, we see a progressive improvement in technique accompanying the expansion in production and decline in market value. The principal contribution by Elisha Brooks in 1797 consisted in setting up a kettle furnace with which he could maintain a steady output of some 150 pounds a day, to be sold at 8 to 10 cents per pound. At first the buyers took the product away in various household containers; later they employed mealbags and packsaddles. However, Brooks was content with a weak brine secured from a sycamore gum (hollow log) he drove six to eight feet below the surface near the bank of the river — similar methods had been used by the Indians and early white settlers. In 1807 David Ruffner and his brother Joseph placed production upon an entirely different basis by drilling twenty-six feet through gravel into sandstone, thereby tapping a much stronger "vein" of brine at a spot about one hundred yards above the licks. Enough salt water was forthcoming to supply a furnace of forty cast-iron kettles which they erected early in 1808. Production began at the rate of twenty-five bushels per day, and the price sank to \$2.00 per bushel of fifty pounds. The first westward shipment by river occurred in that year — salt was packed in tubs, boxes, and hogsheads and loaded on log rafts.<sup>16</sup>

The Ruffners' success fired the imagination of their neighbors, who commenced deeper boring into the sandstone at various locations up and down the river on both banks. By 1809 wells sixty to ninety feet deep were each capable of supplying brine to four furnaces of sixty large kettles, and output rose to fifty or sixty

<sup>15</sup> Smith & Findlay Accounts; Smith & St. Clair Accounts; Donnally & Steele Account Book; *Niles'*, V, 41 (Sept. 18, 1813), VII, 168 (Nov. 19, 1814).

<sup>16</sup> Hale, *loc. cit.* (see n. 6); *Niles'*, VIII, 135 (1815); S. P. Hildreth, "Observations on the Bituminous Coal Deposits of the Valley of the Ohio," *American Journal of Science and Arts*, XXIX, 117 (Jan. 1836); C. H. Ambler, *A History of West Virginia* (1933), p. 164. David Ruffner wrote the accounts in *Niles'* and Hildreth.

bushels a day. In August 1810 there were eleven furnaces, each of which was reported to be making about 400 bushels daily. The latter figure is probably exaggerated, since the total annual production was only 540,000 bushels, according to the Census. The price of salt at the works had fallen to less than \$1.00 per bushel.<sup>17</sup> In the autumn of 1812 thirty furnaces were estimated to have a total capacity of 9,000 bushels per week, and the current selling price dropped further to between 50 and 62½ cents per bushel. Two years later the Kanawha producers, "keeping pace with the increased demand occasioned by the loss of our commerce abroad, produced weekly 12,000 bushels of salt, and supplied the wants of the country at seventy-five and eighty-seven and a half cents per bushel."<sup>18</sup> By 1815 the wells were 100 and 200 feet deep, fifty-two batteries of kettles were in operation and many more were "in building," and the total daily output had risen to as much as 2,500 or 3,000 bushels. The yield rose to one bushel per 70 to 100 gallons as various improvements were made from time to time in the method of pumping brine and excluding undesirable elements such as surface water.<sup>19</sup> Such large amounts of timber were needed to keep the kettles boiling, however, that the available supplies were approaching a point of exhaustion.

*Donnally, Steele & Company (1812-1815?)*. In the short interval of four years capital investment had increased remarkably, overhead had climbed,<sup>20</sup> total capacity had been expanded over fiftyfold, and the selling price had declined from \$2.00 to

<sup>17</sup> Hildreth, *op. cit.*, p. 119. Lippincott, *op. cit.*, p. 1047, citing Cramer, *Navigator* (1811), p. 95. See Table 22 above. The total value of output was given as \$504,000 in the Census, which yields a figure of 93 1/3 cents per bushel. This may have been a typographical error (the value of salt in regions near-by was commonly taken at \$1.00) or represented a mean between 87 cents and \$1.00.

<sup>18</sup> *Niles'*, III, 128 (Oct. 24, 1812); Sen. Doc. No. 47 (20th Cong., 1st Sess.), p. 4.

<sup>19</sup> *Niles'*, VIII, 135 (1815). For an authoritative treatment of the geological and chemical aspects of the early industry, see Hildreth, *op. cit.*, pp. 114 ff. A good summary of the technological developments is contained in E. T. Crawford, Jr., "Salt—Pioneer Industry of the Kanawha Valley," *Industrial and Engineering Chemistry*, XXVII, 1109-13, 1274-78, 1411-17 (Oct.-Dec. 1935).

<sup>20</sup> Since a good proportion of the labor was done by slaves, this item became largely an overhead cost; however, capitalization was avoided to some extent by hiring slaves by the month or year. Cf. C. H. Ambler, *Sectionalism in Virginia from 1776 to 1861* (1910), p. 109.

50-62½ cents. Such was the situation in November 1812, when a partnership was formed between William Steele of Kentucky and Andrew Donnally, Jr., of Kanawha for the purpose of making or buying Kanawha salt and selling it in Pittsburgh, Wheeling, Cincinnati, and other markets of the West.<sup>21</sup> During the years 1813-1815 this firm was successful in maintaining prices between 75 cents and \$1.00 at the works and at higher figures elsewhere.<sup>22</sup> Much of the product appears to have been consigned on commission to dealers in leading markets, and Steele, evidently the field agent, drew expenses for journeys to Onondaga, Pittsburgh, Gallipolis, Kentucky, and Nashville. The partnership bought several Negroes and hired a number of others; it bought large numbers of salt barrels; and in addition, it brought heavy shipments of salt kettles from Pittsburgh and general merchandise from Louisville.<sup>23</sup> Its principal business, however, was the purchase and sale of salt.

Available records show the Donnally and Steele partnership of 1812-1815 to be the first of several trading companies to attempt to insure a steady price and supply of salt from the various furnaces by executing lease and re-lease agreements with the salt-makers. The firm's accounts reveal contracts made from time to time within a year after its organization with eleven individuals or partnerships controlling nineteen furnaces, and with two others

<sup>21</sup> A Donnally & Steele account book covering the years 1812-1815 is now in the possession of T. B. Stalnaker, apothecary and antiquarian of Charleston, W. Va.

<sup>22</sup> The Cincinnati price tended to approximate \$1.00. Freight to that center was generally charged at \$1.00 per barrel, though some shipments were made at 80 cents. One large shipment was sent to Pittsburgh in November 1813 at 87½ cents per barrel, but the customary rate was about \$2.00.

<sup>23</sup> In 1814 the price of male Negroes varied between \$400 and \$515; a female was bought in July of that year for \$400. Male Negroes were hired in January 1813 at \$12 monthly and from \$90 to \$144 per year, \$120 being a common rate. By June 1814 the rate had jumped to \$15-\$18, and a year later Bob was hired at \$15, whereas Bill was secured for \$20 per month. One female was hired in 1813 at the rate of \$60 per annum.

From November 1812 through April 1814 the firm ordinarily paid 50 cents for salt barrels. During the summer of the latter year the price was either 50 or 62½ cents, the latter being common. The same was true in July 1815.

In June 1813 kettles weighing twenty-six tons were freighted from Pittsburgh at a rate of \$7.50 per ton. Merchandise was brought in April at 50 cents per hundred pounds.



owning timber lands.<sup>24</sup> In the lease with William Whitteker, for instance, Donnally, Steele & Company agreed to pay \$2,400 per annum for the use of his furnace; it then leased the property back to the owner at a rental of 2,400 barrels of salt. At the end of the year (October 1813) Whitteker had a credit balance amounting to \$447.15½, of which \$48.14 was owing to the fact that he had delivered 2,448 bushels and 7 pounds to various dealers for the account of the company and was credited for the surplus over his rental at the rate of \$1.00 per bushel. Comparatively few records of such surpluses are available.<sup>25</sup> Though copies of the agreements have not yet come to light, it would appear that each furnace was allowed a certain production; that is, it is probable that each owner was bound by his lease not to sell to others.

The Kanawha industry found itself in more unsettled conditions after the War of 1812 than ever before. Production was relentlessly increasing because of developments of technique, of which the most significant were the successful adaptation in 1817 of abundantly present coal as a furnace fuel and the accompanying change from heavy cast-iron kettles to broad sheet-iron pans. The former was termed an "important revolution"; and fifteen or twenty wells, with the aid of some thirty furnaces, were reported to have made between 600,000 and 700,000 bushels in the aggregate that year.<sup>26</sup> In the second place, western markets were speculative and erratic until the severe deflation and liquidation of the years 1820-1822. A third, and not least important, source of difficulty was the tightening of competition from other brands of salt. Profitable works were being developed along the Conemaugh and Kiskiminetas rivers in western Pennsylvania which could easily float their product down the Ohio. Salt water was discovered in abundance near Zanesville, Ohio. The trading area of Onondaga producers threatened to enlarge with the opening of each

<sup>24</sup> With some exceptions, the rental was \$2,000 per furnace and the term of the agreement one year. David Ruffner's three furnaces were rented on December 16, 1812, for a term of four years, with a total consideration of \$14,000.

<sup>25</sup> In the following quarter, that ended January 1, 1814, Whitteker produced 1,375 bushels and forty pounds in excess of his rental of 600 bushels and was credited with \$1,375.80.

<sup>26</sup> The Ruffners are credited for successful experimentation with coal (Hildreth, *op. cit.*, p. 119; Hale, *op. cit.*, pp. 285, 304).

section of the Erie Canal.<sup>27</sup> Finally, a flow of Turks Island ("alum") salt into the Mississippi and lower Ohio valleys was directly fostered by the ultimate success of steam navigation upstream and the reduction of freight rates.

*The Cincinnati Salt Market, 1816-1861.* Cincinnati long remained the leading center of salt distribution in the Ohio Valley, and the combinations formed among domestic producers invariably kept their principal selling agency at this point. Large quantities were stored in the local warehouses and in barges anchored along the river awaiting sale to local packers or shipment to nearby markets. Salt was also forwarded to places on the lower Ohio, the Mississippi, and their tributaries. This system of marketing persisted throughout the century, though Cincinnati's position was weakened after 1880 by the emergence of direct shipment via railway from producer to consumer.<sup>28</sup>

It has been estimated that 120,000 bushels of salt were floated to the Cincinnati market in 1818. Receipts mounted to 46,000 barrels by 1826 — a quantity approximately double that of 1818. Annual data for the years 1845-1861, which appear in Chart XXV above (p. 271), show that the trade in domestic salt fluctuated between 70,000 and 125,000 barrels with no marked tendency towards further growth (see also Table 23, p. 320). Until 1850 most of the salt packed in barrels came from the Kanawha valley, but this branch of the industry lost ground to the Ohio district during the ensuing decade. The Ohio River industry, which rapidly developed on both banks of the stream near Pomeroy, sold at the same price as Kanawha. Before 1840 Conemaugh salt from Western Pennsylvania and the Zanesville product were quoted intermittently and usually at a premium, but these were of comparatively little importance except when the Kanawha producers "starved" the market. The same was true of Onondaga or New York salt, the output of which was encouraged so much by improvements in canal and railway transportation. Though the last-named variety penetrated into a large portion of the area tapped by the Great Lakes,<sup>29</sup> it was of gen-

<sup>27</sup> *Niles*, X, 231 (1816); XVII, 351 (1820); XXIII, 384 (1823); XXIV, 336 (1823), and Kilbourn, *Public Documents*, pp. 3, 24, 78.

<sup>28</sup> CCC (1884), pp. 269-70, and later issues.

<sup>29</sup> In 1839 a majority of the Onondaga salt produced went to the lake region.

erally minor importance in the Cincinnati area at that time for two reasons: (1) pork packers preferred salt from Virginia and Ohio;<sup>30</sup> (2) prevailing prices and costs of transportation usually made it difficult to ship so far southward. Nevertheless, receipts of the New York article tended to expand with each lowering of tolls and freight rates and to respond more directly to higher prices associated with Kanawha market control.<sup>31</sup>

Until the fifties Cincinnati was a minor market for foreign salt compared with New Orleans and St. Louis in spite of the encouragement lent to importation after 1820. Annual receipts at the Gulf port averaged less than 200,000 bushels up to 1827 but exceeded 300,000 after 1829 and reached 634,412 in 1838. In 1860 the figure was almost 4,000,000.<sup>32</sup> A large part of the Ohio supply came from Turks Island in the British West Indies, but Liverpool salt gradually increased in importance. At least part of the increase in importations of the late thirties and forties may be ascribed to high western prices occasioned by Kanawha control. In the commercial year 1845 some 70,000 sacks were

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Of a total output of 600,000 barrels, 183,500 passed through the Welland Canal and 142,000 through the Erie Canal via Buffalo. The expense of transport from Syracuse to Buffalo in early 1841 came to only 30 cents a barrel, and from the latter point to Lake Michigan 50 cents. As for salt intended for Ohio, masters of lake steamers carried three-fourths of the cargoes gratis, preferring them to sand for ballast.

The New York state tax was cut to 6 cents in 1834 and to 1 cent in 1846. Furthermore, both New York and Ohio canal commissions allowed liberal drawbacks of tolls on New York salt landed in Portsmouth. The bounty amounted to almost 75 cents a barrel. Tolls on the Miami and Erie Canal were lowered in 1851 by some 3 cents a bushel, probably in response to railway competition. *Niles'*, LXI, 21; LXXIV, 346 (July 1848-Jan. 1849); and U. S. Census (1860), III, ccii; LH, Mar. 27, 1851.

<sup>30</sup> CCC (1861), pp. 43-44; *Cist's Advertiser*, Mar. 28, 1848, and Sept. 19, 1849; W. C. Dennis, "Salt—Its Uses and Manufacture—Salt Meats," *De Bow's Review*, XXIII, 133-63 (Aug. 1857).

New York salt was long in demand for table and dairy, but it was reported in 1859 that Ohio River salt of this type had driven Syracuse from the market (CPC, July 20, 1859).

<sup>31</sup> Thus, the epochs 1835-1840 and 1845-1850 were marked by rising prices, smaller receipts of Kanawha salt, and rising imports of New York and foreign salt (CDG, Jan. 6, 1851).

<sup>32</sup> Sen. Doc. no. 196 (26th Cong., 1st Sess., 1839-1840), pp. 92-93; *Commerce and Navigation* (1860), pp. 488-89.

received at Cincinnati; and, though imports fluctuated widely in later years, the general tendency was definitely upward. Indeed, the receipts of Turks Island and other foreign brands finally became large enough to assume an active role in the market. Thus, the supply was so great after 1855 that it helped to keep all salt prices at comparatively low levels.<sup>33</sup>

The world price of salt declined in a remarkably steady manner between 1816 and 1861 if we are to judge by the Turks Island series for Philadelphia plotted at the bottom of Chart XXVI. Aside from seasonal variations, the only considerable departure from this downward drift was a prolonged boom in the middle fifties, but a greater decrease during the remainder of the decade supports the interpretation that no reversal of trend occurred at the mid-point of the century. As for Cincinnati, a somewhat sharper long-range decline may be seen in the Turks Island prices at the top of the same chart, though these data go back only to 1824. According to Table 10 (page 114) there was an average differential of 60 cents a bushel between Cincinnati and Philadelphia during the latter half of the thirties, to be compared with 10 cents over a corresponding period thirty years later. Monthly prices of Kanawha salt in Cincinnati and supplementary data for Pittsburgh, Lexington, and Louisville show that domestic salt continued upon the downward course which commenced in the preceding century.

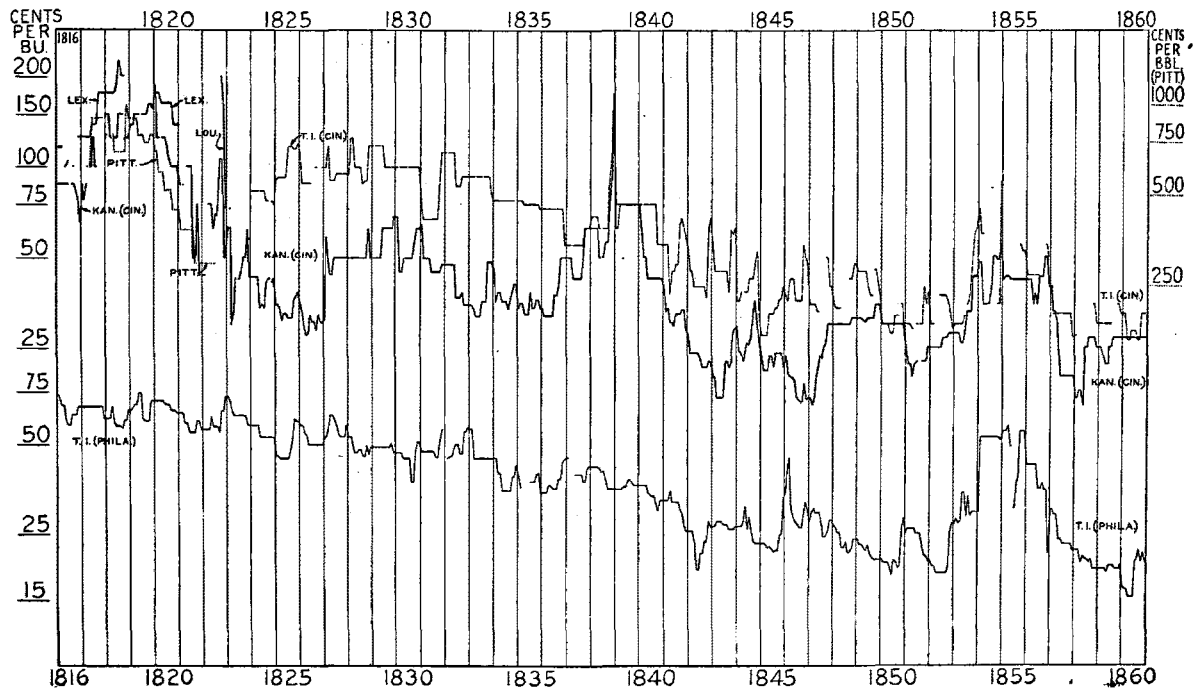
It is apparent that Kanawha prices were much more unstable from year to year than Turks Island. Periods of high prices alternated with periods of low prices, and the ups and downs did not always coincide with those characteristic of general prices. The range of variation was commonly 100 per cent or more, measured from the low points. Mention may be made of the peaks (or rather plateaus) in 1817-1820, 1827-1832, 1836-1840, 1847-1850, and 1853-1856, between each successive pair of which there intervened an epoch of low and falling prices. The month-to-month activity of the various series is also a matter of interest.

<sup>33</sup> See Chart XXV and Table 23 (pp. 271, 320). Turks Island salt was packed in sacks of two bushels, Liverpool in sacks of four.

In the 1880's Michigan and New York salt began to drive foreign competition out of the Cincinnati market (CCC [1855], p. 26; [1857], p. 20; [1858], pp. 25-26; [1859], p. 32; [1883], pp. 236-37).

### CHART XXVI

MEAN MONTHLY PRICES OF KANAWHA SALT IN CINCINNATI (1816-1860), LEXINGTON (1816-1820), LOUISVILLE (1822-1823), AND PITTSBURGH (1816-1822). MEAN MONTHLY PRICES OF TURKS ISLAND SALT IN CINCINNATI (1824-1860) AND PHILADELPHIA (1816-1860)



The Cincinnati Turks Island prices tended to be "blocky," especially before 1840, because trading occupied only the last quarter of the year and quotations were nominal in other seasons. The Kanawha salt curve, on the other hand, is characterized by alternate periods of high and low month-to-month activity. Furthermore, in practically every instance a stable price was a high one and an unstable market was low or declining. According to other evidence, this does not signify that a rising market was accompanied by a suspension of trade; rather, it reflects the presence or absence of price administration on the part of the Kanawha salt companies.

Turks Island salt prices in Cincinnati acted as a ceiling above domestic prices. The two varieties, it is true, were complementary to each other to some extent (local packers grew to prefer a mixture, since the foreign or alum was too strong to be used alone), but they were also competitive. As has already been mentioned, this ceiling became lower and lower owing to several forces, the precise importance of each of which it is impossible to discover. It may well be argued, however, that changes in the tariff account directly for only a minor share of the decline.

Taking the period 1845-1861, statistical measurements show no highly consistent relationship between annual Cincinnati salt prices and market receipts, though contemporary observers supply a considerable amount of evidence as to the "common-sense" relationship between these two variables.<sup>34</sup> Variations in the prices of Turks Island salt, it is true, were related to variations in annual receipts in a not wholly inconsistent manner (at least the coefficient of correlation is exceeded only by comparable figures for flour and sugar), but changes in the annual price of Kanawha salt hardly reflected receipts at all.<sup>35</sup> This may mean that the demand for Kanawha salt was ordinarily more subject to variation from year to year, but no facts have been unearthed to sup-

<sup>34</sup> The "common-sense" relationship, which was customarily observed between notable changes in receipts and prices from week to week or month to month, is undoubtedly blurred in annual summaries or averages.

<sup>35</sup> The coefficient for Turks Island salt is  $-.58$ ; that for Kanawha salt  $-.21$ . Turks Island prices are matched with receipts in sacks and Kanawha prices with receipts in barrels. Flour ( $-.84$ ) and sugar ( $-.73$ ) are the highest coefficients obtained.

port such an interpretation. Rather, it appears that the domestic producers did find a rather dependable relationship between supply and price and proceeded to use it to their advantage. In other words, no high degree of statistical relationship existed between Cincinnati prices and receipts between 1845 and 1861 because the former were inflexible in many years, and shipments were regulated to meet consumption. A fairly consistent correlation is found, however, between annual inspections of Kanawha salt and its purchasing power in Cincinnati over an interval embracing several epochs of control and noncontrol (1827-1855).<sup>36</sup>

*Salt and the Tariff.* Originally small, the salt duty was intended for revenue and accompanied by a drawback on exported salt fish and provisions. It became so decidedly protective in the early nineteenth century, however, that thinkers of the day frequently complained of its effects.<sup>37</sup> The Act of July 4, 1789, specified a rate of 6 cents per measured bushel (less 10 per cent on imports in American bottoms) and a bounty of 5 cents per barrel on salted fish and provisions. This duty was raised almost sixfold by successive acts of legislation within eight years, though the bounties were increased only 100 per cent. The Act of August 10, 1790, provided a rate of 12 cents a bushel for American bottoms and 10 per cent more for foreign. The Act of May 2, 1792, following British procedure, decreed a bushel of salt to weigh fifty-six pounds—and this was tantamount to increasing the duty about 50 per cent more. Finally, the Act of July 8, 1797, fixed the rate at 20 cents per fifty-six pound "bushel" on salt imported in American bottoms (10 per cent more for foreign) and set the bounty on salted provisions and fish at 10 cents a barrel. This arrangement lasted until the duty was repealed by Act of March 3, 1807.<sup>38</sup>

Salt remained duty-free exactly six years (1808-1813). The

<sup>36</sup> The coefficient (-.51) would probably be higher if inspection figures were adjusted by an index of general production. The year 1855 was chosen as a limit because the Kanawha saltmakers were about to lose leadership over the market at that time.

<sup>37</sup> F. W. Taussig, *State Papers and Speeches on the Tariff* (1893), pp. 72, 201 ff., 222, 228.

<sup>38</sup> U. S. Statutes at Large: I, 24, 180, 259, 533; Sen. Doc. No. 196, p. 166 (26th Cong., 1st Sess., 1839-1840).

pressure of war finance resulted in a revival of the 20-cent rate in the Act of July 29, 1813, from which mention of bounties was omitted. This duty was re-affirmed in the Act of April 27, 1816, and remained undisturbed (indeed unmentioned) in the tariff legislation of 1820, 1824, and 1828.<sup>39</sup> At the time of its reimposition the tax was not too unreasonable, since it was equivalent to little more than 25 per cent *ad valorem*. (During the first six months of 1813 Liverpool salt sold for amounts ranging from 82½ to 107½ cents per bushel in New York and Philadelphia.) Furthermore, it was of merely political interest to the West before 1820 except in a few districts which could get sea salt. However, the charge came to appear more onerous as prices and transportation costs declined and the interior absorbed more salt from abroad. Furthermore, the omission of bounties on salt provisions and the exploitation of consumers from time to time by the Kanawha interests lent more fuel to complaints from the West. Senator Thomas Hart Benton of Missouri chose to lead a drawn-out fight for repeal of the duty, in the course of which he wasted no opportunities to show the manner in which the Kanawha producers oppressed the people of his own state in particular and the West in general.<sup>40</sup> Representatives of the Kanawha group opposed the repeal or reduction of the duty in several memorials to the Congress.<sup>41</sup>

The Act of May 29, 1830, was a partial victory for the repeal group — the salt duty was reduced to 15 cents for the year 1831 and 10 cents thereafter. The Act of July 14, 1832, retained the latter rate, but the duty was gradually scaled down to 20 per cent

<sup>39</sup> U. S. Statutes at Large, III, 49, 310; IV, 25.

<sup>40</sup> A list of references to some of Benton's major speeches is given in William Meigs, *Life of Thomas Hart Benton* (1904), pp. 156, 161. The battle for repeal of the salt duty was especially keen between 1829 and 1832 and again between 1838 and 1840. The more important surveys compiled and printed at Benton's behest include Senate Document No. 105 (22nd Cong., 1st Sess., 1831-1832), No. 269 (25th Cong., 3rd Sess., 1838-1839), and Nos. 196 and 368 (26th Cong., 1st Sess., 1839-1840). The assemblies of Tennessee and Indiana both passed resolutions execrating salt monopolists and favoring repeal (Sen. Docs. Nos. 68 and 343 [26th Cong., 1st Sess., 1839-1840]).

<sup>41</sup> See Sen. Doc. No. 47 (20th Cong., 1st Sess., 1827-1828); House Report No. 70 (21st Cong., 2d Sess., 1830-1831); House Executive Document No. 55 (21st Cong., 1st Sess., 1829-1830).



*ad valorem* by the general Act of March 2, 1833. According to the latter, collections during the period from the beginning of 1834 to August 29, 1842, averaged less than 9 cents a bushel.<sup>42</sup> The tariff of August 30, 1842, stabilized the rate at 8 cents per fifty-six pounds, but the Act of 1846 made a considerable reduction by placing salt upon a basis of 20 per cent *ad valorem*. Actual duties collected rarely exceeded 2½ cents per bushel, and the rate was diminished further to 15 per cent by the tariff of 1857. The tide turned with the tariffs of 1861 and 1862.<sup>43</sup>

Though it is highly probable that reductions in the duty were at least a contributing factor in the long-run fall of prices, the short-run relationship between the two variables is more obscure, especially where prices in the interior are concerned, owing to the presence of many other market-making forces. Prices of Turks Island salt in Philadelphia, it is true, drifted downward during the thirties, recovered after 1842, and declined after 1846 and 1857. However, the movement around 1842, for instance, was undoubtedly influenced greatly by general depression and recovery. On the other hand, the tariff alteration of 1830 — the most radical after 1813 — was poorly reflected in the market, since reductions took place in 1833 and 1834 instead of 1831 and 1832. In other words, savings were not directly passed on to the consumers. Turks Island prices in Cincinnati, viewed from the short run, manifested somewhat less reaction to changes in the duty, partly because costs of transport and handling formed a considerably larger share of the price and partly because the market for the foreign article responded at times to changes in the domestic supply, as, for instance, in the late thirties. As for Kanawha salt prices, reductions in the customs duty appear to have exerted their principal effect in the long run, by aiding to lower the margin between the domestic and foreign varieties from 50–75 cents to almost zero.

<sup>42</sup> U. S. Statutes at Large, IV, 419, 583, 629; *Hunt's Merchant's Magazine*, VIII, 358 (1843).

<sup>43</sup> U. S. Statutes at Large, V, 548; IX, 42; XI, 192; XII, 178, 543. See also *Congressional Globe*, Aug. 5, 1846 (29th Cong., 1st Sess., 1845–1846), p. 1193; Senate Report No. 10, vol. i (35th Cong., 1st Sess., 1857–1858).

The Act of March 2, 1861, provided specific rates of 4 cents per 56 pounds of salt in bulk and 6 cents on salt in bags; that of July 14, 1862, imposed an additional duty of 6 cents per 100 pounds on all salt.

*The Kanawha Salt Companies, 1816-1861.* The chronology of the Kanawha industry in Chart XXVII sets forth the names of the various companies between 1816 and 1860 and the dates of organization and dissolution so far as they have been ascertained.<sup>44</sup> This graph also shows annual Kanawha inspections and the monthly course of salt's purchasing power in the Cincinnati market (data for Lexington, Louisville, and Pittsburgh are included for certain years where Cincinnati figures are deficient).<sup>45</sup> It appears that the purchasing power of western salt — like the price — was subject to periodically severe declines from which recovery was frequently only partial. The timing and amplitude of the declines, the growth in production and market receipts, and the advances in the technique of manufacture and transportation strongly suggest that changes in the technological situation and the associated strengthening of competition were chiefly responsible for the market behavior. The downward trend of Turks Island prices has already been discussed. At home, the discovery of new and cheaper methods repeatedly presented the temptation to each producer to pump more brine from his wells and increase the capacity of his furnaces (few improvements were patented or held secret). Those in the vanguard of innovation reaped larger profits, but their neighbors faced the necessity of continually refitting their equipment. Furthermore, the majority of producers began to fear the ultimate consequences of a large expansion in the rate of manufacture.

A natural result was for the saltmakers to seek some collective "arrangement" to avoid these consequences, and the implementa-

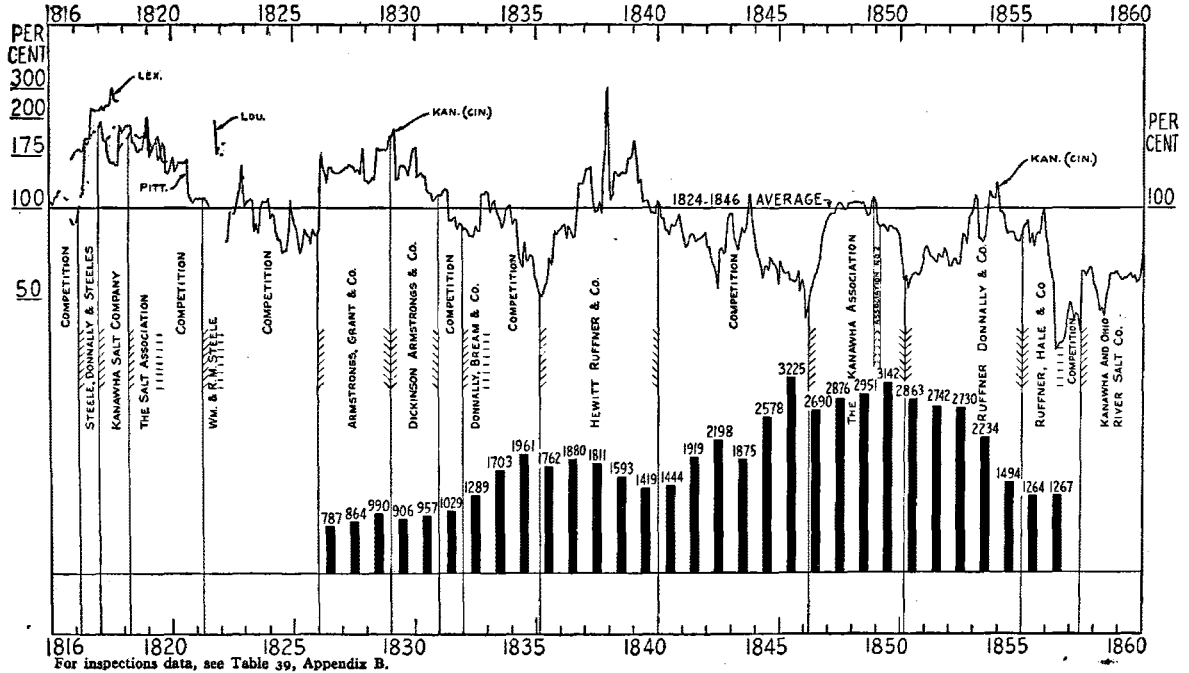
<sup>44</sup> Sufficient materials have been located to warrant a more extended treatment of the salt companies in a separate publication. They include: books of account and correspondence, many of which are now housed in the West Virginia University Library; records of the Kanawha County Court and the Superior Court, recently acquired and catalogued by the same institution; records of the Circuit Court of Chancery in Charleston, West Virginia; Congressional documents such as those cited above; newspaper comments; and secondary sources.

<sup>45</sup> Hale was the first to arrange the companies chronologically and to furnish production figures, though his list of the former is incomplete and he made no attempt to correlate the two sequences (*op. cit.*, p. 303). The original quarterly inspection reports have not been located.

The index numbers of general prices used to compute purchasing power in 1816-1823 are those given in Chart XXXI (p. 376).

### CHART XXVII

MONTHLY PURCHASING POWER OF KANAWHA SALT IN TERMS OF GENERAL PRICES IN THE CINCINNATI MARKET (1816-1860), LEXINGTON (1816-1818), LOUISVILLE (1822-1823), AND PITTSBURGH (1817-1822). ANNUAL TOTAL INSPECTIONS OF KANAWHA SALT, 1827-1857  
(Thousands of bushels)



For inspections data, see Table 39, Appendix B.

tion of such an arrangement was made easier and more effective by other circumstances. The Kanawha field had emerged as the dominant source of supply to the Ohio-Mississippi watershed by reason of location, strength of brine, and technical facilities of manufacture (the Onondaga field held a similar position in the Great Lakes area). Furthermore, the producers were few in number — the latter rarely exceeded thirty-five — and were for the most part close friends, partners, or relatives by blood or marriage.<sup>46</sup> In some instances it is uncertain whether the primary initiative for organization arose within the ranks of the producers or came from dealers outside. The Steeles of Kentucky, for example, were influential in forming organizations in 1812, 1817, and 1822, and a group of Maysville merchants, led by the Armstrongs, performed a similar function in 1827. The "Association #2" of 1849-1850 appears to have been engineered by Cincinnati speculators. The rest of the fourteen successive arrangements, however, were initiated and operated by saltmakers themselves.

Leadership in the formation of these companies changed hands considerably, as can be seen from the names borne by the successive companies.<sup>47</sup> The dominant figures before 1825 were Andrew Donnally, Jr., William Steele, and David Ruffner. James Hewitt was prominent for over a decade following 1827, and Lewis Ruffner retained a position of importance for at least three decades. J. P. Hale, sometime physician, became interested during the fifties and took over leadership during and after the Civil War. There was also a moderate turnover among the entrepre-

<sup>46</sup> Hunter noted the clannishness of the saltmakers (*Studies*, p. 57). In 1828 a majority of the sixty-five furnaces were owned by two groups held together by business association, marriage, or blood relationship. The Ruffners, Dickinsons, and Shrewsburys controlled thirteen furnaces, and the Donnally-Morris group held twenty-four. (Sen. Doc. No. 47, Appendix A, p. 16; George W. Atkinson, *History of Kanawha County* [1876], pp. 281 ff.; W. S. Laidley, *History of Charleston and Kanawha County* [1911], pp. 276-90 *et passim*.)

<sup>47</sup> Though it was customary to refer to the various "arrangements" as the "Kanawha Salt Company" or the "Kanawha Salt Association," the former "name and style" were formally adopted only by the company of 1817, by corporations chartered in 1847 and 1861 which appear never to have operated, and by a firm organized in 1864. Names of the other concerns were as given in Chart XXVII, though there is some doubt as to the exact title of that organized in June 1858. Cf. Acts of the (Virginia) General Assembly, (1846-1847), pp. 188-90; (1861), pp. 288-90.

neurs, but fifteen or twenty names repeatedly appeared in the agreements.

At the Salines, opinion in favor of collective operation waxed and waned in a fairly regular cycle about ten years in length. After three or four years of rising production and falling prices, sentiment for organization rose, the chief obstacle being lack of a precise formula for production quotas and rents. As prices fell still further and showed no sign of immediate recovery, dissenting groups were driven to a compromise, and the organization was launched. A comparatively drastic cut in production and rise in prices succeeded on several occasions in affecting decided improvement in the financial condition of most of the producers. The latter, bound together more or less loosely, then tended to become independent and find fault with the terms of the agreement affecting their respective furnaces. After some dropped out, the remainder generally sought some less drastic formula to hold the group together. The latter failed after a year or two, a race for production got under way, and ground was laid for a repetition of the cycle.<sup>48</sup>

*The Articles of Agreement.* The standard procedure was for the producers, whether individuals or partnerships, to draw up articles of agreement or co-partnership for a stated period of time. The latter was in some instances three years and provision was made for renewal in some of the agreements. Subscribers or co-partners promised to sell all their product to the company at a given price and to produce no more than a stated amount in each furnace. Armstrongs, Grant & Company (1827), Hewitt, Ruffner

<sup>48</sup> Dating from the adoption of drastic measures, there were three very similar sequences: 1817-1826, 1827-1836, and 1836-1847. The epoch 1847-1858 was exceptional in that it began with a looser organization which was succeeded by an elaborate plan of control. However, the latter gave way in 1856 to a less drastic form which collapsed shortly thereafter.

The period preceding organization was marked by complaints to the local editor. See, for instance, *Kanawha Republican*, Dec. 17, 1845. At that time the salt-makers divided into the "liberal" and the "break-down" parties, the first of which was in favor of union. The "break-down" men were alleged to be planning the ruin of the others by cutting prices. (See evidence of Thomas R. Friend, filed with papers of the Clinch Committee Investigation, (May 1863), pp. 69-70, Virginia State Library.)

The plan of assigning value to each property for purposes of consolidation was the main feature of the charter of 1847 which apparently failed of adoption.

& Company (1836), and Ruffner, Donnally & Company (1851) used the practice termed the "dead rent"; that is, they paid the owners of some wells and furnaces to keep them out of production entirely. Examination of the agreements reveals that in most cases they originally had the support of all but a few of the producers then in operation.<sup>49</sup>

Various means were employed to insure compliance on the part of signers, and the results attained as to production and prices suggest that the methods were generally effective throughout the life of the agreements. Mention has already been made of the procedure of leasing the furnaces from their owners for a certain rent (in money) and then arranging for the latter to operate them under a lease from the company, at a rent payable in salt. None of these leases appear to have been registered, but they were treated as considerations in sales of property and regarded as binding upon the buyers thereof.<sup>50</sup> The Kanawha Salt Company of 1817, occasionally characterized as the first trust in America, was of little practical importance compared with Steele, Donnally, & Steeles, which had been reorganized earlier the same year. The latter firm was empowered to purchase a rather considerable share of the salt properties; and a suspension of the Salt Company agreement soon left affairs in a hopeless legal tangle which dragged on for thirty years. Thereafter the saltmakers balked at merging completely into a large concern. Thus, a corporation provided for by a state charter of 1847 was enabled to purchase all the properties with shares, but a more loosely bound "Association" took its place. Ruffner, Donnally & Company, a joint-stock company organized in 1851 with transferable shares capitalized at \$200,000, required all shareholders to lease their properties (then or later acquired) to itself on the penalty of enjoining the offender

<sup>49</sup> Though the Shrewsburys were actively interested in several of the companies, the Dickinsons appear to have refrained from signing all but one of the agreements, and the prominent partnership Dickinson & Shrewsbury is not named in any of the covenants which have come to light.

<sup>50</sup> In 1829 Littleberry and Joel Leftwich deeded to James Hewitt the right to market 13,000 bushels independently, secured by agreement with Armstrongs, Grant & Company (Kanawha County Deed Book G, p. 339 [April 18, 1829]). On April 24, 1830, James C. McFarland deeded a parcel to John Reynolds *et al.* in which an annual dead rent of \$1,500 from Dickinson, Armstrongs & Company formed a consideration.

from operating the furnace.<sup>51</sup> William and R. M. Steele, the short-lived concern organized in the spring of 1822, sought to prevent a breach of covenant by paying the individual producer 50 cents a bushel if he sold to them exclusively but only 33 $\frac{1}{3}$  cents if he sold any salt elsewhere, and methods of payment were designed to carry out the penalty if necessary. The same firm contracted with all producers to shut down entirely for the first quarter of the year 1823. Andrew Donnally is alleged to have put wells out of operation in May 1822 by loading them with rubbish and junk metal.<sup>52</sup>

*Status at Law.* The climate of legal opinion does not seem to have been unfavorable to the companies. None of the agreements was secret, and local authorities were frequently prominent in their formation and prosecution. Apparently, the state's chief concern was to enforce the statute as to the inspection of salt. The control of prices and production carried no stigma in Richmond, judging by the fact that the 1847 charter was designed to further collective operation and included the sole reservation that salt be sold to inhabitants of the commonwealth at a price not exceeding 20 cents per bushel. As for the federal government, the idea of interference appears never to have been entertained except through reduction of the tariff.<sup>53</sup> In 1827 meetings were held in Cincinnati and other western points to protest against the formation of Armstrongs, Grant and Company; and according to information gathered in Missouri at Benton's instigation a few years later, the sentiment against Hewitt, Ruffner & Company

<sup>51</sup> The preamble to the agreement of organization is characteristic: "Whereas the present condition of the salt business in the county of Kanawha, Virginia, renders necessary some arrangement among those interested therein, by which the quantity of salt made shall be lessened, individual competition to each others injury avoided and a more economical and efficient method of shipping and sending the salt secured."

An injunction was later granted to Lewis Ruffner by the Circuit Court of Chancery to prevent movement of manufacturing equipment to a property which had been dead-rented in 1851 and deeded the following year by one of the parties in the agreement to another.

<sup>52</sup> *Stockton vs. Donnally, Trespass*; Superior Court, 1824-11.

<sup>53</sup> "It belongs to the State of Virginia to regulate a local concern within her limits; . . . Congress has nothing to do with it; it has no power over the property or conduct of the monopolizers. . . ." (Senator Benton, *Congressional Globe* [26th Cong., 1st Sess.], Appendix, p. 396.)

was rather strong among the packers and farmers.<sup>54</sup> The protestants were at a loss to discover which line of legal action to pursue beyond demanding a repeal of the salt duty; Cincinnati consumers deplored the fact that monopoly was "not punishable by our laws." No record has come to light of a legal action brought against the companies, in which the common law as to engrossing, forestalling, or re-grating was invoked; and though the saltmakers were famed for their propensity towards litigation, only two instances have been located in which a party to one of the agreements sought to avoid liability by claiming nonenforcement at law. Both of these cases involved William & R. M. Steele and arose after the concern had been disorganized.<sup>55</sup> However, since twelve companies were formed in later years, and were parties to many legal actions through partners, it is difficult to believe that the pleas were successful enough to discredit the procedure in the eyes of the courts. Indeed, the companies became an established part of the legal framework of Kanawha County. Failure to invoke restraint of trade may have been due to the absence of the doctrine in the western states at that time, or it may have resulted from the belief that other brands of salt were plentiful, and prices—even those set and maintained by the companies—were so low in comparison with those of preceding generations that proof of harmful monopoly could be established only with great difficulty.

*Finance and Distribution.* The salt companies fulfilled two important functions other than control of production and price: finance and distribution. Comparatively little is known as to the financial aspects of most of the concerns. The latter appear to have provided the saltmakers with a responsible party against which they could draw bills of exchange for discount at local banks. The accounts of Hewitt, Ruffner and Company show that bills payable grew steadily from the time of organization (March

<sup>54</sup> Collins, *op. cit.* (1882 ed.), I, 34; *Lexington Reporter*, Feb. 14, 1827; *Western Virginian*, Feb. 17, 1827; *National Republican*, Mar. 9, 23, 1827; Sen. Doc. No. 196, pp. 9, 36, *et passim*.

<sup>55</sup> Wm. & R. M. Steele (use of Andrew Donnally) vs. John B. Crocket and John D. Shrewsbury, Breach of covenant; Superior Court, 1825-10. Andrew Donnally, assignee of Wm. & R. M. Steele, vs. Cabell & Trimble, Debt., Superior Court 1824-9, 1826-5. The briefs filed in these cases have been preserved but the outcome is not known.



1836) and reached \$220,000 by July 1838. These bills, which were of four to six months maturity (shortened to sixty days during times of stringency), were drawn by Andrew Donnally, William Tompkins, Dickinson & Shrewsbury and other leading saltmakers. Ruffner, Donnally, & Company — perhaps the most elaborate of all — drew so extensively upon its Cincinnati agent that the latter frequently found himself in an embarrassing position. The firm thus made use of as much outside capital as possible.

As for marketing, mention has already been made of the fact that the Kanawha companies delivered salt along all navigable western streams. Hewitt, Ruffner, & Company had agencies on the Ohio, the Lower Mississippi, the Upper Mississippi, the Illinois, and other rivers. The agents were bound to follow the requirements of the company as to selling-price and terms, and attracted considerable obloquy by requiring cash during times of monetary stress. Ruffner, Donnally, & Company had its main agency in Cincinnati and four other principal agencies (Wheeling, Louisville, St. Louis, and the "Home Agency"). It transported salt to these points by a fleet of three steamboats and scores of flatboats, and kept large stocks there, especially at Cincinnati, in anticipation of demand or a rise in the water. Each agent consigned salt to sub-agents (there were about 130 in the Cincinnati district) for an advance of \$1.00 a barrel (ostensibly to cover shipping charges) and collected the balance upon sale to consumers. J. H. Rogers, Cincinnati agent in 1853, was careful not to have too many sub-agents in any one locality and refused to deal with firms carrying Dickinson & Shrewsbury or other competitive brands. He sent out orders from time to time raising prices at all points; and met New York competition at towns north of Cincinnati by yielding concessions if necessary and by securing rebates from the Little Miami Rail Road. On one occasion Rogers acted secretly so as to get a stock of Kanawha salt out of the hands of a non-agent; on another he advised sub-agents not to load consumers up with salt while the water was high and foreign salt was plentiful. Rather, instructions were to wait until the rivers were low (this happened frequently just before packing season), since sales could then be concluded at higher prices without fear of competition from the foreign article. The company paid fixed com-

missions so that sub-agents could not share in profits accruing from a rise in price.

*Kanawha Production and Cincinnati Prices.* The figures summarized in Charts XXVI and XXVII (pp. 298 and 304, respectively) permit us to judge to some extent the success of the various companies. Most of them were successful in that they accomplished what they set out to do: restore the price of salt to a "fair" and stable level (according to past experience) by cutting down on production and regulating the flow to consumers. It is interesting to speculate as to what criteria were used in setting prices — whether the companies were guided by the course of other western prices in general, by salt prices in seaboard markets, or by costs of production including a "fair" profit. It appears that the later concerns approached the quoted prices of foreign salt as closely as possible. Steele, Donnally, & Steeles managed to jack the Cincinnati price from \$1.00 up to \$2.00 between March and December 1817 — while general prices were sharply falling — and were so successful that the saltmakers organized the Kanawha Salt Company in November of that year so as to gain a larger measure of control over the industry. Internal dissension appears to have nullified their efforts, but the Salt Association of 1819 then took over. The precise degree and timing of market control attained by the latter is not known, but the Cincinnati market finally succumbed to deflation, the effects of which were intensified by the receipts of foreign salt on a scale never before known.<sup>56</sup> During the winter of 1821-1822 Isaac Jackson paid no more than 43¾ cents for a bushel — little more than 25 per cent of the ruling price two years previously.

William & R. M. Steele contrived to get the price up to a level around 75 cents, and the expiration of its contracts in the spring of 1823 was marked by a sudden and temporary relapse to 30 cents. Then followed a period of great production and low prices. By 1826 the annual output reached an estimated million bushels, and Cincinnati prices settled at a figure as low as 26 cents. Despite the fact that improvements had been made in the quality of

<sup>56</sup> Imports at New Orleans increased from 112,019 to 221,723 bushels between 1820 and 1821. "Allum" salt was advertised in Cincinnati at \$1.00 in the latter year (the inferior Kanawha brand had sold at \$1.87½ one year previously). (Sen. Doc. No. 196, p. 92; LH, July 14, Nov. 24, 1821.)

the article by the more perfect removal of impurities such as muriate of lime, sales at the works were reported as low as 12 cents even when the salt was packed in well-nailed casks for shipping.<sup>57</sup>

Armstrongs, Grant & Company may be credited with a reduction in output to less than 800,000 bushels and a restoration of the Cincinnati price to 50-62½ cents. The spread between Turks Island and Kanawha prices was cut in half in 1827, compared with the preceding year. The concern lasted one three-year term during which the saltmakers managed to get out of debt. Indeed, its policies fostered a higher degree of independence among the producers, who found a good market at a fair price without the intervention of a company. However, it was decided at the beginning of 1830 to organize a "factorage" (Dickinson, Armstrongs & Company) to prevent the industry from going back into disorganization. The primary purpose of the factorage was to regulate the shipment of salt to the western markets so as to save costs of transportation and insure a supply at all points. Nevertheless, control was retained over the price, "which the active and increasing competition in the West, of a necessity" kept at a minimum.<sup>58</sup> The concern lasted two years, during which the Cincinnati price was maintained at around 50 cents.

Little is known about Donnally, Bream, & Company, which Hale listed next in chronological order (1833). It is certain, however, that the saltmakers were expanding production rapidly once more. Each company acted somewhat like a dam in a stream, the breaking down of which was followed by an inundation. Thus, annual output increased from 957,000 to 1,961,000 bushels between 1831 and 1835. In 1831 William Morris had developed a boring tool of extraordinary utility which he freely permitted all his associates to employ.<sup>59</sup> Larger pans were installed in new furnaces; wooden tramways were laid to haul coal from hills near-by, and flanged wheels of cast iron applied thereon; manufacture of "alum" salt was commenced; and production for volume entered

<sup>57</sup> *Niles'*, XXX, 445 (Aug. 26, 1826); Hildreth, *op. cit.*, p. 120; Sen. Doc. No. 47, p. 5.

<sup>58</sup> House Report No. 70, p. 23.

<sup>59</sup> The borer, never patented, was known as the "slips"; it later became standard equipment for oil-drilling, where it was called the "jars" (Hale, *op. cit.*, pp. 304-5).

upon in earnest. It is not surprising that the Cincinnati market declined once more, to a level around 32 cents a bushel.

Hewitt, Ruffner & Company managed to raise the price by stages during 1837, 1838, and 1839 to the 75-cent mark. Part of this rise may well have been due to the inflation characteristic of those years, but it was certainly aided by the control of both production and distribution. Annual output was restricted to 1,419,000 bushels by 1840, and, furthermore, a new policy was inaugurated of withholding a good share of the output from sale. A surplus of 1,500,000 bushels accumulated by 1841.<sup>60</sup> The result was that, although Cincinnati and eastern salt prices were not far from agreement between 1826 and 1838, the former exceeded the latter in 1839-1840 and fell to correspondingly lower depths in 1842-1843. Though this lends support to the criticism voiced against the restrictive policy of Hewitt, Ruffner & Company, it may not be overlooked that general western prices behaved in a similar manner in comparison with those in leading seaports, judging from the index numbers compiled in this survey.

The exact date and reason of the demise of Hewitt, Ruffner, & Company are uncertain, but there is no doubt that a race of production got under way during the early forties. All furnaces were lighted, and new records were set. William Tompkins turned out over 149,000 bushels during twelve months, and inspections reached the highest known figure in 1846 (3,224,786 bushels).<sup>61</sup> Copper pans and steam jackets had been installed in 1841, and the first gas well yielded very cheap fuel in the same year. Prices pursued the same course as in the early twenties and thirties, gravitating this time to around 17 cents a bushel in Cincinnati. Though the collapse coincided with the general price depression of 1840-1843, the movement kept on during ensuing years in spite of marked recovery in other lines. Cutthroat competition was the order of the day at the Kanawha Salines, and affairs were never so displeasing to many of the saltmakers.

The Salt Association of 1847 and Ruffner, Donnally & Company, set up four years later, were both partially successful. The former proceeded to raise the price at all points and made the policy effective by shipping considerably less salt. Receipts of

<sup>60</sup> Cist, "Salt Prospects," *Cist's Advertiser*, Sept. 19, 1849.

<sup>61</sup> *Kanawha Republican*, Mar. 28, 1844.

Turks Island and New York salt increased sufficiently, however, to take up the vacuum thus created.<sup>62</sup> Furthermore, the height of the market permitted the Muskingum industry to get back on its feet. Nevertheless, the Kanawha Association managed to get rid of the last of the "great surplus" by the end of 1848. And though Cincinnati prices agreed closely with Philadelphia, New Orleans, and Charleston during the middle forties (New York was comparatively dear), the 1847 combination succeeded in keeping the West about 50 per cent above these three other points.

Establishment of Ruffner, Donnally & Company in 1851 was hailed in Cincinnati as a "new and very judicious arrangement," perhaps owing to the fact that a pool of local speculators had attempted to gain control of the market during the winter of 1849-1850 and to exploit the packers without mercy during their busiest season. The 1851 concern faced a new and very serious problem — a competitor with a more favorable location and brine. A mushroom growth had taken place in Mason County (Virginia) and Meigs County (Ohio), where wells were driven beginning in 1849. Production continued to expand rapidly, and the Kanawha Company bought the product at 19 cents a bushel in order to save the market, even though this involved curtailing output at the Kanawha Salines. By 1855 the Pomeroy producers were reported to be making 1,800,000 bushels annually, to be compared with 1,500,000 for the Kanawha field. According to salt prices at New Orleans, Philadelphia, and Charleston, the policy was not wholly unsuccessful. The Cincinnati market was more or less at the same level as the other three during the years 1851-1853, but western prices were much higher between 1854 and 1857. The outlook at Kanawha Salines was therefore decidedly gloomy at the end of 1855, when the company was due to expire.

The organization of Ruffner, Hale & Company not many days later indicates that the saltmakers preferred not to return to free competition, but, as in 1819 and 1830, fear of overproduction failed to prevent the discard of dead rents and manufacturing quotas.<sup>63</sup> The total inspections of Kanawha salt were small in 1856 and 1857, but the annual rate of Ohio River production was

<sup>62</sup> CDG, Jan. 6, 1851.

<sup>63</sup> CCC (1856), pp. 17-18. An 1857 directory lists both Ruffner, Donnally & Company and Ruffner, Hale & Company, but no other evidence is available to

reported as high as 2,000,000 bushels early in 1858. Furthermore, the company was forced to pay 20 cents a bushel to Ohio River entrepreneurs, whereas Kanawha saltmakers had to be satisfied with 16 cents.<sup>64</sup> The western market, it is true, held up well until the beginning of 1857, partly because of a low stage of the rivers; but large imports of foreign salt were then met by a small packers' demand, the Kanawha price fell from 50 to 20 cents within six months' time, and sales remained dull at the latter figure for the remainder of the year. It was reported that stocks continued to accumulate.<sup>65</sup> Ruffner, Hale & Company appears to have gone out of organization before the end of 1857, and, although no inspection figures are available for the years 1858-1863, other evidence tends to show that the Kanawha industry was all but eclipsed.

In the formation of the Kanawha and Ohio River Salt Company (June 1858) the Kanawha producers were no longer masters of the situation. The new association, however, was far from ineffective. Mason City salt came to Cincinnati independently; outside lots from Kanawha were sold at cut rates; and foreign brands were "a drug on the market." Yet the association managed to hold the price between 25 and 27 cents for eight months after its formation. A dull market in the spring of 1859 brought some sales as low as 20 cents, but beginning in August of that year "the proprietors of the salt works in the Ohio Valley . . . so managed the matter, that they succeeded in keeping prices . . . at the uniform rate of 27¢ per bushel. . . ." <sup>66</sup> As a matter of fact, this price was maintained without change for over two years, and the western market assumed a level intermediate with those at the seaboard. The growth of the importations of Liverpool and other foreign brands greatly limited the range of choice for the price-makers of the West. In September 1861, however, a sharp rise began to take place in Cincinnati which reflected a succession of extraordinary influences such as floods, paper money, and dislocations caused by military maneuvers.<sup>67</sup>

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show that the former was active after 1855 (*Kanawha Valley Star*, June 23, 1857). Dissension over quotas and rents plagued all the salt companies employing them.

<sup>64</sup> *Kanawha Valley Star*, Feb. 9, Mar. 16, 1858.

<sup>65</sup> CDG, Mar. 18, Oct. 29, 1857.

<sup>66</sup> CCC (1860), p. 38.

<sup>67</sup> CCC (1861), pp. 43-44.

The employment of various types of combination in the western salt industry extended through the nineteenth century, and the closing of this account with the year 1861 is therefore somewhat arbitrary. Indeed, another "Kanawha Salt Company" obtained a charter from Virginia that very year, the extent of whose activities have not been reported. An organization with the same name but slightly different personnel published its constitution and by-laws in January 1864.<sup>68</sup> Combinations and associations were formed in rapid succession during the seventies and eighties, in which the Ohio and West Virginia producers played a more and more subordinate role. As early as 1862 it was stated that the Kanawha works supplied only one-third of Ohio Valley production, and not many years later the Ohio River saltmakers themselves began to find it very difficult to compete with Michigan and New York (foreign salt all but disappeared).<sup>69</sup> Accounts of the later agreements do not furnish a clear picture of what took place, but it is reported that the entire Kanawha field, with the exception of J. Q. Dickinson & Company, was twice dead-rented for a series of years. Since it was deemed unprofitable to restore the plants which had been shut down, the Dickinsons became the sole survivors of the Kanawha industry.

*Relationship to Later Trusts.* Most authorities agree that the forces underlying the trend towards industrial combination, though more powerful at the end of the nineteenth century, produced a succession of different institutions of which the "trust proper" was but one. Thus, the pool — particularly the output pool in its more refined forms — was used advantageously in suppressing competition during the seventies.<sup>70</sup> The Michigan salt associations have

<sup>68</sup> Acts of the General Assembly (1861), pp. 288-90, c. 211, passed Mar. 30, 1861. This charter is similar to that of 1847 in general outline. Hale does not mention this company.

The 1864 constitution was published in Cincinnati. J. P. Hale was president and office agent, General Lewis Ruffner general advisory agent.

<sup>69</sup> Hunter, *Studies in Economic History*, pp. 60-63; WCA, Oct. 1, 1862; CCC (1872), 116-17; (1876), 169-70; (1877), 176-77; (1878), 182-83; (1879), 187-88; (1880), 198-99; (1882), 236-38; (1885), 259-60.

During the war the Kanawha works were a source of supply so highly prized by the South that they became the object of military maneuvers (Ella Lonn, *Salt as a Factor in the Confederacy* [1933], pp. 190-91).

<sup>70</sup> H. R. Seager and C. A. Gulick, *Trust and Corporation Problems* (1929), pp. 4-5. 86 ff.

long been recognized as excellent examples of this type of organization and important links in the long chain of evolution. The relationship between the Kanawha companies just described and the later Michigan concerns is close and direct. Not only did surviving producers of the Kanawha industry participate in the agreements of 1871 and 1881 with the Onondaga Salt Company and the Michigan salt associations, but, in addition, early Kanawha experience was a guiding factor in the formation of the Michigan Association of 1876.<sup>71</sup> The oil industry, moreover, is known to have borrowed technical methods from the salt industry, and it is highly probable that commercial methods were also transferred. It is therefore inaccurate to state that "the trust movement began in the United States with the organization of the first Standard Oil Trust in 1879 and ended as a movement in 1903" unless one is prepared to adopt arbitrary definitions of the word "trust" to suit his purpose;<sup>72</sup> and, while it is conceded that the trend towards integration developed momentum and broadened in scope after 1865, the facts assembled here lend no support to the idea that an abrupt reversal took place in the direction of events at that time.<sup>73</sup>

<sup>71</sup> J. W. Jenks, "The Michigan Salt Association," *Political Science Quarterly*, III, 78-98 (March 1888), 83-84, 88-89.

<sup>72</sup> Seager and Gulick, *op. cit.*, p. 49.

<sup>73</sup> Fetter forcefully contends that a sudden turn of the tide occurred in 1865 (Temporary National Economic Committee, Hearings, Part V [1939], p. 1667). For a contrary view see Harold U. Faulkner, *American Economic History* (1938), 523.



## CHAPTER XI

### TEXTILES AND GROCERIES

CINCINNATI'S principal function in relation to textiles was to distribute cotton goods to the West, but her relationships to different branches of the industry were many and varied from time to time. Raw cotton and wool were assembled and transshipped to the North and East; trade in both these staples grew rapidly towards the end of the epoch. Moreover, a not inconsiderable business was transacted in hemp and cordage. Cotton yarn of different sizes was bought and sold in quantities sufficient to warrant continuous quotation after 1819, and hempen yarns appeared in the market from time to time. Throughout the period dyes and dye-stuffs of many varieties were sold to country merchants at wholesale. Trade was carried on in linens, tow cloths, and Kentucky jeans, standard articles of "country manufacture" which were listed in the prices-current until the early forties. Beginnings were made between 1809 and 1817 in local wool-carding, spinning, weaving, and in the fabrication of hats and textile machinery; and though these were not of great consequence, they were of no little importance at the time.<sup>1</sup> According to the census compilations of 1841-1859 (Table 19, p. 254), textile products ranked very low among the products of local manufacturing, but a clothing industry evolved which excelled all other departments in respect to the value of product.

Comparatively little price or market information is at hand relating to the clothing industry just mentioned. It consisted for the most part of assembling men's wear, and suits were probably the principal product. The entrepreneurs, wholesale clothing merchants, had branch houses in Louisville, Chicago, St. Louis, and all the important towns on the Missouri and Mississippi rivers, as well as at various places in Ohio, Kentucky, and Tennessee. Prices

<sup>1</sup> Information on the early enterprises appears to be limited to advertisements in newspapers and directories, and to listings in Daniel Drake, Drake and Mansfield, Flint, and Melish, and in brief newspaper articles (*Advertiser*, Feb. 23, 1819, Mar. 1, 1837). See Goodwin, *op. cit.*, pp. 763-72.

were fixed on a "Cincinnati plus" basis in order to avoid local competition.<sup>2</sup> The industry prospered greatly between 1855 and 1860, the number of "wholesale clothing factories" increasing from twenty-nine to seventy-four. Furthermore, the output was valued at \$11,000,000 in 1856 and \$15,000,000 in 1859. It is not certain whether the bulk of the latter was produced at home or in the workshop. The sewing machine, which was credited with giving a great impetus to the development, could well have been used in either place.

*The Cotton Market.* Before 1845 cotton probably received less attention in Cincinnati than in any other important trading center in the entire nation. Although located on the border of the producing area, Cincinnati was then too far removed from the main channels between production and consumption, and not until the latter forties did the relocation of cross-country trade routes result in an awakening of interest in cotton.<sup>3</sup> As has already been said in a preceding chapter, the oft-mentioned triangular trade was interfered with to a considerable extent first by canals and then, to a still greater extent, by railways connecting the West and the East. About 5,000 bales of raw cotton, which was presumably raised in the border states, were retained for local consumption. According to the Chamber of Commerce figures, practically the entire remainder went up the Ohio River or was shipped to the Northeast by canal or railway. Shipments to the South were of microscopic importance, judging from the fact that only a few bales left Cincinnati by steamboat for New Orleans and other down-river ports or by flatboat.<sup>4</sup>

The average annual import of raw cotton into the Cincinnati market over the five years ended August 31, 1860, was almost precisely 40,000 bales, a small figure compared with the total crop,

<sup>2</sup> CCC (1859), p. 15; (1860), p. 19.

<sup>3</sup> Note the following comment: "The trade of our city in this article has been largely increased during the past year; and instead of being mainly confined to the wants of the neighborhood, sales to considerable extent have been made for the supply of manufacturers in the interior of the State of New York (LH, Sept. 23, 1847).

In 1851 it was again reported that much cotton was being sent to New York by canal through Cincinnati and Buffalo; the average time was twenty days and the rate 55 cents, the latter including drayage (*ibid.*, June 19, 1851).

<sup>4</sup> CCC (1852), p. 13; (1861), p. 50.

yet four times the figure a decade previously (Table 23, below). During the years 1846-1848 the merchants endeavored to encourage the trade in a systematic way; one comment is that it was

TABLE 23  
VOLUME OF AVERAGE ANNUAL IMPORTS AND EXPORTS AT CINCINNATI BY CANAL,  
RIVER, AND RAILWAY FOR FIVE-YEAR INTERVALS, 1846-1860 (YEARS  
ENDED AUGUST 31). SELECTED TEXTILES AND GROCERIES

Commodity	Unit	Imports (thousands)			Unit	Exports (thousands)		
		1846-50	1851-55	1856-60		1846-50*	1851-55	1856-60
Cotton	bale	9.7	14.8	39.9	bale	4.2†	10.3	33.9
Cotton yarn	pkg.	5.8	7.5	13.6	—	—	—	—
Yarns	bale	207.7	—	—	—	—	—	—
Cotton yarn	lb.	—	117.6	8.4†	—	—	—	—
Wool	bale	2.5	4.8	6.6	sack & bale	2.0‡	5.7	8.0
Wool	—	—	—	—	lb.	17.7‡	5.6	—
Hemp	bundle & bale	14.9	14.4	8.8	bundle & bale	4.5‡	3.8	2.3
Bagging	piece	18.8	0.1	0.9	piece	13.3	8.8	3.0
Rope, twine	pkg.	5.4	3.3	11.5	pkgs.	7.0	9.0	13.1
Oakum	bale	1.3	2.8	4.4	—	—	—	—
Sundry mdse.	pkg.	398.1	570.6	932.9	pkg.	283.1	816.7	1428.3
Sundry mdse.	ton	4.7	2.8	3.3	ton	13.9	9.7	10.3
Coffee	sack	67.4	100.3	116.8	sack	18.2‡	48.0	62.7
Sugar	hhd.	21.4	46.0	38.5	hhd.	8.7‡	28.3	26.0
Sugar	bbl.	8.8	20.5	30.2	—	—	—	—
Sugar	box	2.9	2.6	1.3	—	—	—	—
Molasses	bbl.	44.3	82.5	77.8	bbl.	17.8‡	49.5	45.2
Pimento & pepper	bag	2.4	3.7	5.3	—	—	—	—
Spices	—	—	—	—	box	—	—	4.8§
Tea	pkg.	6.0	15.5	16.7	—	—	—	—
Salt	sack	64.5	70.4	78.4	sack	5.8‡	18.5	14.7
Salt	bbl.	104.1	76.1	88.2	bbl.	43.6‡	32.4	44.7
Rice	tierce	2.7	4.2	4.7	—	—	—	—
Lemons	box	3.1	5.9	9.9	—	—	—	—
Oranges	box & bbl.	4.6	8.4	16.8	—	—	—	—
Raisins, figs	box	14.7	23.3	26.0	—	—	—	—
Codfish	drum	0.4	0.9	2.2	—	—	—	—
Herring	box	2.9	8.4	11.5	—	—	—	—
Fish, sundry	bbl.	16.7	18.7	16.3	bbl.	—	—	7.3§
Fish, sundry	keg, kit	1.2	3.9	8.5	keg, kit	—	—	5.6§

Source: Cincinnati Chamber of Commerce, *Annual Report* (1850), p. 12; (1855), pp. 26-27; (1859), pp. 36-37; (1863), p. 47.

\* Figures for 1846 include shipments to southern ports only.

† No imports in 1859.

‡ 1847-1850.

§ 1853-1860.

"forced."<sup>5</sup> Despite artificial assistance of this kind and the favorable influence of the factors named above, raw cotton never reached a position coördinate with flour, pork, hogs, whisky, and perhaps sugar. On the other hand, the receipts of cotton over the five commercial years ended with 1856 were valued in the aggregate more than four times as much as wool and twice as much as hemp for the same period of time. This was true in spite of the fact that Ohio was a leading wool producer and Kentucky, together with Missouri, raised almost all the hemp produced in the United States.

*Cotton Prices.* The series of Cincinnati monthly prices is neither perfectly continuous nor homogeneous (Chart XVII, p. 186). Until 1844 cotton was commonly denominated by place of origin, but a system of quality grades gradually came into use thereafter. Thus, the article was styled "Tennessee and Alabama" or "Alabama and Louisiana" even as late as 1848; orthodox grades (inferior, middling, etc.) appeared for the first time in 1844 but did not definitely supersede the geographical notation until a few years later.

*Prices before 1816.* Few quotations are available for raw cotton during the pioneer era. Fragmentary data indicate that in Kentucky the fiber cost about the same as in other sections of the country. In the last quarter of the year 1801 cotton sold for 28 cents in Frankfort — perhaps the first western cotton price to be published.<sup>6</sup> This figure is approximately equal to contemporaneous prices in seaboard markets. Two years later the Lexington price was only 14–15 cents — again about the same as in New Orleans — but Cramer reported the Pittsburgh market for Tennessee cotton at 25 cents in 1803.<sup>7</sup> The War of 1812 upset the situation. In 1813 and 1814 prices rose in New York and Philadelphia, but the Charleston market remained low (no figures are available for New Orleans). Quotations in the West were high in 1814 and

<sup>5</sup> LH, Sept. 6, 1849. For annual figures see Chart XXV, p. 271.

<sup>6</sup> *Guardian of Freedom*, Oct. 2, Nov. 6, Dec. 4, 1801. In March 1794 Smith & Findlay, Cincinnati general merchants and sutlers to the army, sold at retail for 3s. 9d. (50 cents).

<sup>7</sup> *Independent Gazetteer*, July 12, Aug. 9, 1803; Cole, *Wholesale Commodity Prices*, II, 132; *The Navigator* (1804 ed.), cited in Thurston, *op. cit.*, p. 55. Amos Farra entered cotton at 25 cents a pound in November, 1803; this was undoubtedly a retail price.

1815. At the end of the former year, according to Niles, the Lexington market was 6 or 7 cents above New Orleans; whereas the Louisville wholesale quotation between December 1815 and February 1816 was \$25 per hundred.<sup>8</sup> In Pittsburgh the market steadily advanced during 1815 from 25 cents in May to 30-32 in November. The Cincinnati market's position is unknown, but in New Orleans cotton, which sold for only 18 cents in the spring, advanced to 30 cents directly after the conclusion of the war.<sup>9</sup>

*Cotton Prices, 1816-1858.* After 1815 Cincinnati cotton prices generally followed those in New Orleans; the agreement was especially close between 1836 and 1858. This forms the basis for the employment of the latter data in a freehand interpolation over the years 1839-1841 and 1858-1861, for many months of which western quotations are missing.<sup>10</sup> Other markets may not be arranged according to a consistent rank, perhaps owing in part to non-homogeneity in the price data. Between 1835 and 1861 New York was generally the dearest market, Philadelphia was next, and Cincinnati, New Orleans, and Charleston were usually on the bottom; however, the average width of the entire band was only about 40 per cent, measured from the lowest quotation.

Between 1816 and 1834 the Cincinnati market behaved quite independently of the others, and, according to Table 9 (p. 113), there occurred no steady rapprochement between western and eastern quotations similar to that found characteristic of flour, wheat, pork, lard, and other commodity series. The western price was particularly erratic between 1816 and 1820; and, as in the case of most commodities brought in from other regions, the readjustment at the end of this interval was delayed and comparatively drastic. In November 1820 the price was 16 cents in New Orleans, 24 cents in Cincinnati. Unfortunately data are not available to indicate when this spread was reduced, but by 1823 cotton was cheaper in the West than at the seaboard.

Taking the period 1816-1858 as a whole, Cincinnati cotton prices exhibit a general pattern more similar in year-to-year be-

<sup>8</sup> Niles', VII, 339 (Jan. 28, 1815); *Kentucky Gazette*, Dec. 25, 1815; Jan. 22, 1816; *Lexington Reporter*, Feb. 21, 1816.

<sup>9</sup> *Mercury*, May 9, Oct. 14, Nov. 25, 1815; Cole, *op. cit.*, II, 172.

<sup>10</sup> After 1846 the Cincinnati price generally exceeded New Orleans by about 10 per cent and lagged one or two months.

havior to the agricultural export group than to manufactured or imported goods. There is, moreover, a notable resemblance between cotton and hog products in this respect. This is hardly inexplicable in view of two circumstances: first, cotton was not only the ranking agricultural export of the nation but also the favorite object of speculation in many markets; and second, the cotton region was a large market for products of the Old Northwest.<sup>11</sup> Factors affecting price conditions in the South, such as crops and carryovers, speculation, currency and banking, or general economic conditions in this country and Great Britain, were bound to have repercussive effects upon the northwestern economy. Some of these effects, it is true, frequently followed such a devious course that it is impossible to trace them satisfactorily. However, it is not without justification that in many quarters cotton was regarded as a faithful barometer of trade.

There are definite signs of important differences between cotton and foodstuffs in respect to their general price behavior. In the first place, Cincinnati cotton prices declined to a much greater extent between 1816 and 1845 than flour, pork, hogs, or other leading commodities in this group. This is evident from the purchasing-power ratios in Table 16 (p. 183). As for short-time movements, quotations on cotton fell to a comparatively little extent in 1819-1820.<sup>12</sup> Furthermore, the cotton boom of 1824-1825 was not extended to flour, whisky, and the grains, although the contagion does appear to have spread to hog products. Unfortunately the data at hand do not permit a satisfactory comparison over the years 1835-1842, but it is worthy of remark that the upward surge in cotton in 1833-1835 was far in advance of the rise in flour, whisky, and others in this group. At the other end of the cycle, cotton reached low points not in 1842-1843 and 1846 but rather in 1845 and 1848; and, although this series also exhibited a healthy upward trend until its lapse in 1858, its year-to-year

<sup>11</sup> It could be argued that, since the northern farmer's interest in cotton prices as a producer probably outweighed his interest as a consumer, cotton should be classified in Index A rather than Index B. A. H. Cole classified this item as industrial because of its importance as a raw material for eastern manufacturing (Smith and Cole, *op. cit.*, p. 65).

<sup>12</sup> Pittsburgh cotton prices declined much more; this is still another symptom of currency and exchange derangement in the Cincinnati market.

changes followed a highly independent course. The comparative smoothness of the cotton curve after 1851 is especially in contrast to the irregularity of the lines representing northern agricultural products (Charts XVI and XVII).<sup>13</sup>

*Wool Prices.* One may interpose that a more apt comparison could be drawn between the prices of raw cotton and wool.<sup>14</sup> The few wool data at hand for the earlier decades indicate that prices were inflexible, and trading was to all appearances not continuous nor upon a large scale. Eight Kentucky quotations which, with one exception, give two shillings a pound (three pounds to the dollar) are available for a nondescript article between 1789 and 1813. Between 1809 and 1812, furthermore, "coarse" wool was sold in Lexington for 1s. 6d. or 25 cents. The price rose to some extent during the war which ensued. By May 1814 common washed wool was publicly quoted at 42-50 cents in Lexington, and the price reached 50 cents towards the end of the same year. Only one Cincinnati quotation has been found for this entire era; nondescript wool sold for 50 cents in September 1811.<sup>15</sup>

"Common wool" cost 50 cents a pound in Cincinnati and Pittsburgh in 1816 and 1817 but gradually descended to a minimum (14½ cents) in the second half of the forties, then rose steadily until 1860 (30 cents). The long-run depreciation of common wool was therefore of comparatively small dimensions. In 1816-1817 wool was 50 per cent higher; yet between 1841 and 1860 it averaged over three times as much per pound as cotton. On the other hand, merino wool declined far more than common; its long-range movement was more similar to that in cotton prices. In 1814 a Lexington buyer offered 42-50 cents for common and 200-

<sup>13</sup> Annual prices and receipts of cotton at Cincinnati between 1845 and 1861 showed no consistent relationship according to the method used with other commodities and described in Appendix A. The coefficient (*r*) is +.07.

Seasonal patterns in Chart XII (p. 133) show that cotton exhibited practically no seasonality prior to 1848, and it may hardly be said that seasonality developed to any great extent during the fifties. The amplitude of the pattern for 1848-1860 is especially small for a series so active as cotton. See Table 25 (p. 338).

<sup>14</sup> For the available monthly prices of wool between 1816 and 1860, see Cole, *Wholesale Commodity Prices*, II, 176 ff.

<sup>15</sup> Innes Papers (1796-1797, 1800, 1806-1807); Jones Papers (1813); Farra Account Book (1789, 1809-1812); *Kentucky Gazette*, May 16, 1814; *Niles'*, VII, 339 (Jan. 28, 1815); Melish, *op. cit.*, p. 128.

250 cents for full-blood wool, both washed (if "in the fleece unwashed" the discount was heavier on the higher grades). This represents a premium for the latter approaching 400 per cent.<sup>16</sup> The factory of B. Wells & Company at Steubenville paid \$2.75 during the same year for full-bred wool, washed on the sheep (it bought no common wool until 1819). This price was cut to \$1.35 in 1815, \$1.10 in 1817, and 70 cents in 1828; it rose to \$1.25 in 1825 and 1826. Wool seven-eighths full-bred decreased from \$2.50 to 37½ cents between 1814 and 1829, but other grades fell to a lesser degree.<sup>17</sup> Thus, common wool was worth 40 cents in Steubenville in 1819-1822 and 25 cents in 1829.

Though full-blood merino was priced five times as high as common in 1814 and nearly three times as high in 1829, the differential in the Cincinnati market between 1844 and 1860 was ordinarily only 50 per cent. In other words, the western price of the highest grade declined almost \$2.00 a pound between 1814 and 1846, that of the lowest dropped about 30 cents, and the intermediate qualities fell more or less according to the degree of their fineness. All grades fairly doubled in price between 1846 and 1860. As with cotton, the rise was smooth and steady in character, although trading was far more active than in prior years.<sup>18</sup>

*The Market for Cotton Yarn.* Merchants in Cincinnati carried on a rather steady commerce in yarns, though no data are available on the magnitude of the trade before 1845. Receipts of packaged yarn increased more than 100 per cent between the late forties and the late fifties, but imports in bales (or pounds) dwindled after 1848.<sup>19</sup> No information has come to light as to the origin of the yarn; as for buyers, it appears that at the middle of

<sup>16</sup> *Kentucky Gazette*, advertisement of J. Prentiss & Company dated May 6, 1814.

<sup>17</sup> *Niles*, XXXVI, 399 (Aug. 15, 1829).

<sup>18</sup> Two peculiarities in the year-to-year behavior of wool prices merit mention here. Neither the Pittsburgh nor the Steubenville data for 1819-1823 show a decline similar to that which took place in the prices of almost all western products. Secondly, wool advanced sharply at the beginning of 1837 and remained high during that year and the one to follow. Cotton behaved in a roughly opposite manner. Western prices were essentially similar to New York at both junctures.

<sup>19</sup> Statistical reports on the receipts of yarn are defective in that a change was made from "Yarn, bales" to "Cotton yarn, lbs." during the early fifties; yet the latter series was treated as a continuation of the former. In 1852 a bale of yarns



the century near-by textile establishments bought in comparatively large quantities (at a discount of a cent a pound), and the remainder was sold to country merchants and others "in a small way."

Prices were usually quoted for assorted numbers, but specifications varied from time to time. In 1819-1820 the *Advertiser* listed numbers 5-13 but the market was commonly confined to numbers 5-9 or 5-10 in later years.<sup>20</sup> Finer grades, such as numbers 14 and 15, appeared occasionally (1828, 1831, 1840-1842) at a premium of 5 to 10 cents a pound, but in 1850 *Liberty Hall* listed only numbers 5-10 (20 cents) and numbers 11-12 (21 cents); and the *Cincinnati Price Current* apparently lumped them together during the rest of the decade. However, the market became broader in other respects. The *Price Current* also quoted "dozen yarns" in three grades (500, 600, and 700) as well as carpet warp, candlewick, coverlet yarn, twine, and batting.<sup>21</sup>

The average price of yarn in Cincinnati declined from 77½ cents in the summer of 1820 to 21 cents ten years later, then rose to 34 cents in 1837 and fell to 13½ cents in 1848. The market pursued a generally upward course during the fifties and reached 24½ cents in April 1857. The price came down to 20 cents a pound early in 1858 and was maintained with little variation until the war was under way. Late in 1861 yarn turned bullish — 32 cents was the price quoted in the last two months of the year.<sup>22</sup>

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was valued at \$1.75, compared with \$1.50 for a package of cotton yarn. Cotton yarn was priced at 15 cents at that time. (CCC [1852], 13.)

<sup>20</sup> There are five hanks of No. 5 yarn to the pound, and so on. Finer grades carried a much higher price before 1820, judging by the *Advertiser* quotations. Between March 1819 and May 1820 yarns were listed at 35-65 cents a pound. The quotation then rose to 55-100. In the years 1844-1846 the *Atlas* listed "Nos. 7, 8, 9, and 10 round." As a rule, the spread was there given as only a cent a pound, and a single figure was published in some months.

Cotton yarn was not listed in the prices-current used for Lexington, Louisville, and Pittsburgh. The *Louisville Public Advertiser* quoted hempen yarns at 8-9 cents a pound between July 1818 and February 1819.

<sup>21</sup> In January 1858 prices in cents per pound were as follows: cotton yarn, assorted numbers, 22-23; dozen yarns: 500, 11½; 600, 10½; 700, 9½; carpet warp, 24; candlewick, 23; coverlet yarn, 27; twine, 21-23; and batting, 15-16 (CPC, Jan. 20, 1858).

<sup>22</sup> The monthly mean figures for the years 1819-1860 may be found in Cole, *Wholesale Commodity Prices*, II, 190 ff. The data for 1861 are taken from the

The price series for cotton and cotton yarn, therefore, bear a decided resemblance to each other in respect to both general contour and year-to-year variations. Cotton, however, was disposed to be more flexible in movement and to rise and fall with a relatively greater amplitude. Moreover, yarns tended to become progressively cheaper, especially after 1845. This can be seen by dividing the average annual price of yarn by that of cotton. Between 1824 and 1845 the former was ordinarily worth about two and one-half times as much as the latter. The ratio shrank to 2 to 1 or less in boom years such as 1825 and 1835, increased to 3 to 1 or more in 1826-1827 and 1840-1843. Figures for the interval 1846-1857 show that in spite of the fact that raw cotton was generally cheaper than in former decades the price of yarn was still lower in comparison. The ratio was down to 1.6 to 1 in three years out of the twelve, rarely exceeded 2.5 to 1, and averaged 1.85 to 1 over the whole interval.

*The Dry-Goods Market.* Though local textile manufacturing remained upon a comparatively small scale, dry goods were of great importance in the early commerce of Cincinnati. In 1812 over thirty-six stores were reported to have sold imported articles at the rate of \$250,000 a year. The trade figures for 1826 shown in Table 24 indicate that articles in this category accounted for 40 per cent of total imports and slightly exceeded the aggregate exports (\$1,063,500).<sup>23</sup> The picture was essentially the same during the fifties, although separate and reliable data for dry goods are not to be had. The superintendent of the Merchants' Exchange averred that, since the "great bulk" of the imports of "sundry merchandise" in packages and tons consisted of dry goods, the sixfold increase in receipts of packaged merchandise between 1851 and 1860 was a fair indication of the growth of the trade.<sup>24</sup> In dollar volume the commerce was sufficiently large to dwarf even the totals for flour, pork, whisky, and other agricul-

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*Western Christian Advocate.* Comparable figures are not available for seaboard markets.

<sup>23</sup> Drake and Mansfield, *op. cit.*, p. 77; *Niles'*, VI, 209 (May 28, 1814).

<sup>24</sup> "These packages, as regards the imports, do not include hardware, boots and shoes, any kind of agricultural produce, crockeryware, groceries, iron, liquors of any kind, or fruits, so that they must be chiefly dry goods" (CCC [1860], p. 22; [1861], pp. 25-26). A large part of the increase took place between 1851 and 1854

tural staples. Receipts of packaged merchandise alone accounted for \$13,000,000 out of \$41,000,000 in 1852, and in 1860 the respective figures were \$40,000,000 and \$103,000,000. The Cincinnati balance of trade remained unfavorable all through the decade,

TABLE 24  
CINCINNATI IMPORTS IN 1826, BY QUANTITY AND VALUE

Commodity	Quantity	Value
Iron, bar, sheet, spike	1,450 tons	\$181,250
castings	350 tons	21,000
pig	768 tons	23,040
Nails	7,000 kegs	63,000
Lead and shot	550,000 lbs.	37,600
Copper, tin plate, and glassware	—	80,000
Queensware	2,200 crates	88,000
Cotton	1,100 bales	37,000
Salt	46,000 bbls.	82,800
Coal	200,000 bu.	20,000
Lumber, boards	5,000,000 ft.	} 64,000
shingles	3,500,000 ft.	
joice and scantling	400,000 ft.	
timber	122,000 cu. ft.	
Indigo	—	25,000
Coffee	1,100,000 lbs.	198,000
Tea	220,000 lbs.	208,000
Sugar	—	80,000
Fish	3,000 bbls.	20,000
Liquors, spices, and other articles	—	200,000
Dry goods	—	1,100,000
TOTAL VALUE		\$2,528,590

Source: Drake and Mansfield, p. 77.

and dry goods continued to flow into the market in volume sufficient to approach the difference between commodity exports and imports.<sup>25</sup> Up until the fifties the dry goods merchants of Cincinnati and other western towns bought their wares chiefly from

and was probably due to the advent of railways. Imports of packages, in thousands, went from 176 in 1851 to 1,154 in 1860 and to 1,669 in 1862. Goods measured by tons, in thousands, went from 3.4 to 4.4 and 10.6 in the same years.

<sup>25</sup> This situation, not uncommon in newly settled areas and colonies, gives rise to the feeling among local mercantilists that their wives' finery is the chief reason for the scarcity of precious metals.

houses in New York, Philadelphia, and Baltimore which could arrange credit satisfactorily. The bulk of the high-valued and seasonal goods were transported over the most direct routes to the West, the canals and turnpikes.<sup>26</sup> After 1843, however, Cincinnati set itself up in competition with seaboard markets for the western trade. According to current reports, considerable buying was done directly from mill agents, and efforts were made to encourage dealers from the whole interior to come to Cincinnati in spring and fall instead of going to the East. In 1844, for instance, it was held that, because local merchants could sell thirty-six inch brown sheeting at less than eastern prices plus carriage (the quotation was  $8\frac{3}{4}$ - $9\frac{1}{4}$ ), they succeeded in selling this item at the rate of at least \$300,000 per year.<sup>27</sup> Late in the fifties the mill price was given as  $9\frac{1}{2}$  cents a yard for prints selling in Cincinnati at 10. The number of wholesale houses increased from thirty-five in 1856 to sixty five years later, and the variety of stocks expanded at the same time. In 1856 a mercantile agency made a survey of the entire West and Southwest which revealed that over 16,000 merchants bought regularly in Cincinnati; undoubtedly many of them handled dry goods.

Since book credit was used liberally in this department of commerce, dry goods became one of the principal channels for the transference of capital from the East to the West. Over the long run the tendency was towards shorter terms of credit and a more rapid turnover of goods. Before 1816 Philadelphia wholesalers were commonly disposed to grant credit to western merchants for periods as long as eighteen or twenty-four months; by the fifties a credit of six or eight months was considered liberal.<sup>28</sup> A revival of general economic conditions was ordinarily marked by an extension of the terms of credit and an acceleration of imports to the West. Conversely, a downturn brought contraction, liquidation, and cessation of imports. For instance, it was reported in the autumn of 1843 — as the country was emerging from a long and

<sup>26</sup> See above, p. 77, n. 35. In 1850 the largest portion came by the Miami and Erie Canal (LH, Aug. 29, 1850).

<sup>27</sup> *Atlas*, April 18, 1844. Cincinnati was probably favored by a rising market.

<sup>28</sup> Hardware formed another favorite vehicle. For the most part, the Ohio Valley region furnished its own heavy construction materials, implements, and tools.

painful depression — that for two months the cargoes of canal boats had been almost entirely made up of dry goods, that six or eight new concerns had been established in Cincinnati, and that there was a disposition to resume a credit business on a six-months basis. Jobbers, it appears, had for some time been forced to pay cash and finance themselves.<sup>29</sup> Affairs proceeded in a flourishing manner until 1848 and 1849, when imports at Cincinnati of sundry merchandise decreased very sharply. Manufacturers suffered from excessive inventories in the latter year, and many looms were idle during the year 1850.<sup>30</sup> As has already been suggested, the trade was very active during the fifties. Taking the country as a whole, dry goods were deeply involved in the recession of 1857–1858. A decrease in sales of 20 per cent was reported in the summer of 1858, and more failures occurred than in all other branches of commerce put together. However, the local credit situation continued good and involved practically no insolvency. During the remainder of the decade the volume of imports and number of wholesale houses both continued to increase, though measures were taken in 1859 to finance large book balances. In 1862 the war crisis reduced the entire business from long credits to virtually a cash basis.<sup>31</sup>

Cincinnati also enjoyed a prosperous retail trade in dry goods, groceries, and hardware from comparatively early times. The merchant capital invested in these branches of commerce in the year 1840 was estimated at \$12,877,000, compared with only \$5,200,000 in foreign trade and commission houses. At that time most purchases at wholesale were made in the East or at New Orleans; sales of dry goods to country merchants at Cincinnati totaled only \$4,000,000. This amount increased to \$10,000,000 by 1850 and \$25,000,000 a decade later.<sup>32</sup>

Cottons were predominant in the western trade, and articles of New England manufacture stood out among those mentioned in the prices-current and trade reviews. Indeed, the customary appellation was "domestic goods." Large quantities of foreign goods were reportedly sent down the Ohio after the War of 1812 and

<sup>29</sup> LH, Sept. 20, 1843.

<sup>30</sup> LH, Aug. 29, Dec. 18, 1850.

<sup>31</sup> CCC (1858), p. 15; (1859), p. 18; (1862), p. 23.

<sup>32</sup> Cist, *Cincinnati in 1847*, p. 49; *Cincinnati in 1859*, p. 346.

auctioned at Cincinnati at one-third the former prices,<sup>33</sup> but in the years 1819-1820 the *Advertiser* listed seven domestic articles and no foreign. A dozen varieties of "India goods" appeared in the *Chronicle* for a short time in 1841, and Russia brown sheeting was listed in the *Atlas* in 1844-1846. Moreover, it was stated in 1860 that the opening of the Grand Trunk Railway to Portland (Maine) was facilitating imports of English, French, and German dry goods into the interior, but foreign textiles received no mention in current reviews of the market.<sup>34</sup> As for other fibers, linen and tow cloth were favorite items until 1840. Little information is available on woollens, but it was reported that these fabrics were staple for the fall trade. In 1844 three silk houses opened in Cincinnati which offered fancy goods in which the market had been deficient.<sup>35</sup>

Some of the leading items of commerce appear in the following price lists:

<i>Advertiser</i> , December 7, 1819		<i>Gazette</i> , December 18, 1828	
DOMESTIC ARTICLES		AMERICAN COTTON GOODS	
	(Cents)		(Cents)
Cotton shirtings, white, yd. . . . .	23-30	Calicoes, blue Taunton, yd. . . . .	18-20
do. do. brown . . . . .	20	do. fancy . . . . .	14-22
do. check $\frac{3}{4}$ . . . . .	28-30	Shirting, 3-4 brown . . . . .	10-11 $\frac{1}{2}$
do. stripes . . . . .	28-30	do. 7-8 bleached . . . . .	12 $\frac{1}{2}$ -14
do. plaids . . . . .	30	do. 7-8 brown . . . . .	10-11 $\frac{1}{2}$
do. bed tick . . . . .	37 $\frac{1}{2}$ -62	do. 4-4 brown . . . . .	12 $\frac{1}{2}$ -16
do. Chambray . . . . .	30	do. 4-4 bleached . . . . .	14-20
		Plaids . . . . .	11-17
		Stripes, fast . . . . .	12-15
		do. fancy . . . . .	14-19
		Satinetts . . . . .	40-150
		Millinets . . . . .	75-125
		Checks . . . . .	12-20
		do. 9-8 fine . . . . .	23-24
		Tickings . . . . .	19-28
		LINEN	
		Brown, flax, yd. . . . .	18-20
		do. Tow . . . . .	12 $\frac{1}{2}$

<sup>33</sup> *Western Spy*, Feb. 28, 1818, cited by Frank P. Goodwin, *op. cit.*, p. 768.

<sup>34</sup> CCC (1860), p. 22. The *Price-Current* omitted dry goods from its table of prices during the fifties.

<sup>35</sup> *Atlas*, Apr. 18, 1844.

<i>Chronicle</i> , November 20, 1841		<i>Atlas</i> , August 15, 1844	
<b>DOMESTIC GOODS</b>		<b>DIAPER</b>	
	(Cents)		(Cents)
Calicoes, blue, yd.....	10-16	Diapers .....	\$1.00-\$1.70
Merrimac fancy .....	15-22	Crash per yard .....	8-10
Shirting, 3-4 brown .....	7-9	Osnaburgs, yard .....	8-9½
— 7-8 bleached .....	8-12	34 inch Burlaps .....	10½-12
— 4-4 bleached .....	12-18	41 inch Hessians .....	11½
— Superfine 4-4 bl'd.....	18-20	Buckrams .....	10
— 7-8 brown .....	7½-10	<b>DOMESTICS</b>	
— 4-4 brown .....	8½-10½	27 inch brown cottons, yard ...	5½-7
4-4 Plaids .....	8¼-12½	33 inch do. heavy ..	7-8
Stripes, fast colors .....	25-28	33 inch do. fine ..	8-9
— fancy .....	37-50	37 inch Laurel D do. ....	8-8½
Brown drilling .....	10-13	37 inch Indian head do. ....	8-8½
Bleached drilling .....	12-15	37 inch Cabot, Chick. D do. ....	8-
Sattinets .....	40-100	37 inch Mass. Tremont &c. ....	7½-7¾
— Super .....	100-125	37 inch Merrimack fine .....	10-
Millinets .....	62-87	5-4 Indian Head do. ....	13-
Checks .....	10-15	6-4 Waltham do. ....	14-
— fine .....	17-21	7-8 bleached cottons .....	8-9½
Georgia Nankins, piece .....	\$1.62-\$2.00	4-4 do. fine ..	10-13
Tickings, Yard .....	14-25	4-4 do. heavy ..	10-12
<b>INDIA GOODS</b>		5-4 Waltham do. ....	13-14
Crape Canton, piece .....	\$2.00	6-4 Hamilton do. ....	15
— Nankeen, piece .....	\$5.00-\$7.00	Suffolk brown drilling .....	9
Handkerchief flag, piece .....	\$3.00-\$6.00	do. bleached do. ....	10
— Bandanna .....	\$3.00-\$7.00	do. blue do. ....	10½-11
— 4-4 black .....	\$7.50	Blue Merrimack Prints .....	11-11½
Nankeen, short yellow, pc. ....	70-80	do. Fall River do. ....	10½
— Company long, piece .....	\$1.25-\$1.50	Mix'd Sattinets .....	40-80
— Blue, piece .....	\$2.25	Blue do. ....	70-85
— White, piece .....	—	Blue Jeans .....	30-40
Seersuckers, yard .....	28	<b>NANKINS</b>	
3-4 Grass Cloth, 20 yds. ps. \$10.00-\$12.00		Lonsdale, &c. ....	\$1.31
1-2 Grass Cloth, 40 yds. ps. \$8.00-\$10.00		Mallory, &c. ....	\$1.25
<b>LINEN, Tow, yd.</b>		<b>OSNABURGS</b>	
Brown flax, yd. ....	18-25	28 do. Bleached .....	—
Brown tows, yd. ....	15-20	<b>RUSSIA GOODS</b>	
		Brown Sheetings (37 yds.)	
		40 inch .....	
		\$7.00-\$9.00	

*Textile Prices: Linen.* The prices of woven goods in the West, like those of other manufactured goods, are fragmentary for the early years. In 1794 Smith and Findlay sold linen at prices ranging from 30 to 66⅔ cents a yard, but two years later this kind of cloth advanced to 60-93 cents and one transaction of 25 yards

was reported in November 1796 at the rate of \$1.25 (9s. 4d.). Four months later the price had receded to the equivalent of 75 cents. Linen sold for only 31-50 cents in Frankfort in the last quarter of 1801, "according to quality." In 1807 the Pittsburgh price was 40 cents for the 700 grade of country manufacture and 33 cents for the 200 grade. Irish linen brought \$1.12½ a yard at the Kanawha Salines in 1813, but ordinary linen sold for only 50 cents. Isaac Jackson paid 62½ cents in Cincinnati in June 1814. Early in 1820 the 700 grade was generally priced at 50 cents in Lexington, the 600 grade at 37-42 cents, whereas tow cloth was 25 cents a yard. One interpretation is that linen was moderately expensive, and advanced and receded more or less in response to general conditions.

Scattered data indicate that linen was considerably cheaper in later years, though the decline in price was not so great as in the case of cotton goods. According to the accounts of Pierce & Brightwell, Cincinnati merchants who dealt considerably in yarns and textiles, the standard price for linen was 50 cents a yard between June 1820 and September 1821. During the succeeding twelve months the market varied between 25 and 37½ cents, and 31¼ cents was a common price. Isaac Jackson recorded several purchases in 1821 and 1822 at 25 cents a yard (tow cloth was roughly 50 per cent cheaper). Between September 1828 and May 1831 linen and tow cloth were publicly quoted at 18 and 12½ cents a yard, respectively. Linen then fell to 15 cents, a price maintained with little change until late in 1833. During the years 1834-1836 the market stayed at 20 cents, reached as high as 25-27 cents in January 1837, and then held at 20-25 cents until April 1838. During the years 1841-1843 the range remained 18 to 25 cents — certainly no lower than that quoted a decade previously. Tow cloth advanced to 14-16 cents in 1836-1838 and sold at 12-16 cents in 1841-1843. Linen, it may be noticed, responded to the upward price movements of the late thirties.

*Cotton Goods.* Though sufficient data are not available to indicate satisfactorily the course of the prices of cotton goods from year to year, there can be no doubt that a decline took place in the West which was of similar magnitude to those noted above in connection with salt, iron, and some other commodities. In other words, the prices of cotton textiles conformed in general



outline to Index B, and the margin between raw material and finished goods shrank perhaps to a greater extent than was true in the iron industry.

A Cincinnati dealer was reported to offer goods in 1816 at Philadelphia prices plus 12½ per cent, and \$6.00 per hundred pounds for carriage. However, local buyers complained that they were forced to pay double the eastern prices.<sup>36</sup> For "very many" years before and after 1811, according to another authority, one Lexington wholesale merchant was accustomed to add a "reasonable and low" charge of 25 per cent and carriage to prices in Philadelphia, where all the goods were bought. The mark-up was later reduced to 10 or 12½ per cent "on first cost," and carriage.<sup>37</sup> Unfortunately data are not at hand to trace the progressive changes in the spread between the East and West, but it has already been noted that in 1860 the margin between the eastern mill and the Cincinnati wholesale market was ordinarily only a half-cent a yard or about 5 per cent.

Calicoes and brown sheetings (or shirtings) were among the more common items of trade. The former were sold by Smith and Findlay in 1795 and 1796 at prices varying from 75 cents to \$1.00 a yard. In 1816 Isaac Jackson made several purchases at 25 cents, but the market advanced to 37½ cents by 1819 and reached 52½ cents in May 1820. The Pierce & Brightwell accounts show that calico held at 50 cents from June 1820 until the spring of 1821, then entered upon a downward course in company with most other commodities. During the first quarter of the year 1823 calico was customarily entered at 25 cents a yard. In September 1826 the newspaper quotation was 23-24 cents, but a succession of cuts brought it down to 14-15 cents in 1833. Taunton blue prints were in vogue during this epoch. No data for this type of goods were published during the rest of the thirties, but in 1842 the market ranged from 10 to 16 cents. Merrimac blue prints never exceeded

<sup>36</sup> *Western Spy*, Feb. 14-28, 1818, cited by Goodwin, *op. cit.*, p. 768.

<sup>37</sup> It was explained that the 25 per cent advance was due to the difference in currency between Pennsylvania and Kentucky—the dollar was worth 7s. 6d. in Philadelphia and only 6 shillings in Lexington. It would appear that, if goods were bought and sold for shillings and exchange was based upon the dollar, the western merchant was actually marking the prices up 56¼ per cent, plus carriage. (William A. Leavy, "A Memoir of Lexington and Its Vicinity," MS., University of Texas Library.)

13 cents between 1844 and 1846, and frequently could be bought for 11. Common prints were quoted during the summer of the latter year at  $6\frac{1}{4}$ -10 cents a yard—truly a far cry from the prices current a quarter or half century previously. The better grades, such as Merrimac, sold at 10-11 cents in 1848-1849 and  $9\frac{1}{2}$ - $10\frac{1}{2}$  cents in 1859-1860. No data were printed in the newspapers during the intervening decade.

Brown sheetings and shirtings followed a course similar to that just described. On the 3-4 width (27"), newspaper quotations ranged between 20 and 35 cents in 1819 and 1820, but the customary price was only 10-11 cents a yard between 1826 and the early part of 1829. A succession of price cuts took place. The market reached  $6\frac{1}{2}$ -8 cents in March 1830 but held at 8-10 during the years 1831-1833. The quotation was 7-9 in 1840-1842,  $5\frac{1}{2}$ -7 in 1844-1845, and went as low as  $3\frac{1}{2}$ - $4\frac{1}{2}$  cents a yard in February 1849. It is little wonder that manufacturers decided to stop looms in an effort to raise the price of the product to a position comparable with that of cotton. Sheetings a yard wide (4-4) brought from 50 to  $62\frac{1}{2}$  cents in 1820 but were down to  $7-7\frac{1}{4}$  cents in 1848/49. A slight recovery appears to have taken place in later years which may be due to a change in cloth. The price of the better brands of heavy 4-4 brown cottons was announced as  $8\frac{1}{2}$  cents in the last quarter of 1859, and a slight alteration was made in the spring of 1860 on account of the credit situation. As with iron in the early forties, the quotation was split according to cash or credit. The cash price was announced at  $8\frac{1}{4}$  cents, the credit price  $8\frac{3}{4}$  cents.<sup>38</sup> Even so, a remarkable revolution had occurred in the prices of these staple dry goods which was associated most closely with improvements in manufacture and transportation.

*The Groceries Trade.* Cincinnati did not occupy a prominent position in the distribution of imported foodstuffs until comparatively late in her career. Pittsburgh, and then Louisville, long enjoyed a definite priority in the Ohio Valley region.<sup>39</sup> As late as

<sup>38</sup> The failure of newspapers to follow the dry-goods market during the fifties may have been due to the difficulty of keeping track of the many items of merchandise or to an unsettled state of the market associated with many different qualities of credit.

<sup>39</sup> St. Louis was also a center for the trade in consumption goods, but in 1846

1849 it was written by a Cincinnati commentator that the city opposite the falls had for years received customers from miles around, many of whom passed through Cincinnati on their way, and that even within the five years past the "Lake people" had gone to Louisville.<sup>40</sup> However, a sudden spurt took place in the wholesale trade in groceries shortly before the middle of the century. Improvements in local transportation, particularly railways, appear to have given Cincinnati a temporary advantage in the distribution of goods to the northern interior and to the Lake Erie district. The Miami Canal Extension was finished to Toledo in 1845, but the clearance of merchandise at the southern terminal showed no increase after that date; on the contrary, it fell off noticeably.<sup>41</sup> As for highways, improvements during the late thirties and late forties of the main arteries leading from Cincinnati, which had ever been in poor condition, did appear to provide a stimulus to the distribution of goods. Nevertheless, it was the railway which induced and also benefited most from the increase in traffic.

At the midpoint of the century Cincinnati was second to none in the whole region as a rail-and-river terminal, and the prospects were very bright indeed. Moreover, since most of the groceries were then brought up the river to the railhead, steamboat traffic also received a stimulus which was powerful even though destined to be temporary.

Between 1846-1850 and 1851-1855 the average annual imports of coffee increased almost exactly 50 per cent, while those of sugar and molasses grew to approximately double their former size. A more accurate picture of the development is afforded by the annual figures plotted in Chart XXV (p. 271).

The expansion soon slowed down. The Ohio and Mississippi Rail Road, which was opened in May 1856, placed Cincinnati upon a rail line connecting St. Louis and Baltimore. It was not long before the through lines renounced their joint relations with steamboat lines and canals; and since the necessity of drayage and repacking was obviated, Cincinnati lost some of her impor-

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Cincinnati led the Missouri city in the imports of most of these commodities (U. S. Commissioner of Patents, Annual Report [1847], pp. 595-96; CCC [1850], p. 12).

<sup>40</sup> LH, Sept. 13, 1849.

<sup>41</sup> Huntington and McClelland, *Ohio Canals*, pp. 177-78.

tance. She looked enviously at Louisville's connection with Nashville, and rued the mistake made "in fostering and building lines of Railways running East from this city, which have proved a positive injury to our trade, taking our customers from our doors. . . ." Cincinnati grocers complained in 1855 that western traders were buying coffee in the New York market, whither they had gone in search of sugar and molasses. The vicissitudes of business throughout the nation also had much to do with the fact that over the period 1856-1860 the trade in coffee, sugar, and molasses failed to sustain its rate of growth.<sup>42</sup> In fact, the receipts of molasses declined about 6 per cent.

The expansion of Cincinnati's commerce was accompanied not only by a broadening of the market in respect to the variety of articles of trade but also by an acceleration of price activity and seasonality. In one important case — sugar — the imported article supplanted a native product. The principal feature of price behavior was a progressive depreciation until the middle of the century, which was followed by a moderate upturn. As in the case of salt, this downward trend was the result of several factors, among which the fall of world prices, reductions in transportation rates, commissions, and insurance, and successive revisions in customs duties all played a part.

*Month-to-Month Activity.* In Table 25 the leading commodities are listed according to the frequency of price change. It is evident that the commodities in this group, taken together, were more active during the period 1824-1835 than the agricultural export group or manufactured goods, judging by frequency of change (and not by amplitude of variation). Furthermore, an increase took place in the activity of the leading series, though the average increase was moderate compared with that observed in farm products. The decrease in the flexibility of tea prices, it should be mentioned, is largely due to the fact that the *Price Current* and other later journals were accustomed to maintain a quotation with a wide spread from month to month and year to year.

*The Coffee Market.* Coffee first appeared in a western price-current (Pittsburgh) at the beginning of 1816. It was also in-

<sup>42</sup> CCC (1856), p. 11; (1857), p. 5; (1858), p. 6; (1860), p. 8.

cluded in Lexington lists later in the year,<sup>43</sup> but the *Western Spy* of March 21, 1818, was the first Cincinnati journal to name coffee in its prices-current. The "good" coffee there quoted "per pound per bag" probably originated in Cuba, but the earliest definite proof of origin appears with quotations in the *Louisville Public*

TABLE 25  
PERCENTAGES OBTAINED BY COMPARING THE NUMBER OF MONTHLY PRICE CHANGES OF GROCERIES AND TEXTILE MATERIALS WITH THE NUMBER OF POSSIBLE CHANGES, BY TWELVE-YEAR INTERVALS, 1824-1859

Series	Percentage		
	1824-35	1836-47	1848-59
Coffee .....	51	40	64
Tea .....	47	21	3
Pepper .....	22	24	26
Sugar .....	46	68	78
Molasses .....	60	61	90
Rice .....	32	43	66
Mackerel .....	35	46	57
Cotton .....	44	42	58
Indigo .....	22	15	a
Eight commodities * ...	42.4	43.1	56.4

a Data not available.

\* Indigo omitted from the average.

*Advertiser* late in 1822.<sup>44</sup> Cincinnati quotations of 1824 applied to "coffee, W I green, best" and "St. Domingo," but in the following year three varieties were named: "Havana," "Laguira," and "St. Domingo."<sup>45</sup> This general arrangement continued during the twenties, although "Laguira" was dropped towards the end of the decade. In 1830 "Rio" coffee made its first appearance.<sup>46</sup> "Java" was added in 1837; it carried a premium of 3½ cents a pound over West Indian brands, equivalent to almost 30 per cent.<sup>47</sup> Other exotic brands were quoted occasionally, as in 1844-1845.<sup>48</sup>

<sup>43</sup> *Mercury*, Jan. 6, 1816; *Western Monitor*, Nov. 15, 1816.

<sup>44</sup> *Louisville Public Advertiser*, Nov. 16, Dec. 14, 1822.

<sup>45</sup> At that time Cuban coffee tended to maintain a differential of 1-2 cents a pound over St. Domingo.

<sup>46</sup> *Cincinnati American*, May 13, 1830. Prices of Rio and Havana tended to coincide, with occasional differences of ½-1 cent.

<sup>47</sup> *Western Christian Advocate*, Apr. 21, 1837.

<sup>48</sup> During 1844 the West Indian, Venezuelan, Brazilian, and Sumatran brands

The prices-current suggest that West Indian coffee was of prime importance in the Cincinnati market prior to 1830 and that Brazilian commenced to acquire a more and more prominent position during the subsequent decade and a half. By 1846 Rio coffee was the staple; it was used by the *Price Current* and the Chamber of Commerce in market surveys to the exclusion of all other varieties. In 1860 Rio was quoted in five distinct grades, and "Java Government" also attained a firm, though subordinate, place in the market after 1845. On the other hand, Havana prices grew more and more inflexible after 1844 — a fairly certain sign of decrease in activity — and dropped out altogether in 1846, only to resume for a brief interval in 1851-1852.<sup>49</sup>

*Western Coffee Prices.* It may be seen in Chart XIII (p. 157) that western quotations on coffee, tea, and sugar are comparatively rare for years prior to 1817; prices for molasses and other groceries are even more uncommon, and the problem of analysis is also rendered more difficult by the fact that the available data are of doubtful homogeneity. However, it appears reasonably certain that with the exception of the early 1790's the price of coffee was comparatively stable between 1788 and 1817. Furthermore, the average for the thirty-year interval was slightly over 40 cents a pound — decidedly high compared with seaboard prices at that time or with those in the interior itself at a later date.<sup>50</sup> There are signs that coffee was declining slightly in value, but the magnitude of the long-run change was small compared with salt or iron. At Lexington, James Wilkinson paid 3 shillings (50 cents) a pound in 1788, whereas in 1816 Amos Farra was accustomed to were approximately equal in value, the overall spread being 6½ to 8 cents; "Java Government" was priced 12½ to 13 cents, and Mocha, 16 to 17 (*Atlas*, Aug. 15, 1844).

<sup>49</sup> "The kind of coffee sold in this market is, with little exception, Brazil, or what is technically called Rio, because imported from Rio de Janeiro, the leading seaport of the Empire. St. Domingo and Laguayra are brought here to some extent, but the quantity instead of increasing in the same ratio as does the trade, diminishes. Java is imported as a fancy grade to suit the taste of the fastidious, but the great staple . . . is Rio." (CCC [1858], p. 11.) "Havana" receives no mention.

"Our commerce was so important that a Spanish decree in 1834 imposing differential duties against American flour, which brought reprisals against Cuban coffee, was a serious blow to the latter industry" (L. H. Jenks, *Our Cuban Colony* [1928], p. 19).

<sup>50</sup> Cf. Table 7 (p. 104).

enter coffee at prices varying between 2s. 3d. (38 cents) and 2s. 9d. (46 cents). Scattered figures for intervening years show that the price at Lexington, Louisville, or Cincinnati rarely exceeded 50 cents or fell below 33, but coffee sold in Pittsburgh for approximately 20 cents in 1794 and again in 1812. By 1815, nevertheless, the Pittsburgh wholesale price was ordinarily around 40 cents.<sup>51</sup>

It was not until six years after the resumption of peace that coffee began to depreciate in Cincinnati (Chart XXVIII, p. 341). As a matter of fact, published and manuscript data all show that the price rose to some extent after 1818 in the Ohio market, although it was declining in Pittsburgh (Chart XXIX, p. 342). The Cincinnati peak during the winter of 1819-1820 was doubtless due in part to the tie-up of local shipping, but the persistence in Cincinnati a year later of a premium over Pittsburgh measuring 70 per cent strongly suggests that the bank currency of the former locality was worth considerably less than Pittsburgh money. The prices of other imported foodstuffs were similar in this respect, the chief point of difference being that in 1820-1822 sugar and molasses fell rather more precipitously than coffee, tea, or pepper. Indeed, the coffee market came nearer to preserving its stability than perhaps any other.<sup>52</sup>

The quotations published in Cincinnati for coffee, which had been as high as 57½ cents at the end of 1819 (manuscript prices reached 69 cents in 1820), gently and steadily declined for three decades. In 1844-1845 and 1848-1849 coffee could be bought for 7 cents, occasionally even for less. Such depreciation is comparable with that which took place in salt, iron, or dry goods. During the 1850's coffee rose in an equally gradual manner. The price approximated 15 cents by the end of 1860, and the dislocation of

<sup>51</sup> Wilkinson Papers; Farra Account Book; Ormsby & McLaughlin Accounts; R. & J. Patterson Accounts; *Mercury*, Jan. 11-Nov. 25, 1815.

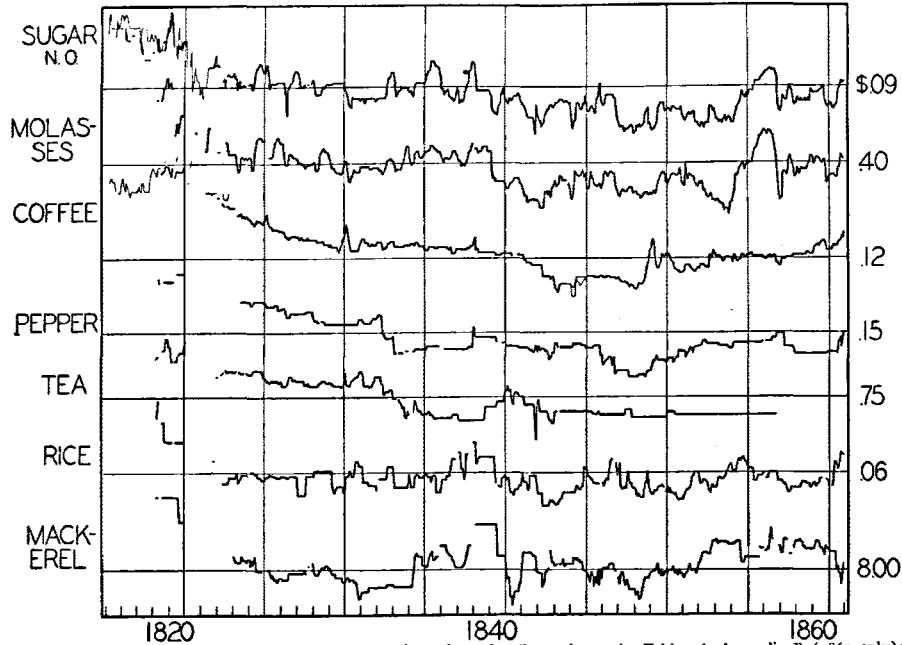
<sup>52</sup> The data for coffee in Chart XXVIII pertain to West India or Havana coffee from 1819 to 1846 (heavy line), and to prime Rio from 1845 to 1861. The finer curve between 1816 and 1823 represents data taken from the accounts of Pierce & Brightwell and Isaac Jackson.

Louisville coffee prices were as high as 70 cents (Commonwealth paper) in October 1822. The adoption of specie quotations two months later brought the price down to 32½ cents—a figure approximately equal to Cincinnati prices in succeeding months.

### CHART XXVIII

MONTHLY MEAN WHOLESALE PRICES OF LEADING GROCERIES IN CINCINNATI, 1816-1861

(Vertical logarithmic scale at different levels)



For data, see Tables 40-41, Appendix B (manuscript prices of coffee and sugar); Table 56, Appendix B (1861 only); Cole, *Wholesale Commodity Prices*, II, 174 ff.

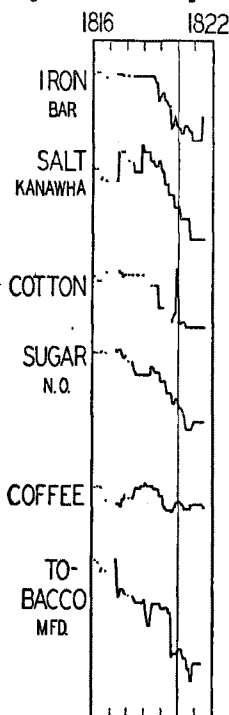


trade accompanying the war pushed the price to nearly 20 cents a year later. The market varied only a fraction of a cent from month to month except when ice hampered river shipping. That is,

CHART XXIX

MONTHLY MEAN WHOLESALE PRICES OF SELECTED COMMODITIES  
IN PITTSBURGH, 1816-1822

(Vertical logarithmic scale at different levels)



For data, see Cole, *Wholesale Commodity Prices*, II, 174 ff.

prices were not rigid but possessed an extremely small amplitude of variation. Another feature of coffee prices was their failure to respond to the speculative movements of the late thirties and the depression which followed. In that sense they could be termed inflexible.<sup>53</sup>

*The Coffee Tariff.* Changes in the duty on coffee were not in-

<sup>53</sup> Except for an occasional rise in Cincinnati prices during the winter, the various

considerable and probably helped determine the behavior of internal prices, but it is difficult to discover any direct correspondence so far as the Cincinnati market is concerned. Like many other nations, the United States in 1789 selected coffee, sugar, salt, and other foodstuffs as favorite sources of customs revenue. The original tariff specified a rate on coffee of  $2\frac{1}{4}$  cents a pound, which was raised to 4 cents in 1790 and 5 cents in 1794. The latter rate also pertained by the Act of April 27, 1816.<sup>54</sup> The coffee duty was over ten times as heavy as that on salt, pound for pound, but it constituted only a small fraction of the price in the interior before 1820. It was reduced to 2 cents at the beginning of 1831, but the Cincinnati price dropped only about a cent compared to the preceding year, whereas the average annual decline since 1823 had been practically double this figure. The duty was reduced another cent (effective January 1, 1832). Coffee was placed on the free list by the Act of 1832, and there it remained until after the commencement of the Civil War.<sup>55</sup> Yet the downward trend in American coffee prices tended to slacken its pace between 1832 and 1836.<sup>56</sup> On the other hand, no change in the tariff can be held responsible for such movements as the fall between 1820 and 1830 and the belated decline between 1842 and 1844.

*Young Hyson Tea.* Many of the preceding remarks apply to the price series representing tea and pepper. Tea was also relatively high in price in the West until the end of 1820, established a new and lower level some time prior to 1823, and declined

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United States markets behaved in a similar manner. The lowering of interregional price spreads is discussed in Chapter V.

According to the methods employed in this study, variations in average coffee prices showed no consistent relationship to annual receipts at Cincinnati between 1845 and 1861. The Pearsonian coefficient is  $+0.04$ .

<sup>54</sup> Imports in foreign bottoms paid a duty higher by 10 per cent (U. S. Statutes at Large, I, 24; 180; 390; III, 310). No thorough examination has been made of the legislation between 1794 and 1816.

<sup>55</sup> Strictly, the provisions above apply only to coffee imported directly from places of growth or production in American vessels; concessions were made to the shipping of Holland and nations treated reciprocally by the Acts of July 30, 1846, and August 3, 1846 (U. S. Statutes, IV, 403, 583; V, 463, 548; IX, 42, 49; XI, 192; XII, 178).

<sup>56</sup> According to G. R. Taylor's New Orleans data, coffee dropped about 3 cents between 1829 and 1831 and rose by the same amount in 1832.

gradually thereafter. However, it is impossible to describe accurately the behavior of tea prices after 1842 because the available data are discontinuous, non-homogeneous, and on the whole quite nominal.

The comparatively fragmentary prices of tea in the West for the period 1788–1817 pertain to the Imperial, Hyson, and Young Hyson varieties and average \$2.50 a pound. According to the annual median quotations in Chart XIII (p. 157), the leaf grew progressively cheaper between 1788 and 1806. In the first-named year James Wilkinson entered the price of Hyson tea at 20 shillings (\$3.33), and it rose to 28 shillings (\$4.67) in 1789. The price of Imperial tea in Frankfort was given as only 7 shillings. Except for a low Pittsburgh quotation on Young Hyson in 1812 (\$1.00), the market ruled somewhat higher between 1808 and 1821.<sup>57</sup> However, a number of figures are available for the early years which show that cheaper teas were occasionally on the market. Smith & Findlay mention transactions at 5 and 6 shillings in 1794 and 1795, respectively, and there is a Lexington price of 1796 as low as 3s. 8d. (Virginia).<sup>58</sup>

Prices published in the newspapers after 1819 apply to Young Hyson, Imperial, Gunpowder, Bohea, and other brands. Although the first-named was comparatively expensive, it is the variety for which quotations are most continuous. Almost all the figures for 1816–1823 given in Isaac Jackson's accounts and the books of Pierce & Brightwell are for retail transactions and are 20 to 50 per cent higher than contemporaneous newspaper reports.

Two further points in regard to tea prices are worthy of special notice. First, the relative position of the different western markets between 1816 and 1825 was on the whole very similar to that of the coffee series. The Cincinnati winter peak of 1818–1819 was perhaps more pronounced in the case of tea, and a recovery after the spring slump of 1820 is also in evidence. By the fall of the year tea sold at a price some 70 per cent higher than in Pittsburgh — a premium corresponding to that on coffee. At the end of 1820 Young Hyson tea was advertised in the Ohio newspapers at \$1.87½ per pound, more than double the quotation then current in Pittsburgh.<sup>59</sup> Louisville specie quotations towards the end of 1822

<sup>57</sup> Wilkinson Papers; Innes Papers; R. & J. Patterson Accounts.

<sup>58</sup> Smith & Findlay Account Book; Trigg Papers.

<sup>59</sup> LH, Dec. 13, 1820.

were at approximate parity with Cincinnati, and the latter was very close to Pittsburgh in 1824-1825 — all at a level about 30 per cent below the Cincinnati market of late 1820.

Secondly, Cincinnati tea prices appear to have fallen by stages after 1820. The interval between 1820 and 1823 was one of decline;<sup>60</sup> another came in 1826, minor in degree, and, beginning in 1833, tea began to drop steadily for a third time. By 1835 it reached a level roughly 40 per cent below the price of a decade before. In other words, the prices of tea and coffee did not decline *pari passu* between 1820 and 1848; coffee was comparatively firm between 1833 and 1835. It is noteworthy that western tea prices continued to settle during the years of American inflation (1835-1839) but rose during the Opium War (1840). Tea gradually fell thereafter, and prices in 1844 were roughly equal to those of 1835-1839. As has already been suggested, widely ranged quotations of later years were almost absolutely inflexible. The *Western Christian Advocate*, for instance, listed the price as 25-85 cents for nineteen months beginning November 1846, and the *Cincinnati Price Current* carried the quotation on regular Young Hyson at 35-75 cents from July 1851 until the item was omitted in October 1857. "Canton made" Young Hyson, first listed by the *Atlas* in 1844, was considerably less expensive, particularly after 1848, and during the greater part of the fifties this variety was uniformly quoted at 15-25 cents a pound.

*Tea Prices and the Tariff.* Changes of the first magnitude took place in the customs duties on teas, but they were reflected only imperfectly in Cincinnati prices. From the beginning the schedule of specific rates on tea was comparatively elaborate in that it provided for four varieties (Bohea, Souchong and black, Hyson, and other green teas) and also differentiated rates as to whether imports came directly from China (or India) in United States ships, from Europe in the same class of vessels, or via some other route and vessels. Since all rates moved roughly in proportion, this brief description is confined to Hyson teas brought directly

<sup>60</sup> According to Pierce & Brightwell accounts, the retail price was maintained at \$2.00 between June 1820 and July 1821. It was then marked down to \$1.25 and remained unchanged during the two succeeding years. Since flour sold for only \$1.50 a barrel in 1821, and even less on occasion, it is understandable that farmers rebelled at the change in relative values.

from the Orient in bottoms of domestic registry.<sup>61</sup> The revenue policy already touched upon in connection with salt and coffee is also evident in the present connection. The duty rose from 20 cents in 1789 to 40 cents in 1816 but declined in subsequent years — in fact, it was remitted under certain circumstances.

Between July 1, 1816, and December 31, 1831, the Hyson tea duty was 40 cents per pound,<sup>62</sup> and the lowest average annual price during this interval was only 90½ cents (1830). The rate was reduced to 18 cents, effective December 31, 1831; and the Act of July 14, 1832, went further to place tea on the free list (if imported in United States vessels from points beyond the Cape of Good Hope — otherwise, a duty of 10 cents was invoked).<sup>63</sup> The first reduction was matched by no decline in the price of tea at Cincinnati; 1832 was practically on a level with 1831. Even the conditional abolition of duty received little immediate response: quotations did not reach a corresponding level until late in 1834.<sup>64</sup>

*Pepper.* This spice was quoted only sparingly in the markets of the Ohio Valley before 1824, but after that date it appeared regularly in the prices-current of Cincinnati newspapers along with other spices such as ginger and pimento. Like tea and coffee, pepper was relatively high in price in the West before 1820. The earliest quotation — 5 Virginia shillings or 83 cents a pound — refers to Frankfort in January 1790. Several small purchases were made in Cincinnati in 1793 at the rate of 5 Pennsylvania shillings (67 cents). The corresponding figure for 1796 was 6 shillings.<sup>65</sup> Though pepper was bought in Louisville for only 2 shillings in 1804, the market was as high as 4*s.* 6*d.* in 1808. From that time the value tended to subside gradually until the close of the War

<sup>61</sup> In the Act of July 4, 1789, the lowest rate was 6 cents per pound, the highest 45 cents, and the Hyson rate in United States vessels 20 cents (U. S. Statutes, I, 24).

<sup>62</sup> U. S. Statutes, III, 310.

<sup>63</sup> *Ibid.*, IV, 403, 583. A similar arrangement continued under successive tariff acts until December 24, 1861, except that ships of Holland and other nations enjoying reciprocal treatment were admitted to exemption of duty by Act of July 30, 1846.

<sup>64</sup> The average price for 1835 was 58.6 cents, or 31.9 cents below the price five years earlier. According to these figures the American market never did fall to the full extent of the duties remitted.

<sup>65</sup> Innes Papers; Smith & Findlay Accounts; J. MacConnell & Company Accounts.

of 1812. Three shillings (50 cents) was the quotation in Lexington in 1810 and 1811, and in March 1815 pepper sold in Louisville for 38 cents a pound.<sup>66</sup>

The behavior of pepper prices in various western markets between 1816 and 1823 was not dissimilar to the course of tea and coffee prices, but data are comparatively rare for the years 1821-1822. Pittsburgh declined moderately between January 1816 (44 cents) and 1820 (33½ cents), and the market was down to 21¼ cents at the beginning of 1824. Cincinnati was roughly at the same level in 1820 and 1824, and retail data show that the mark-up was high and that adjustments were made only with a lag of several months. The retail price held at 75 cents from August 1820 to October 1821. It was then lowered to 50 cents and remained at this figure until April 1823. The price was 37½ cents for months to follow.<sup>67</sup> The Louisville wholesale price in November 1822 was 60 cents in paper. Specie quotations were 50 per cent less during the ensuing months.

The Cincinnati wholesale pepper market fell steadily between 1824 and 1834 (Chart XXVIII, p. 341). Indeed, the price which prevailed during the latter year (10½ cents per pound) was less than half the price of 1824 (25 cents) and one-third that of 1819 (35 cents). Again like tea and coffee, pepper altered very little between 1834 and 1840 except for the winter peak of 1838-1839. In fact, it was practically stable until 1846. In the following year it sought a new and lower level to which it clung until late in 1849 or early in 1850, and after a rise covering the succeeding triennium it reached a plateau slightly higher than that of 1834-1846. In other words, the "general pattern" of the pepper series is more like coffee than tea: pepper's leading characteristic is a downward trend until 1847-1849 and a moderately upward one thereafter. Nevertheless, pepper and tea shared a sudden drop in 1833 and 1834 which was not experienced by coffee prices, and pepper was more like tea in respect to inflexibility (Table 25, p. 338).<sup>68</sup>

<sup>66</sup> Fitzhugh & Rose Accounts; Fitzhugh & Gwathmey Accounts; Farra Account Book.

<sup>67</sup> Pierce & Brightwell Accounts; Isaac Jackson Accounts. Differences in money of account may have had some effect on the situation.

<sup>68</sup> On the other hand, a coefficient of  $-47$  indicates that pepper prices between

*Pepper and the Tariff.* The tariff of July 4, 1789, set a rate of 12½ per cent *ad valorem* on all Oriental goods (other than tea) brought in foreign vessels and provided a discount of 10 per cent on imports in vessels built in the United States and owned at home. This was changed by the Act of August 10, 1790, to a specific rate of 6 cents on pepper brought in American vessels, with an additional charge of 10 per cent if the imports were in foreign bottoms.<sup>69</sup> The specific duty became more and more burdensome in later years because prices were falling and the rate was rising. Between 1816 and 1832 the duty on pepper shipped in American vessels was 8 cents a pound (Cayenne pepper paid 15 cents according to the tariff of 1824). This may be compared with an average price of 17 cents in the Cincinnati market in 1830. However, black pepper and several other spices were placed on the free list by the Act of July 14, 1832, and the market reaction was comparatively swift and complete. At the time this act went into effect (March 4, 1833) pepper had risen to 20 cents, but in the last quarter of the same year it was quoted at 13½, and it fell further to 10½ in 1835.<sup>70</sup>

Although tea and coffee continued on the free list from 1833 until after the commencement of the Civil War, fresh customs duties were imposed upon pepper from time to time beginning with the Act of September 11, 1841.<sup>71</sup> A rate of 20 per cent *ad valorem* provided in this act was revised by the tariff of 1842, which assessed black pepper 5 cents and Cayenne 10 cents. No visible reaction took place in the Cincinnati market. However, when the duty on both grades was altered to 30 per cent *ad valorem* by Act of July 30, 1846, there was an immediate response. The duty was reduced to 24 per cent in 1857 with no noticeable effect upon domestic prices. No further change was made in the tariff until March 2, 1861, when a specific rate of 2 cents was invoked.<sup>72</sup>

1845 and 1861 were not unresponsive to changes in Cincinnati market receipts from year to year.

<sup>69</sup> U. S. Statutes, I, 24, 180.

<sup>70</sup> According to G. R. Taylor's pepper prices for New Orleans, the response was even more rapid in 1833, pepper falling from 19 cents (February) to 10 cents (April) and then to about 8¼ (September).

<sup>71</sup> U. S. Statutes, V, 463.

<sup>72</sup> Pepper fell from 11 cents (October 1846) to 8½ (February 1847); the new duty became effective December 1, 1846 (*ibid.*, V, 548; IX, 42). The act of 1857

It would appear that the general course of the tariff was sharply downward between 1816 and 1860, so far as tea, coffee, and pepper were concerned; and even though it is impossible in every case to show direct correspondence between alterations of the customs duties and fluctuations of Cincinnati quotations, it is rash to assert that the tariff changes exerted no influence upon market trends.

*The Sugar Market.* New Orleans sugar came to occupy a front-rank position in Cincinnati trade prior to the Civil War; it was the common item of commerce and speculation, although several other sugars were bought and sold in sufficient regularity to warrant more or less continuous quotation. The Louisiana sugar crop of 1820 was estimated to total 36,500 hogsheads, of which 23,553 entered the coastwise trade, about 5,000 were sent up the river, and the remainder were consumed on the plantations.<sup>73</sup> During the fifties the Cincinnati market alone probably handled more New Orleans sugar each year than the entire 1820 crop (Table 23, p. 320); it ordinarily kept a stock of 13,000 hogsheads, and the wholesale grocery trade was heavily dependent upon a large southern sugar crop.<sup>74</sup> Cincinnati acquired a vested interest in Louisiana sugar by reason of her geographical location, and she maintained that sugar from the South was preferred to any other for the western trade, with Puerto Rico a second choice.<sup>75</sup>

Accordingly, the Cincinnati monthly price data for New Orleans sugar are generally superior to those for any other brand from a statistical point of view. To be sure, the series is hardly

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went into effect on July 1. Prices rose throughout the year, but fell sharply in the spring and autumn of 1858. The rates of 1861 were 3 cents on Cayenne pepper and 4 on ground Cayenne, effective April 1, 1861 (*ibid.*, XI, 192; XII, 178).

<sup>73</sup> *Louisville Public Advertiser*, Nov. 7, 1821.

<sup>74</sup> Whenever the Louisiana crop failed, eastern markets were called upon to supply the western trade from other sources (CCC [1855], p. 21; [1856], p. 16; [1857], p. 3; [1860], p. 5).

<sup>75</sup> Over the five commercial years ended in 1856 the value of total receipts was as follows (in thousands of dollars): sugar, 14,827; molasses, 4,882; coffee, 8,558; tea, 2,217; pepper, 256; rice, 650. Towards the end of the fifties about two-thirds of the sugar in hogsheads and more than half the molasses was re-exported to points in the interior.

A beginning was made in the refining industry after the War of 1812, which proved unsuccessful. Early in 1819 the local refinery was producing about 10,000 barrels a year (*Advertiser*, February 23, 1819).



perfect if only by reason of its discontinuity between 1820 and 1823. Then, too, it is not strictly homogeneous, since it refers to New Orleans sugar as a whole in the earlier years and to only one grade ("fair") out of the six in wholesale trade towards the end of the period. Nevertheless, practically all journalistic comment on the state of the sugar market was restricted to Orleans sugar, and contemporary statistical analyses, such as that furnished by the Chamber of Commerce, dealt with this single brand.<sup>76</sup>

As for other sugars which entered into western trade for at least a fraction of the period under survey, they included country or maple, loaf, lump, Havana (white, yellow, and brown), crushed-and-powdered, and Brazil. Price differentials among the various brands were generally very wide, and varied considerably from time to time as changes took place in costs of production and shipment, tariff duties, or consumer demand. Before 1820 maple sugar was the cheapest and loaf sugar the dearest, with New Orleans and Havana in between.<sup>77</sup> Maple sugar was soon lost to wholesale commerce, and crushed (or Boston crushed) and Brazil were initiated to the Cincinnati price lists in 1844. In 1851, and for some years before and after, New Orleans usually fetched the lowest price in market, crushed-and-powdered the highest, whereas Havana, Brazil, and loaf occupied intermediate positions.<sup>78</sup> All grades and varieties had fallen greatly in price, especially loaf sugar, and the over-all spread had been reduced both absolutely and relatively to only a fraction of its former size.

*Country Sugar.* Maple sugar was the common article of consumption at the western settler's table before the advent of the steamboat and the felling of the hardwood forests. Michaux was

<sup>76</sup> The *Price Current* range quotations (1846-1859), like those in earlier journals, covered all grades from "common" to "choice." Simultaneous quotations in *Liberty Hall* (1846-1851) for the different grades indicate that the price of "fair" closely approximated an average of all grades. The same was true of the monthly prices of "fair" New Orleans sugar tabulated in the annual report of the Cincinnati Chamber of Commerce (1849-1860).

<sup>77</sup> The following quotations illustrate the relationship for the quinquennium 1816-1820: Country sugar, 12-14; New Orleans, 15-18; Havana brown, 20-22; Havana white, 28; and Loaf (Cincinnati refined), 37 (LH, Apr. 23, 1819; *Advertiser*, Apr. 13, 1819).

<sup>78</sup> Quotations as of September 17, 1851, were as follows: New Orleans, 5-6¾;

prompted to relate in 1802 how crudely the product was evaporated and that it sold in loaves at 14 cents a pound.<sup>79</sup> It was characteristic of the frontier economy that the market would not warrant any further refinement of the sap. Maple sugar was one of the very few commodities reported in the 1810 census of manufactures for the state of Ohio; it was then figured to be worth slightly over 10 cents a pound.<sup>80</sup> Cincinnati, Lexington, and Pittsburgh newspapers quoted it regularly for several years after the cane product began to penetrate into the interior in significant quantities. Indeed, fragmentary reports on the Cincinnati provisions market published in the years 1821-1822 priced the maple variety and no other. Nevertheless, wholesale quotations are entirely wanting for subsequent years. The census of 1860 recorded the output for the entire state of Ohio as three and one-third million pounds of maple sugar and some 370,000 gallons of maple molasses. These volume figures represent 5 and 10 per cent, respectively, of the Cincinnati receipts of sugar and molasses during the commercial year 1860.

One interpretation of the western sugar prices available (Charts XIII and XXVIII) is that a long-range decline between 1788 and 1849 was interrupted, first, by the War of 1812 and the ensuing inflation and, second, by the speculation of the latter thirties. The fifties witnessed a measure of recovery. The exact course of the markets before 1816 is difficult to determine because of the paucity of data and the frequent failure to specify the types of sugar bought and sold, among which a wide price differential prevailed. The average price of "sugar" or "plain sugar" for the period 1788-1817 was slightly less than 20 cents a pound, and at least some of the quotations pertain to the country or maple variety.<sup>81</sup> Maple sugar was by no means cheap in all places and sea-

Havana brown, 6½-6¾; yellow, 7-7¾; white, 7-8½; Brazil, 8½; Loaf, Nos. 1-8, 8-10¼; Crushed and powdered, 8¾-10½ (*Cincinnati Price Current*).

<sup>79</sup> *Op. cit.*, p. 71. The loaves weighed 6, 8, or 10 pounds. Imlay (*op. cit.*, pp. 117-21) stated that the product was not inferior to the best clayed French or Spanish sugars, and noted that the manufacture dovetailed with western agriculture in respect to seasonal activity. The industry of western Pennsylvania had a bright future in the 1790's (Coxe, *op. cit.*, pp. 65, 77-82).

<sup>80</sup> Production of 3,023,806 pounds was valued at \$308,932 (*Niles*, VI, 210 [May 28, 1814]).

<sup>81</sup> Since prices of loaf sugar were ordinarily about twice as high as those on

sons. In the last quarter of 1801, for instance, the published price in Frankfort was uniformly 25 cents a pound.<sup>82</sup> At first Pittsburgh sugar prices were lower than those at other western points; Melish reported the former as low as 10 cents in 1811. However, a change in this situation is indicated by the fact that in 1816 the Louisville price was 22 cents, the Pittsburgh 3 cents more.

Although western sugar prices, and to some extent those of molasses, followed a general pattern not unlike that already observed in connection with tea, coffee, and other groceries, the former behaved on occasion more like Ohio Valley export prices. This was especially true of New Orleans sugar. Sugar and molasses were active from month to month and year to year — there is not a faintest suggestion of the inflexibility characteristic of foreign prices. Furthermore, these two series were more like Ohio farm prices in their response to seasonal change and to general business conditions. It is notable, for instance, that between 1819 and 1821 sugar prices in both Cincinnati and Pittsburgh were subjected to a comparatively sharp and early deflation; and though the peaks of the late thirties appear atrophied, there are definite signs of a recovery during that decade.

The growing importance of Havana sugar in the trade of the West undoubtedly exerted an influence upon prices of all brands. Prior to 1840 refined West Indian sugar generally cost between 5 and 8 cents a pound more than New Orleans, and the former was comparatively inflexible in its behavior. However, the differential tended to shrink in ensuing years, and the Havana price became more amenable to change from month to month. In 1847 it was noted that a reduction in the tariff had accelerated this process: brown sugar from the West Indies was underselling the New Orleans variety.<sup>83</sup> By the middle of the century Havana white was worth only 2 cents more than New Orleans, and in 1855, when all sugars began to rise sharply in price, the margin averaged a cent. Havana brown sugar was even nearer to New Orleans in

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"sugar," the former were eliminated from consideration. A number of the data employed apply to "brown" and "muscovado" sugar.

<sup>82</sup> *Guardian of Freedom*, Oct. 2, Nov. 6, Dec. 4, 1801. Quotations were not given for other kinds of sugar.

<sup>83</sup> Prices (cents per pound) were as follows: New Orleans 7-7½; Havana white, 8¼-9½; Havana brown, 6¼-6¾ (*LH*, Sept. 23, 1847).

price. The former held an average premium of 3 cents in 1819-1820, which declined to 2 cents in 1834-1835 and disappeared the following year. The domestic and foreign varieties were still at approximate parity in 1844-1845, but New Orleans regained a competitive advantage between 1848 and 1854, averaging about a cent a pound.<sup>84</sup>

*Sugar and the Tariff.* Though it is difficult to trace the effects of changes in the tariff upon the course of western sugar prices, it is certain that the latter were not altogether immune from such influences, particularly after 1820. Between 1789 and 1816 the sugar duty played an important role in federal revenue policy, judging from the attention paid to it in legislation, and the general tendency was towards higher imposts.<sup>85</sup> Furthermore, domestically refined sugar bore an excise tax (repealed shortly later), which was probably of some commercial importance in the western markets.<sup>86</sup> The Act of April 27, 1816, specified rates per pound as follows: brown sugar, 3 cents; white, clayed, or powdered, 4 cents; lump, 10 cents; loaf sugar and sugar candy, 12 cents; furthermore, all duties were 10 per cent higher if importations were made in foreign vessels.<sup>87</sup> The protection afforded the Louisiana industry increased to a marked extent during the twenties as sugar prices declined about 67 per cent compared with 1816.

Though the general tendency was towards a decrease of sugar duties after 1830, the trend was not unbroken. The tariff of 1832 reduced the rate on brown sugar to 2½ cents and fixed that on white clayed at 3⅓; by the sliding scale of 1833 both rates approached 20 per cent *ad valorem*. As has already been said, the differential between the Cincinnati prices of foreign and domestic did shrink to some extent at that time, and both varieties con-

<sup>84</sup> The comparatively inflexible character of the series for Havana brown sugar indicates that this was a minor item in trade and speculation.

Changes in seasonality and in the interregional price situation are discussed in Chapter V, above.

<sup>85</sup> Because a system of specific rates was employed, sugars were divided into three classes in 1789 (brown, loaf, and other) and a fourth class (white clayed or powdered) was added in 1794. By 1797 six revisions had been made, all of which were upward in direction. (U. S. Statutes: I, 24, 180, 384, 411, 503.)

<sup>86</sup> A two-cent tax of 1794 was doubled in 1813, but all internal duties on refined sugar were repealed by act of December 23, 1817 (*ibid.*, I, 384; III, 35, 401).

<sup>87</sup> *Ibid.*, III, 310.

tinued to fall in price. The Act of 1842 restored a specific rate of  $2\frac{1}{2}$  cents to raw sugar and higher rates on the better grades.<sup>88</sup> New Orleans sugar definitely increased in price during the succeeding four years, but it must not be overlooked, first, that these were years of widespread business recovery and, secondly, that the value of Havana sugar did not increase but rather continued to decline. The Act of 1846 assessed sugar of all kinds at 30 per cent *ad valorem*; this was further reduced to 24 per cent by the Act of 1857.<sup>89</sup> The former statute was credited with encouraging a liberal importation of Havana sugar at low prices, with a correspondingly unfavorable influence upon quotations on the domestic article; <sup>90</sup> yet these latter, probably buoyed up by general business conditions, continued to rise almost a full year after the tariff went into effect before undergoing a drop measuring about 40 per cent.<sup>91</sup>

Because of the presence of another factor working in the same direction, it is problematical how far successive reductions in the tariff were responsible for the shrinkage in the foreign-domestic differential during the fifties. The Louisiana crops of 1855 and 1856 failed, and the 1857 crop was only average. It was remarked that the "regular demand" of Cincinnati's buyers was supplied for the first time in over twenty years with prime Puerto Rico and Cuba Muscovado.<sup>92</sup> Nor may any conclusion be drawn as to the effect of the minor reduction of duty in 1857; for one thing, no foreign prices are available, and, secondly, other factors, such as the size of the Louisiana sugar crop and general business conditions, were of more importance.<sup>93</sup>

<sup>88</sup> *Ibid.*, V, 548. Raw sugar was defined as the common brown sugar. The rates were 4 cents on sugars "advanced beyond the raw state" and 6 cents on loaf, lump, crushed, or pulverized.

<sup>89</sup> *Ibid.*, IX, 42; XI, 192.

<sup>90</sup> LH, Sept. 23, 1847.

<sup>91</sup> The drop at the end of 1846 was undoubtedly due to seasonal influences. The Louisiana industry underwent a sizable boom in 1847, and mill construction continued on a large scale in 1848-1849.

<sup>92</sup> CCC (1856), p. 16; (1857), p. 3; (1858), p. 24.

<sup>93</sup> That sugar prices were sensitive to crop conditions is suggested by the fact that relative annual receipts and prices at Cincinnati between 1845 and 1861 were comparatively highly correlated. The coefficient (-.73) is higher than that for any other commodity except flour.

**PART III**

**CURRENCY AND BANKING, SPECULATION  
AND INVESTMENT, AND THE PRICE LEVEL**

## CHAPTER XII

### CYCLICAL DISTURBANCES AND PRICE BEHAVIOR, 1780-1823

THUS FAR the approach to the price problem has placed emphasis upon particular commodities or special groups. Vital organisms of the price system have been examined one by one, in an effort to discover and evaluate influences affecting different ones in different ways. The discussion to follow concerns forces thought to work upon prices in general with more or less uniformity, and attention is directed to such factors as fluctuations in money and currency, investment and speculation, interest and exchange.

In considering the behavior of the price level in a particular market or region of the United States before the Civil War, one must bear in mind that the general situation was quite different from that of more recent times. In the first place, the currencies of various sections of the country were commonly so diverse that the problems of early interregional exchange resemble those encountered in the international sphere today. Secondly, commodities, along with real estate, constituted the chief vehicles of speculative commerce and finance—government and corporate securities were only beginning to acquire a free and extensive market.<sup>1</sup>

#### THE FIRST TIDE OF SETTLEMENT

*Western Money, 1780-1802.* It is not inaccurate to say that the West of the post-Revolutionary era evolved toward a position in the scheme of things quite similar to that assumed by the seaboard colonies during the colonial era. A roughly triangular trade, for instance, characterized both periods; whereas the mother country acted as banker and manufacturer for the colonies, New England and the Middle Atlantic States performed similar offices

<sup>1</sup>The Chicago Board of Trade and other grain exchanges of the present day, lineal descendants of the older commodity markets, have continued to develop forms of organization and facilities for speculation once comparatively rare, such as dealing on margin, future contracts, and short selling.

for the settlers across the Alleghenies. Perhaps in no other single respect is the analogy closer than in connection with money. Although the tide of investment of both labor and capital was ordinarily strongly in the direction of the newer regions, a recurrent complaint was heard that money was scarce because of a flow towards the East.<sup>2</sup>

Until western banking was inaugurated shortly after the turn of the nineteenth century, the region depended for the most part upon eastern paper, commodity money, foreign coin, and barter with the employment of money of account. The West was hardly opened to agricultural settlement during the era of the Continentals, and few records of actual use of this medium are available. There is definite evidence, however, that depreciated Revolutionary paper was used in Kentucky and Illinois and that prices were correspondingly high. Salt brought £100 a bushel at wholesale in Louisville in December 1780, and ten years later a judgment arising from a contract scaled the price down in the ratio of 75 to 1.<sup>3</sup> The army of George Rogers Clark introduced the issues of May 20, 1777, and April 11, 1778, into the Illinois country, with the result that peltries, long the currency of the district, were displaced from circulation. According to the French traders of Vincennes, this paper was passed as equivalent to specie, although it had depreciated in the East. When John Todd sought to have the inhabitants exchange their Continentals for loan-office certificates, general confidence in the currency disappeared.<sup>4</sup> Nevertheless, the depreciation during 1779 was at a considerably slower rate than in Philadelphia, according to tables compiled by Clark, Todd, and Pelatiah Webster.<sup>5</sup>

It is probable that Virginia and Pennsylvania bills of credit circulated to some extent in Kentucky and Ohio, respectively, during the 1780's but became of minor importance after 1788. Although the earliest western newspaper prices-current, those of

<sup>2</sup> It is probable that the new regions were gradually acquiring a larger stock of money in the form of specie, but that the process was not infrequently interrupted by a backflow.

<sup>3</sup> Robertson, *Petitions*, p. 163. Verhoeff, *op. cit.*, p. 65. In another account a mare was entered at \$4,000, presumably Continentals (Filson Club History Quarterly, III, 83, n. 3).

<sup>4</sup> The western traders petitioned Congress for restitution (C. W. Alvord, ed., *Illinois Historical Collections*, V, 130-31, 362, 454-55 [1909]).

<sup>5</sup> *Illinois Historical Collections*, II, lxxi (1907); Gouge, *op. cit.*, pt. II, 26. The



1797 (Lexington) and 1801 (Frankfort), were phrased in dollars and cents, merchants commonly kept their books in pounds, shillings, and pence as late as 1816. Furthermore, the latter occasionally referred to "Virginia currency" or "Pennsylvania currency," both of which were equated to the Spanish milled dollar according to pre-Revolutionary ratios.<sup>6</sup> Pennsylvania's last issue of bills (1785) depreciated rapidly at first and ceased to be tender within the state except for taxes, but their redemption at a later date undoubtedly resulted in appreciation.<sup>7</sup> The situation was similar in Virginia, though somewhat more complex. Strictly, Virginia issued no bills of credit after the Revolution but paid expenses with various types of paper which were receivable for taxes in varying extent.<sup>8</sup> It may be inferred from later legislation that auditor's certificates were worth only 6s. 8d. to the pound during the years 1783-1785. In other words, they had depreciated about 67 per cent. Nevertheless, a program of redemption was begun in 1784 which appears to have been practically completed in 1795. By that time the certificates were "principally, if not altogether redeemed," and those remaining in circulation were at par with specie.<sup>9</sup>

depreciation was not uniform at various western points. In terms of a specie dollar the rates of exchange were as follows:

1779	Phila.	Kaskaskia	St. Vincennes	Cahokia (Kobo.)
May 1-June 10 .....	22, 24	5, 6	3½	4
June 10-July 10 .....	22, 20, 18	10	4 ?	5
July 10-Aug. 15 .....	18, 19, 20	10	4-8	6
Aug. 15-Oct. 1 .....	20, 28	15	8-12	8
Oct. 1-Nov. 15 .....	30, 32, 45	to 30	to 15	10

<sup>6</sup> On the Pennsylvania ratio (7s. 6d. to the dollar) see Henry Phillips, Jr., *Historical Sketches of the Paper Currency of the American Colonies* (1865), I, 26, 34. Virginia statutes of 1782-1788 rated the dollar at 6 shillings, with one exception: tolls were specified in the charter of the Potomac Company (1784) as collectible in specie at the rate of 4s. 6d. (Hening, *The Statutes-at-Large*, XI, 518).

<sup>7</sup> Pennsylvania was passing legislation on redemption of outstanding notes as late as 1805 (Phillips, *op. cit.*, I, 35).

<sup>8</sup> The tax act of November 1781 illustrates the complexity of the situation. The levy could be paid up to 10 per cent in bills of credit, issue of May 1780; 45 per cent was payable in specie, tobacco, or hemp; and the remaining 45 per cent in specie, tobacco, hemp, or flour—that is, certificates of inspection at specified warehouses and valuations. Several changes were later made in these requirements. (Hening, *op. cit.*, X, 508.)

<sup>9</sup> A "certificate tax" of 1 per cent on all lands and lots was imposed by act of May 1784, the proceeds of which were for redemption of certain classes of cer-

According to Gouge, the circulation in Virginia was largely metallic between 1787 and 1804 in the absence of local banks, and this is probably true, though not for the reason stated.<sup>10</sup> Certain taxes in the Kentucky district were payable in specie only in 1789, and the general policy after 1790 was to require all taxes on lands, slaves, and other property (except arrearages) payable in coin. In 1792 all civil salaries were payable in specie. Federal money was adopted as the basis of public accounts on December 19, 1792, and beginning in 1793 foreign gold and silver coins were legal tender at rates regulated by Congress. An act of 1785 authorized the treasurer to pay at least one-third of Virginia's share of Congressional expense in specie, and the charters of the Potomac Company (1784) and the Dismal Swamp Canal (1787) both provided that stock subscriptions and tolls be paid in specie. Furthermore, prices in tidewater markets were comparatively low after the Revolution, indicating that the medium of exchange was rather "sound."<sup>11</sup> In the absence of more definite information it can only be surmised that the Virginia and Pennsylvania "currency" alluded to by storekeepers in the West was principally a system of account. It is known that the practice of using coins of the decimal system, yet keeping accounts in shillings and pence, persisted in the nation at large until well into the nineteenth century.

In general, western people of this era distrusted bank paper, partly on account of the fear of counterfeits, but many merchants

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tificates. Sheriffs' commissions were payable in kind, but the taxes themselves could be paid in (1) Spanish milled dollars and other coin; (2) audited military certificates; (3) Treasury tobacco notes paid to enlisted men; (4) auditor's warrants; and (5) any other audited specie warrants or certificates. (Hening, *op. cit.*, XI, 417-19.)

In 1795 inhabitants of certain counties who had never been billed for the certificate tax of 1783, 1784, and 1785 were allowed to pay in specie at the rate of 6s. 8d. to the pound. In 1801 a similar act permitted certain individuals to count certificates or warrants as specie (to their nominal value) in the payment of arrearages. (Samuel Shepherd, *The Statutes at Large of Virginia* [1835-1836], I, 404-5; II, 291.)

<sup>10</sup> *Journal of Banking*, p. 253, cited in Sumner, *A History of Banking* (1896), p. 20.

<sup>11</sup> Hening, *op. cit.*, XII, 55, 478-95; XIII, 2, 112-13, 134-35, 242, 478; *Revised Code* (1814), I, 78, 185, 259, 293, 414; Peterson, *op. cit.*, p. 126; B. U. Ratchford, *American State Debts* (1941), pp. 46-47.

preferred good eastern notes to coin in certain exchange situations. In 1800 the books of Smith & Findlay (Cincinnati) mention dollar "scrip" or "script" and "bank script." These may refer to bills on the Bank of the United States, which found their way into the interior to some extent but failed to remain in circulation because, like the bills of the Second Bank in 1818, they were in demand for eastern exchange. In 1802 the balance of trade in Lexington was so unfavorable that Bank of the United States notes carried a 2 per cent premium over specie. A similar situation existed with respect to bills drawn by western supply agents on the quartermaster in Philadelphia, which sold at 2½ per cent advance in the Kentucky market.<sup>12</sup> Nevertheless, a general distrust of bank paper is reflected in the fact that Kentucky chose to retain the Virginia act of 1785 which made it unlawful "for any person to offer in payment a private bank bill or note for money, payable to bearer" after January 1, 1787.<sup>13</sup> At the time of the passage (or adoption) of this legislation there were no incorporated banks in the respective jurisdictions. Virginia chose to amend the act in 1805 so as to prohibit notes "emitted by any banking company not having a charter," and Kentucky passed new legislation in 1812 "to suppress private associations for the purpose of banking."<sup>14</sup> Virginia authorized only two banks to issue notes in the meantime, and Kentucky granted no charters whatever during the first decade of her independent existence.

As in other frontier communities, staple commodities were common means of payment. Peltries (*pelletterie*) were the ordinary

<sup>12</sup> In 1791 the new stock of the First Bank was called "scrip"; it became a vehicle of lively speculation in eastern centers (J. B. McMaster, *A History of the People of the United States*, 8 vols. [1886-1926], I, 190-91; II, 38-39). Coin could be transported to the East only at considerable expense (Michaux, *op. cit.*, p. 137). The First Bank of the United States had no branch in the interior but established one in New Orleans in 1804 (J. T. Holdsworth, *The First Bank of the United States* [1910], p. 72; R. C. Downes, *Frontier Ohio, 1788-1803* [1935], p. 108).

<sup>13</sup> (Virginia) *Revised Code* (1814), I, 23; Littell, *Statute Law of Kentucky*, II, 565. The penalty was ten times the value of the note (paid to the informer), and the offender was bound to good behavior.

<sup>14</sup> The banks of Alexandria and Virginia (Richmond) were established in 1792, and a branch of the First Bank of the United States was set up in Norfolk in 1799. On Kentucky banks see below. (Shepherd, *op. cit.*, III, 122; Littell, *op. cit.*, IV, 399.)

currency in the Illinois country until the Revolutionary army introduced paper money. John Todd reported the purchase of 21,000 pounds of peltries in October 1779, and thus assured himself of the power to purchase provisions over a period of time. Another supply agent found that peltries were so high that he could buy provisions at prices as low as if he had specie.<sup>15</sup> In 1780 the salaries of the higher officials of the state of Franklin were paid in deerskins, those of the lower in coonskins.<sup>16</sup> Skins, furs, and tobacco were all used as security for certificates in Kentucky in the 1780's, and several commodities were receivable for taxes.<sup>17</sup> Legal fees were equated to corn in the Northwest Territory, and the commodity value varied according to the location of the service.<sup>18</sup> In 1794 David Ziegler advertised in Cincinnati's first newspaper that he would accept corn "equal to cash" for West Indian and dry goods, and Smith and Findlay advertised in 1800 and 1801 that they would sell their stocks for wheat. Furthermore, Symmes, Massie, and Cutler all accepted produce in payment for land.<sup>19</sup> As a matter of fact, a majority of the price quotations collected for this period appeared on the credit side of merchants' ledgers. We have already seen that salt was received for flour in the stores at the Kanawha Salines at a much later date, and the disappearance of specie from Mississippi in 1808 placed that district on a cotton standard.<sup>20</sup>

Mexican silver came into the interior via New Orleans for the settlement of trade balances, and coins of various kinds flowed from the East during an era of heavy migration. General James Wilkinson is reported to have been the first western exporter to

<sup>15</sup> Alvord, *Illinois Historical Collections*, V, 128-31.

<sup>16</sup> The Franklin legislature monetized almost every common commodity, at specified rates. Skins were current in Illinois as late as 1812. (J. G. M. Ramsey, *The Annals of Tennessee* [1853], p. 297; Sumner, *op. cit.*, pp. 60, 93.)

<sup>17</sup> Verhoeff, *op. cit.*, p. 65; Hening, *op. cit.*, XI, 30, 259, 455. The commodities were rated at values which changed from year to year. In 1786 tobacco was received at 20 shillings per hundred, in 1787 at 23 shillings. In 1792 hemp was received at 30 shillings per hundredweight.

<sup>18</sup> At the eastern end of the Territory a bushel was rated at 2 shillings, at the western end 7s. 6d.; the rating in the middle of the area came between these two extremes (St. Clair MSS, cited in Downes, *op. cit.*, p. 107).

<sup>19</sup> Downes, pp. 116-18.

<sup>20</sup> Cuming, *op. cit.*, p. 323.

secure specie from Louisiana; the export of precious metal had been forbidden prior to his venture in the late 1780's.<sup>21</sup> Though no statistical data are to be had, there is reason to believe that in years of prosperity imports of gold and silver from the East were considerably greater than those from the South. Indeed, one local writer stated that immigration was at first the only channel through which money flowed in, although exports added "small additional sums" during the years immediately following the War of 1812.<sup>22</sup> Settlers exchanged their possessions in the East, if they had any, for western land, and many of them could pay cash in the interior markets during their first year after arrival.<sup>23</sup> Attention has already been called to the importance of the immigrant market for foodstuffs in Lexington in the middle 1790's, and an illustration of a somewhat later date is furnished by Isaac Jackson's transactions. In 1820 Jackson, a farmer near Cincinnati, deposited \$1,200 — the proceeds of the sale of a house in Philadelphia — in the branch of the Bank of the United States. According to his books of account, he repeatedly drew specie from the bank, changed it for paper money, and bought supplies in the local market.

The stability of the western economic system was considerably affected by the fact that agricultural export prices, sales of public lands, and immigration all proceeded in tides of rather great amplitude, which tended to coincide with each other. In one year of extreme depression (1802) coins were used in Kentucky in exchange for hemp or country linen only, on account of the fact that incoming supplies were immediately shipped to Philadelphia. The West was able to retain worn and clipped coins, and was forced to rely for the most part upon "cut money" until banks commenced issuing notes of fractional denominations. No small silver coins could be found in Kentucky in 1802, and copper coins were reported out of circulation in Lexington three years later.<sup>24</sup> At the beginning of 1823, once more, the suspension of the incoming flow of immigrants' coin was noted by a Cincinnati editor who

<sup>21</sup> Verhoeff, *op. cit.*, pp. 64-65.

<sup>22</sup> *Advertiser*, Dec. 22, 1818.

<sup>23</sup> Downes, *op. cit.*, p. 109; C. H. Danhof, "Farm-making Costs and the 'Safety Valve,' 1850-60," *Journal of Political Economy*, XLIX, 317-59 (June 1941).

<sup>24</sup> Michaux, *op. cit.*, p. 139; Cuming, *op. cit.*, p. 166.

stressed the necessity of pressing exportation even at very low prices.<sup>25</sup>

The rates at which various coins passed in the West are shown in Table 26. Ohio used "Pennsylvania currency." On account of

TABLE 26  
WEIGHT OF CERTAIN FOREIGN COINS CIRCULATED IN THE WEST, AND THEIR VALUE  
IN TERMS OF PROVINCIAL CURRENCIES AND UNITED STATES MONEY

Name of Coin	Weight Dwt. Gr.	Kentucky- Virginia Currency			Pennsylvania- Maryland Currency			Federal Value			
		L.	S.	D.	L.	S.	D.	E.	D.	C. M.	
English guinea . . . . .	5 6	1	8	0	1	15	0	0	4	66	7
French guinea . . . . .	5 5	1	7	6	1	14	6	0	4	66	0
Johannes . . . . .	18 0	4	16	0	6	0	0	1	6	00	0
Half Johannes . . . . .	9 0	2	8	0	3	0	0	0	8	00	0
Moidore . . . . .	6 18	1	16	0	2	5	0	0	6	00	0
Doubloon . . . . .	16 21	4	8	0	5	12	6	1	4	93	3
Spanish pistole . . . . .	4 6	1	2	0	1	8	0	0	3	77	3
French pistole . . . . .	4 4	1	2	0	1	7	6	0	3	66	7
French crown . . . . .	19 0	0	6	8	0	8	3	0	1	11	0
Spanish dollar . . . . .	17 6	0	6	0	0	7	6	0	1	00	0
English shilling . . . . .	3 18	0	1	4	0	1	8	0	0	22	2
Pistareen . . . . .	3 11	0	1	2	0	1	6	0	0	20	0

the scarcity of United States coins, many foreign ones were made legal tender.<sup>26</sup> We also know from a printed table enclosed within a book of Harry Innes' accounts, most of which date between 1794 and 1800, that the American eagle, half-eagle, dollar, dime, and half-dime were listed in terms of provincial currency along with the foreign coins "as they now pass in this State." The "dollar of America," though 9 grains lighter than that of Spain, also passed at 6 shillings. Furthermore, Spanish or French milled gold was taken at 5s. 3d., the pennyweight and cob gold at 4s. 10d.<sup>27</sup>

Gold and silver coins are generally scarce in remote frontier settlements. This is true even in the case of mining communities,

<sup>25</sup> LH, Jan. 14, 1823.

<sup>26</sup> In 1820, for instance, foreign gold coins ceased to be legal tender; French crowns and five-franc pieces were retained as well as Spanish dollars. Many foreign coins, however, continued to pass by common consent (*Inquisitor and Advertiser*, Feb. 1, 1820). The federal law on legal tender was altered in 1797, but foreign gold and silver coins were legal tender to some extent until 1857 (Holdsworth, *op. cit.*, p. 53).

<sup>27</sup> Innes Account Book, No. 4. In one table the pistareen is rated at 1s. 3d.

unless local mints are established. The conventional explanation of the situation in the American colonies emphasizes the fact that the balance of trade was generally unfavorable, owing to (1) terms of trade, which were against the colonists because of relative insistence of demand, costs of transport, and other factors; (2) the fact that pioneers could not afford to set aside capital for a circulating medium, but adopted paper money and exported available coins in payment for commodities of higher utility.<sup>28</sup> Many of the latter — hardware, building materials, and the like — were “real capital” in every sense of the word, while the importation of liquors, textiles, and foodstuffs like sugar, tea, and coffee made it possible for the young communities to devote a larger portion of their energies to the production of other capital goods. The scarcity of the latter relative to natural resources and even to the diminutive but industrious population has been inferred from the height of the rate of interest. One could also say that the marginal productivity of capital was extremely high. The reported scarcity of specie in the Ohio Valley during the last quarter of the eighteenth century was aggravated by the fact that many of the inhabitants belonged to a class which preferred hard money, particularly in view of the experience with Revolutionary currency.

Writers who opposed banks and paper money did not agree with the above interpretation. Thomas Jefferson computed that the net addition to national capital brought about by the use of paper money was only three-quarters of 1 per cent. The instability introduced by fiat currency, he advanced, was a disadvantage far outweighing the utility of the additional capital. He was joined in the latter observation by Gouge, Amasa Walker, Gallatin, and Charles Francis Adams.<sup>29</sup> Gallatin, for example, calculated that at the beginning of the year 1830 the country possessed a total circulating medium of \$109,000,000, of which \$10,000,000 was in the form of specie, \$54,000,000 in bank notes, and \$55,000,000 in bank credits. Since the banks held \$22,000,000 in their specie reserves, only \$87,000,000 in coin was necessary to complete the requirements of a circulation exclusively of hard money. Other

<sup>28</sup> See, for example, Sumner, *op. cit.*, pp. 2 *et passim*. Adam Smith is credited with the original statement of the case (*Wealth of Nations* [1937 ed.], pp. 276-78; Harry Miller, *Banking Theories in the United States before 1860* [1927], pp. 39-40).

<sup>29</sup> Miller, *op. cit.*, pp. 44-45.

estimates placed the capital of the country at that time between \$10,000,000,000 and \$12,000,000,000 and the national income at \$1,000,000,000 a year.<sup>30</sup> On the other hand, an advocate of "managed currency" has shown that in several important instances the inauguration of paper was subsequent, rather than prior, to the drain of specie from the colonies. The issues of the New England colonies may have been inflationary in character and resulted in a loss of gold and silver, but in the middle colonies paper was resorted to during periods of depression and low prices in an effort to revive domestic trade. The results were generally salutary, and the price level became more stable rather than less.<sup>31</sup>

Nevertheless, there is reason to believe that specie occasionally flowed towards the frontier in sufficient amounts to cause a temporary abundance. Furthermore, it is highly probable that the total stock increased in the long run. Silver was so plentiful in Massachusetts in 1652 that it was decided to open a mint, and it was reported in 1698 that the metal was more plentiful in Pennsylvania than in England.<sup>32</sup> From 1780 until the close of the Revolutionary War the country was overrun with an abundance of cash, owing to the payments of French and English armies, foreign loans, and imports of specie from Cuba.<sup>33</sup> During the 1790's, again, the product of Mexican mines passed through the United States in increased amounts because of the war situation, and European demands for specie abated.<sup>34</sup> Money pressure in the West was eased in years such as 1795-1797, when high prices for farm produce were accompanied by high yields and good markets at home and abroad. In epochs such as 1802-1803, it is true, the situation was largely reversed. It appears that when the War of 1812 put a stop to the exportation of precious metal the latter flowed towards New England and the West from the middle Atlantic states and New Orleans, respectively. The stock held by

<sup>30</sup> W. M. Gouge, *A Short History of Paper Money and Banking in the United States* (1833), pt. I, 65-66. Bullionists or hard money advocates commonly conceived of the circulation as a fixed quantity. No allowance was made for the turnover or velocity of money.

<sup>31</sup> Richard A. Lester, *Monetary Experiments, Early American and Recent Scandinavian* (1939), pp. 56 ff.

<sup>32</sup> Gouge, *op. cit.*, pt. II, 5.

<sup>33</sup> Gouge, pt. II, 33; Phillips, *op. cit.*, II, 173-74.

<sup>34</sup> Gouge, *op. cit.*, pt. II, 51.



Massachusetts banks increased from \$1,560,004 to \$6,393,718 between 1811 and 1814 but was rapidly depleted after the conclusion of peace.<sup>35</sup> At that time the middle states were undergoing a paper inflation which culminated in a suspension of bank payments in August, 1814. A run on New Orleans banks had precipitated suspension in the preceding April. Yet specie was so plentiful in the West that the banks of Kentucky and Ohio honored their notes until the beginning of 1815. The bank in Nashville, Tennessee, continued to do so until the summer of 1815, or one year after the suspension in Philadelphia.<sup>36</sup> Other authorities report that silver was imported into the United States in great amount during the fall and winter of 1816-1817 and again in the winter of 1819-1820. As a matter of fact, the domestic supply was thought in 1820 to be greater than ever before.<sup>37</sup> A recurrence of the expression of this opinion lends support to the belief that the younger sections, like the nation as a whole, were gradually attracting a larger supply of precious metal.

Evidence of widespread barter in the West meets the investigator at every turn, and it appears that the region reverted to this type of exchange at certain later junctures, such as 1821-1822, when paper money went out of circulation in large amounts. Examination of account books reveals that transactions for money were comparatively rare and usually received a special notation. Secondly, produce brought into the stores for credit was commonly received at the same price at which it was sold; in other words, the merchant's profit came entirely from the mark-up on imported goods. On certain occasions the dealers sought to attract produce by offering half the payment in cash and the rest in goods.<sup>38</sup> Third, it is noteworthy that the Louisville Salt Works, for example, sold salt for 12 shillings a bushel on August 1, 1808, and for 9 shillings *cash* on the same day. Barter prices were generally higher than prices in terms of hard money; in other words, the latter circulated at a sort of premium. Though the bookkeeping ratios be-

<sup>35</sup> Gouge, pt. II, 152.

<sup>36</sup> Gouge, pt. II, 127, 133; *Niles'*, VI, 319 (July 9, 1814).

<sup>37</sup> Sumner, *op. cit.*, p. 77; *Niles'*, XVIII, 365 (July 22, 1820). At least part of the stock in the East in 1820 had been withdrawn from the West.

<sup>38</sup> See, for instance, the *Informant* (Danville, Kentucky), Dec. 10, 1805, advertisement of Richard Davenport, dated Sept. 3, 1805.

tween shillings and dollars remained the same, prices of commodities were frequently much lower in exchange for specie.

*Behavior of Commodity Prices, 1788-1802.* Comparatively little information on the ups and downs of local western trade is available for years prior to 1802. Perhaps the most notable movement of prices was the rise in the middle 1790's and the subsequent decline. According to Chart V (p. 96) these impulses were communicated to the West from the outside world. The whole nation underwent a severe crisis in 1791-1792, which is reflected in a paucity of price quotations at all leading markets. It was during this crisis that the Bank of New York, at the orders of Alexander Hamilton, undertook perhaps the first open-market operations in our national history. Government bonds were bought in an effort to keep prices up and to relieve the money market.<sup>39</sup> The year 1793 was an anxious one, but 1794 and 1795 witnessed a boom which came to a peak in 1796. In Boston the upward movement of the prices of domestic commodities was on a somewhat larger scale than that in imported goods, but the former group began to decline early in 1796, whereas the latter continued to rise. Both agricultural and industrial groups appear to have risen in the Ohio Valley, according to Chart VII (p. 121). The peak in the West was not reached until 1797. A rather continuous decline occurred during the next five years. The settlement of Indian difficulties by the Treaty of Greenville and of the dispute with Britain over the fur-trading posts by the Jay treaty undoubtedly were factors contributing to a renewal of interest in the public lands question on the part of the federal government.<sup>40</sup> Judging from the close agreement in later years between variations in land sales and prices of western produce, it is highly probable that the boom in agricultural prices was a strong factor aiding in the same direction.

#### THE SECOND TIDE: THE FLOW PHASE

*The First Western Banks, 1802-1815.* The economic ties between the Ohio Valley and the seaboard were strengthened to some extent during the first decade of the nineteenth century. Land

<sup>39</sup> Sumner, *op. cit.*, pp. 33-34; Smith and Cole, *op. cit.*, p. 13.

<sup>40</sup> Exposure of a scandal in Congress involving a proposed grant in Michigan is thought to have helped precipitate consideration of new legislation (P. J. Treat, *The National Land System, 1785-1820* [1910], p. 85).

sales, which were comparatively small under the Act of 1796, proceeded on a larger scale after passage of the Land Act of 1800 and the establishment of land offices in Cincinnati, Chillicothe, and Marietta in the following year. Though tracts were large and the price was fairly high, the allowance of credit helped to hasten conversion of the public domain into private hands. Between 1803 and 1805 the amount owed by purchasers to the federal government increased from \$1,092,390 to \$2,094,305.<sup>41</sup> The installment system encouraged speculators and settlers to buy all the land on which they could meet a down payment.

The establishment of banks in the interior was another event which pointed towards the encouragement of trade between the Ohio Valley and other regions. The first attempt to issue paper currency, we are told, was made when the Ohio Territorial Legislature of 1799 authorized auditor's certificates "for moneys due from the territory," bearing 6 per cent interest and receivable for taxes. The same body passed an act rendering promissory notes and inland bills of exchange negotiable.<sup>42</sup> The Kentucky Insurance Company (Lexington) was chartered on December 16, 1802, with \$150,000 authorized capital.<sup>43</sup> Though supposedly formed to insure cargoes shipped to New Orleans, this concern began issuing notes payable to the bearer and assumed other banking privileges. The original charter was evidently not designed for the establishment of a bank, and it has been stated by several authorities that the temper of the legislature was against banking and paper money.<sup>44</sup> Nevertheless, the local merchantry appreciated the advantages of paper, and in 1804 the state accepted it as a *fait accompli*. That is, the issue was implicitly authorized by enactment of an amendment to the charter which sought to limit the

<sup>41</sup> Treat, pp. 104-27.

<sup>42</sup> Downes, *op. cit.*, pp. 107, 120.

<sup>43</sup> William Littell, *The Statute Law of Kentucky (1809-14)*, III, 25-31.

<sup>44</sup> The company was allowed to assign bearer notes and to receive bills, bonds, and notes. None of the provisions customarily included in bank charters is to be found, such as limitation on note issue, reserves to be kept on hand, etc. See H. Marshall, *History of Kentucky (1824)*, II, 348-50; *Advertiser*, Jan. 12, 1819; R. T. Durrett, *The Centenary of Louisville (1893)*, p. 197; Elmer C. Griffith, "Early Banking in Kentucky," *Proceedings, Mississippi Valley Historical Association*, II, 172 (1908-1909).

circulation and provide penalties for over-issue.<sup>45</sup> The company subsequently put out a large circulation, but lost its banking privileges in 1818 and went into bankruptcy shortly thereafter.

The Kentucky Insurance Company is commonly stated to have been the first bank west of the mountains, but this distinction may belong to the Ohio Company of Pittsburgh. The latter institution was formed during the autumn of 1802 at a meeting headed by Ebenezer Zane. Capitalized at \$100,000, it was organized in an effort to supply much-needed credit for the export trade.<sup>46</sup> Two years later the Ohio Company opened an office of discount and deposit as the Pittsburgh branch of the Bank of Pennsylvania and assumed a position of importance as receiver of funds arising from the sale of public lands. By selling drafts on the home office at 1 per cent premium, it established the first formal and binding financial relationship between the West and the Atlantic coast.<sup>47</sup>

The close connection between credit and the export trade is also illustrated by the Miami Exporting Company of Cincinnati, which was chartered by the first Ohio state legislature in 1803.<sup>48</sup> This concern, according to announcements in the newspapers in 1804 and 1805, actually carried on a commercial business for a time according to the general purpose of its charter. However, it went into operation as a bank on March 1, 1807, and ceased altogether to prosecute the trade in produce.<sup>49</sup> Following Marshall's interpretation of the "Lexington Insurance Company," Gouge deduced that the Miami Exporting Company also obtained banking privileges in a surreptitious manner, but Jacob Burnet denied such to be the case.<sup>50</sup> The charter, it appears, gave many powers for the

<sup>45</sup> The limitation was vague and quite devoid of meaning. Total issue was not to exceed "the debts due to them, the money in their vaults, the property, real, personal, or mixt, they may own, and their capital stock." The officers were held personally liable for any excess issue. Incidentally, the monopoly on marine insurance provided in the charter of 1802 was withdrawn. (Littell, *op. cit.*, III, 213.)

<sup>46</sup> *Pittsburgh Gazette*, Oct. 8, 1802, cited in Hulbert, *American Historical Review*, XXI, 730-31.

<sup>47</sup> *Pittsburgh Gazette*, Jan. 6, 1804; Hulbert, *loc. cit.*; Holdsworth, *op. cit.*, p. 60.

<sup>48</sup> Ohio Laws, 1st Sess., c. 33 (1901 ed., pp. 126-36).

<sup>49</sup> Drake, *Cincinnati in 1815*, p. 150.

<sup>50</sup> Gouge, *op. cit.*, pt. II, 127; Burnet, *Notes*, p. 397. Both charters provided that notes to bearer be assignable by delivery only. The Ohio act specified "notes in writing" in two places, suggesting that circulating notes were not intended.

execution of business transactions but made no mention of the deposit of funds. It sought to confine credit to "bonds, bills obligatory, or notes in writing." The last-named instruments were to be assignable by indorsement "in like manner and effect as foreign bills of exchange now are, and if to bearer by delivery only."<sup>51</sup> If Gouge's interpretation is correct, the Miami Exporting Company was the first of several unauthorized banking concerns in Ohio.

It was not long before the western states chartered institutions expressly to do a banking business. The Bank of Kentucky was founded in 1806, and the Banks of Marietta, Chillicothe, and Steubenville were authorized in 1808 and 1809. The Nashville Bank was chartered in 1807, and the process of organization was also going on in Pittsburgh and New Orleans. Four new banks were chartered in Ohio between 1812 and 1814, including the Farmers' & Mechanics' Bank of Cincinnati. In addition, the Bank of Cincinnati proceeded to do business in 1814 without benefit of a charter. Two banks were incorporated in Indiana during the same year: the Farmers' & Mechanics' and the Bank of Vincennes. In short, the number of note-issuing institutions was growing at a fairly constant geometric rate. Though the state of Ohio had only four banks in 1811, the number doubled by 1814 and increased to twenty-one two years later.<sup>52</sup> Few reliable statistics are available on the note circulation of these institutions, but signs of widespread activity began to appear as early as 1815. The Miami Exporting Company then had a "reputation and notoriety . . . equal to that of any bank in the western country," and its dividends fluctuated between 10 and 15 per cent. As for the other two Cincinnati institutions, paper of the Farmers' & Mechanics' Bank had acquired "an extensive circulation," and notes of the Bank of Cincinnati were in "excellent credit." The dividends of these two institutions varied between 8 and 14 per cent and from 6 to 8

<sup>51</sup> Sections 16-17. Though the office was located at Cincinnati, subscriptions for capital stock were to be received by specific individuals in a dozen different localities in Ohio and Indiana. The officials were bound to invest at least one-half all cash received on shipments in produce or manufactures "always giving the preference to the stockholders respectively, in proportion to the number of their shares and the installments paid thereon." The latter provision makes the Company appear somewhat like a cooperative marketing association.

<sup>52</sup> Huntington, *op. cit.*, p. 350.

per cent, respectively.<sup>53</sup> It is not surprising that several merchants and others began to put their own notes into circulation.

*Prices and Trade, 1803-1815.* Chart V above (p. 96) shows how prices in the Ohio Valley behaved between 1803 and 1815 compared with those in the Philadelphia market. Of particular note is the fact that, although western prices rose to some extent during the years 1806-1808, they sank thereafter until 1812. The West was slow to respond to the upward tendency evident in the East as early as 1809. This fits in with other observations made as to the course of regional prices, currencies, and banking. The first bank boom occurred in New England in 1808 and 1809, and a mania for bank paper was seen to crop out in Pennsylvania in 1810. The legislature of this commonwealth at first sought to quench the movement, but in 1814 a single bill chartered forty-one new banks, of which thirty-seven went into operation.<sup>54</sup> Sumner found that the issue of Treasury notes stimulated credit operations in all the middle states, and, judging from price index numbers, the circulation increased much more rapidly in New York and Baltimore than in Philadelphia.<sup>55</sup> Furthermore, the suspension of specie payments in the East following the capture of Washington in August 1814 spread first through the middle states and caused still further divergencies among regional price levels. One year later specie was at par in Boston, 12 per cent premium in New York, and 16 per cent premium in Baltimore and Washington. As for the West, it was reported that there was plenty of specie in Ohio in 1814, and payment was not suspended until the beginning of the following year.<sup>56</sup> In July 1816 specie was quoted at 6 per cent premium in the West, compared with 14 per cent in eastern centers.

It is not accurate to state, however, that inflation did not begin in the West until the end of 1815<sup>57</sup> unless one limits the term to extravagant over-issue. Index A (prices of agricultural products) rose from 78 in 1811 to 134 in 1814 — an increase of very nearly 75 per cent. This index, it is true, declined to 117 in 1815 before

<sup>53</sup> Drake, p. 150. The word "notoriety" had no unpleasant connotation.

<sup>54</sup> Gouge, *op. cit.*, pt. II, 49-52, 56-58, 151.

<sup>55</sup> Sumner, *op. cit.*, pp. 63-66; Smith and Cole, *op. cit.*, pp. 8-19.

<sup>56</sup> Huntington, *op. cit.*, pp. 267-68.

<sup>57</sup> Sumner, *op. cit.*, p. 89.

rising to further heights in the post-war period. The western prices of imported articles, which are available in comparatively small number, indicate no similar movement. Coffee, sugar, and pepper all failed to appreciate to any extent between 1812 and 1815, even though they went up sharply in seaboard markets. This supports the contention that western currency was relatively "sound" at that time, but it may also reflect the fact that interruptions in the import trade of the East had comparatively little effect in the interior on account of differences in costs, scale of consumption, and facilities for speculation.

Taking the period 1802-1817 as a whole, one finds a fairly high degree of general agreement between variations in the sale of public lands northwest of the Ohio River (or the receipts therefrom) and variations in western prices, particularly if agricultural prices, or the ratios of these to other prices, are used in the comparison. Statistical measures of the agreement, it is true, are heightened to a considerable extent by the fact that sales (or receipts) and prices both rose sharply after 1813. Thus, the coefficient of similarity between annual receipts at the land offices and the purchasing-power ratios (with no adjustment for trend) is  $+ .70$  for the interval 1802-1817 but only  $+ .30$  for the period 1802-1812. Similar results are obtained with related series, such as the purchases of land at these same offices, the purchases or receipts at the leading office (Cincinnati), on the one hand, and Index A or the general index of prices, on the other.<sup>68</sup> However, it is worth noting that the first differences of the two series statistically compared above carry the same sign in twelve cases out of fourteen. There was undoubtedly no simple one-way relationship between the variables. A revival of the spirit of speculation in lands was probably carried over into commodities, and vice versa. Furthermore, a rise in grain prices due to outside factors, such as the behavior of the

<sup>68</sup> There are several sets of figures on the sales of lands before 1820. The data employed here refer to payments made at land offices northwest of the Ohio River for years ending September 30 (except 1802, which ended November 1). (See American State Papers, Finance Series, I, 715; II, 7 *et passim*; III, 39, 224. Cf. Treat, *op. cit.*, p. 410.) Hibbard's data, taken from a later document, refer to southern lands as well, whereas Donaldson's figures represent net receipts (payments less expenses for surveying, accounting, etc.). (See B. H. Hibbard, *A History of the Public Land Policies* [1924], p. 100; Thomas Donaldson, *The Public Domain* [1884], p. 17.)

English market, was certain to make land a more attractive investment, and conversely. Gallatin noted in 1803, for instance, that the unfavorable situation in the West discouraged transactions in land. A heavy sale of land was probably accompanied (sooner or later) by an increased number of new settlers who, especially in the earlier years, furnished a sufficiently large demand for foodstuffs and other western produce to raise their prices or keep them at a high level. Then, again, another set of financial relationships was established with the founding of local banks, of which the most common was the circuit of funds among the land-buyers, the banks, and the government. A large sale at the land offices resulted in larger United States deposits in western banks, which were prompted to pursue a more liberal discount policy. Many loans went to buy additional land, but at least a part of the funds spilled over into the speculative market for flour, pork, and other commodities and encouraged a rise in prices. The latter also favored a sale of more land. Extraordinary purchases of real estate were attended by the migration of capital to the West in one form or another to an amount which was respectably large for that era, and, as has already been explained by various authorities, the process was cumulative up to the point when farm prices began to fall because of the world situation, or the federal government began to transfer funds to other sections. Then the whole machinery shifted temporarily into reverse, and it was only after a long and painful period of readjustment that favorable basic factors, such as lower costs of production and the urge to migrate to the West, set it in forward gear once more.

The relationship between land and commodity markets changed from time to time in response to institutional factors such as government or private credit policy. The failure of western commodity prices to rise to the same degree as land sales in 1805 and 1806 may be a statistical accident, as has been suggested in a preceding chapter, but it may also be interpreted as a reflection of the fact that western banking had not evolved to the point where it could take advantage of the land-office balances by expanding credit to local customers. In 1813, moreover, western prices of export items (Index A) rose from 84 to 114 (base 1788-1817), whereas contracts and payments for land both declined compared with the preceding year. By that time western credit institutions were be-



ing organized in larger numbers, and, furthermore, the federal government was sending funds to the West rather than withdrawing them.<sup>59</sup> In the post-war epoch, finally, commodity prices remained at high levels for many months after the land bubble had burst, owing to the fact that withdrawal of capital to the East was met by suspension of payment on the part of western banks. Local currency eventually depreciated, but remained in circulation until it was almost worthless. The pattern of events was essentially the same in the late thirties and again in the late fifties, though their geographical setting had moved farther to the West and Southwest.

#### FLOOD AND EBB OF THE SECOND TIDE

Sumner wrote in 1896: "At no place and at no time has the history of banking ever been so varied, so bold, and so rich in experience, as it was in the Mississippi Valley in the first thirty years of this century."<sup>60</sup> This characterization, strongly worded though it may be, certainly applies to the monetary and financial experience of the Ohio Valley between 1816 and 1823, and Cincinnati may appropriately be selected for particular study by reason of the fact that it lay in the center of the extraordinary developments in the West during this brief period.

*The Years 1816-1817.* According to Sumner, the inflation reached the Mississippi Valley at the end of 1815 and spread rapidly during the following year. Our annual index numbers imply that the principal speculative activity was in the agricultural exports. The general level of Ohio Valley prices rose only moderately — from 108 in 1815 to 116 in 1816 and 125 in the following year — but Index A went from 117 to 131 and 145. Index B dropped from 86 to 75, where it remained in 1817 (Charts V, VII). Sales of public lands were increasing, especially in Indiana and Illinois. The total receipts, which were estimated at \$2,400,000 in 1815, amounted to \$3,600,000 in 1816, \$5,100,000 in 1817, and reached a lofty peak in the following year (\$13,600,000).<sup>61</sup>

<sup>59</sup> "Eight waggons loaded with specie for the western army arrived here on Saturday evening last, under an escort of a lieutenant's guard" (*Mercury* [Pittsburgh], Nov. 19, 1812).

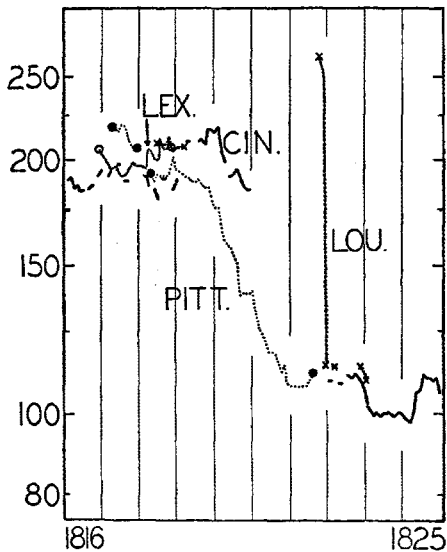
<sup>60</sup> *Op. cit.*, p. 58.

<sup>61</sup> Smith and Cole, *op. cit.*, pp. 55, 185. The figures for 1816-1818 are rounded to the nearest hundred thousand.

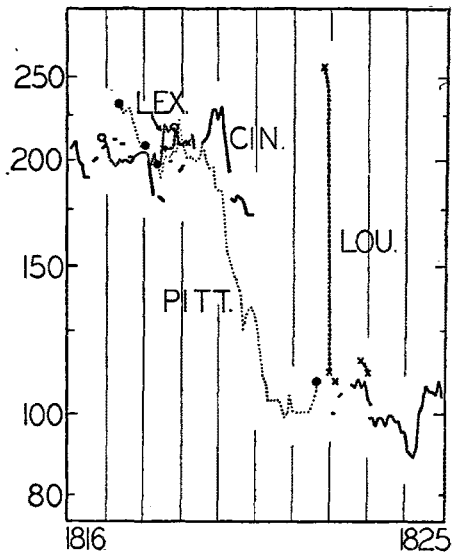
CHARTS XXX-XXXI

UNWEIGHTED AND WEIGHTED MONTHLY INDEX NUMBERS OF WHOLESALE COMMODITY  
PRICES IN CINCINNATI, LEXINGTON, LOUISVILLE, AND PITTSBURGH, 1816-1825

(Base: 1824-1846 average)



For data, see Tables 45-46, Appendix B.



Continuous price data on a monthly basis are not available for any one western market for years prior to 1823 on account of the fact that newspapers occasionally suspended publication of market reports. Moreover, it has not yet proved possible to accumulate sufficient data from books of account and other manuscript sources to fill gaps in the published data. The original approach to the problem was to piece together a continuous series for each commodity from overlapping quotations for Cincinnati, Lexington, Louisville, and Pittsburgh, and to compute monthly index numbers from these series for the years 1816-1825.<sup>62</sup> In other words, the western data for 1816-1823 in Charts VI and IX (pp. 98, 123) are composite Ohio Valley indices, the base of each of which has been changed from 1816-1825 to 1824-1846 in order to splice it to a Cincinnati series for the later interval. The treatment to follow gives results of a different approach. Separate series of monthly index numbers for 1816-1825 have been computed for each of the four western markets, directly on the base 1824-1846. Though the series are discontinuous, in some instances quite fragmentary, and the list of commodities is not identical in all cases, the second method has decided merits.<sup>63</sup> General indices, unweighted and weighted, are given in Charts XXX and XXXI so far as quotations permit. Charts XXXII-XXXIII portray Index A (agricultural exports) and Index B (other commodities), respectively, for the same markets and months.<sup>64</sup>

According to Chart VI, Cincinnati prices were not far from agreement with those in New York and New Orleans at the beginning of 1816. During the first quarter the western weighted index numbers averaged 205, to be compared with 198 for New York and 220 for New Orleans, all on the base 1824-1846. Cin-

<sup>62</sup> T. S. Berry, "Wholesale Commodity Prices in the Ohio Valley, 1816-1860," *Review of Economic Statistics*, XVII, 79-93 (August, 1935); A. H. Cole, *Wholesale Commodity Prices*, I, 81-82, 180. The western price quotations for 1816-1822 in the Supplement to the latter work represent the spliced series, as can be seen by the notations as to market and grade.

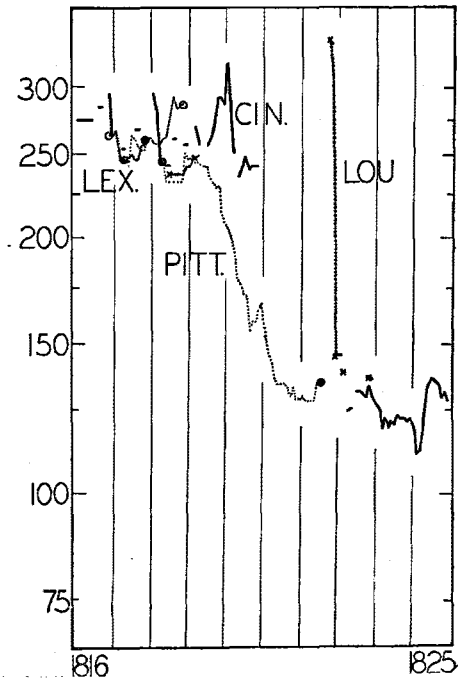
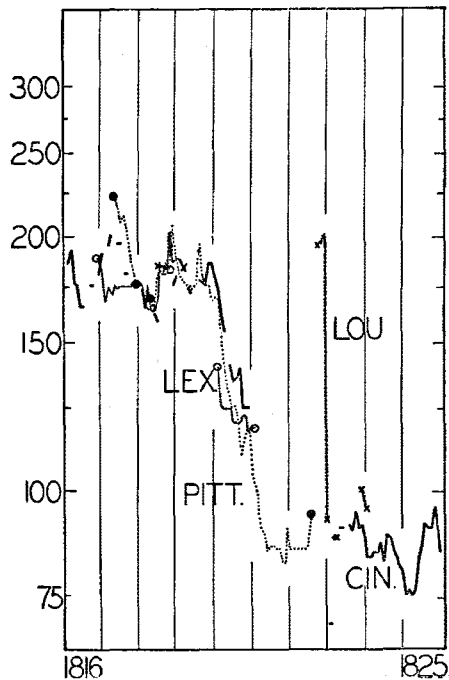
<sup>63</sup> Further notes on statistical technique are given in Appendix A. Tests indicate that (1) the original index numbers were not distorted appreciably by transferring them from the base 1816-1825 to the base 1824-1846; (2) the lack of uniformity as to inclusion of commodity price series is not of great significance.

<sup>64</sup> The Lexington price lists of 1820-1821 include so few manufactured and imported goods that it is impossible to construct Index B or general indices.

CHARTS XXXII-XXXIII

MONTHLY WEIGHTED INDEX NUMBERS OF THE WHOLESALE PRICES OF AGRICULTURAL EXPORTS (INDEX A) AND MANUFACTURED AND IMPORTED GOODS (INDEX B) IN CINCINNATI, LEXINGTON, LOUISVILLE, AND PITTSBURGH, 1816-1825

(Base: 1824-1846 average)



cinnati and New York both declined during the second quarter of the year, but New Orleans prices rose to a decided degree. Despite discouraging reports which emanated from the Louisiana port between January and March, agricultural prices in Cincinnati turned about sharply during the summer and climbed 34 points between June 1816 and the following March (Chart XXXII).<sup>65</sup> Pittsburgh quotations were also high in the spring of 1817.

Several factors combined to spike the 1817 boom just as it was acquiring dangerous proportions. World wheat prices fell rapidly in accompaniment with good harvests.<sup>66</sup> Both England and the United States were making preparations to resume specie payments. In addition, steps were taken by the federal government to compel payment of all public dues, including the proceeds of land sales, in specie or its equivalent.<sup>67</sup> Nevertheless, prices in Cincinnati and Pittsburgh did not come down to approach those in New York until the spring of 1818, and the Lexington market remained quite firm even at that time. In other words, the West maintained a considerable margin over the East between the middle of 1816 and a corresponding point two years later. This disparity was especially wide in August 1817, for which weighted index numbers are as follows: New York, 171; Pittsburgh, 222; Lexington, 199; Cincinnati, 201; and New Orleans, 202. New York prices rose at the end of 1817 while Pittsburgh was falling sharply. During the preceding spring flour was selling for 75 cents a barrel more in the latter center, compared with Cincinnati; but in January 1818 the Pittsburgh price was 62½ cents lower than Cincinnati quotations. On the other hand, general prices held firm in Lexington; in fact, the weighted index rose from 194 in March to 204 in December, the high point for the year.

The Second Bank of the United States established one of its

<sup>65</sup> LH, Jan. 29, Feb. 5, Mar. 4, 1816. It was hoped that flour had reached a stable peacetime level from which further decline would be unnecessary. Lexington prices of exports remained comparatively low in 1817.

<sup>66</sup> Thomas Tooke, *Thoughts and Details on the High and Low Prices . . .* (1823), pt. III, 78.

<sup>67</sup> The joint resolution of April 30, 1816, sponsored by Daniel Webster, required that after February 21, 1817, at the latest, all payments to the government be in specie, or notes on the Treasury, the Bank of the United States, or specie-paying banks (R. C. H. Catterall, *The Second Bank of the United States* [1903], p. 23). The famous "Specie Circular" of 1836 was a revival of the Webster Resolution.

original branches in Cincinnati in early 1817, and offices were opened in Louisville, Lexington, Chillicothe, and Pittsburgh before the expiration of many months. Despite the fact that the institution was committed to pay the government and its own depositors specie on demand, under a heavy penalty, the bank's officers immediately commenced to lower its reserve ratio by discounting rather generally.<sup>68</sup> By March 1818 accommodations had expanded on a large scale, especially in the West and at Philadelphia and Baltimore. Aside from the heavy sales in public lands, to which allusion has already been made, another fact suggesting the expansion of capital towards the West is the shrinkage of the discount on western bank notes in the East. The paper of old, chartered, Ohio banks was carried at 12-15 per cent off in the Philadelphia market at the beginning of 1817, but quotations were materially higher in later months. As a matter of fact, sales were made at only 4½-5 per cent off in January 1818.<sup>69</sup>

"The pretended resumption of 1817 was unreal," although in the opinion of one authority conditions were ripe for it at the time — it was only necessary to contract the paper circulation somewhat further.<sup>70</sup> Indeed, it was just as uncommon to see a silver dollar after the *de jure* resumption as it had been before.<sup>71</sup> Two Ohio banks "resumed" payment on the appointed day (February 20, 1817) and were joined by the other chartered institutions early in the spring.<sup>72</sup> At the same time, one western traveler found pistareens passing in Cincinnati at a premium of 30 per cent in consequence of the dearth of specie.<sup>73</sup>

*Price Behavior, 1818-1823.* The disastrous turn of events in the East in 1818 and 1819 is a familiar matter of record. A storm which was brewing all during the former year finally broke as the twelvemonth drew to a close. Commodities underwent such a long

<sup>68</sup> Catterall, *op. cit.*, pp. 29-31.

<sup>69</sup> Huntington, *op. cit.*, p. 487.

<sup>70</sup> Sumner, *op. cit.*, pp. 77, 81. See also Gouge, *op. cit.*, pp. 92-93.

<sup>71</sup> Niles, XII, 185 (May 17, 1817).

<sup>72</sup> Huntington, *op. cit.*, pp. 283-84. Pittsburgh banks resumed on March 20, 1817 (*Pittsburgh Gazette*, Mar. 25, 1817).

<sup>73</sup> Fearon, p. 232. Fearon found Cincinnati notes at 5 and Louisville at 7½ per cent discount in Pittsburgh; these were minima occasioned by distance rather than fear for the banks' integrity. Pittsburgh notes were simultaneously at a discount in Cincinnati.

and steady decline that the deflation is ranked among the worst the world has ever witnessed. Since the fall of agricultural values was of such great dimensions,<sup>74</sup> it has long been recognized that the depression was especially severe in the West.

Although western banking, commerce, and manufacturing were in a critical stage in 1818, this section lagged behind others, as judged by the behavior of commodity prices. Indeed, the prevailing diversity among state and local currencies made it possible for Pittsburgh markets to decline some months after New York and ahead of Cincinnati, and for Kentucky prices to follow the latter only after the expiration of an appreciable interval of time. It is difficult to measure this lag exactly. According to the figures portrayed in Chart VI, New York prices rose slightly during the year 1818 but began falling sharply in December of that year. The decline was especially rapid from then until June 1819, but the market continued to settle until March 1821. The Cole index fell from 191 to 107 during the interval between November 1818 and March 1821, and New Orleans quotations declined *pari passu*. Pittsburgh began to come down about a year later than New York and New Orleans but descended at such a rate that the three markets were at approximate parity in the spring of 1821. In July 1819 the Pittsburgh index stood at 210; one year later it was at 140; and it reached 104 in March 1821. Cincinnati lagged behind Pittsburgh about a year, though measurement is rendered difficult by the fact that prices of agricultural exports in the Ohio market fell to some extent during the year 1820 (Chart XXXII), yet those of imported goods held firm and even rose to some extent towards the end of the year (Chart XXXIII).

Regular Cincinnati prices-current are not to be had for months after November 1820, but figures in manuscript sources, together with the quotations on bank currency, indicate that flour, whisky, and other commodities in this group continued to decline during the first half of 1821, whereas coffee, sugar, pepper, and other extra-regional goods rose until May or June 1821. A general explosion then took place in the local currency; specie or its equiva-

<sup>74</sup> In Philadelphia, agricultural commodities declined from 161.4 (October 1818) to 91.9 (June 1821), whereas industrials fell from 120.7 to 104.1. However, the latter group had declined severely between 1814 and 1818 (base, 1821-25). (Bezan-son, *op. cit.*, I, 354-55.)

lent (eastern exchange) was adopted as a basis of account, and prices of imported goods were immediately scaled down. Information on Lexington is rather fragmentary, but scattered Louisville prices-current indicate a similar situation, except that local paper (Commonwealth Bank) was the standard of account for a longer interval. This medium continued to depreciate in terms of specie and other currencies, and the price level failed to come down until a sudden readjustment took place at the end of 1822. The general index went from 242 to 113, Index A from 202 to 93, and Index B from 300 to 144 between November and December 1822. It appears that the general rule was to mark prices down slightly more than 50 per cent, whether exports or imports. Louisville prices were brought to a level very nearly equal to those of Cincinnati, Pittsburgh, New York, and New Orleans. Thus, the amplitude of decline varied more or less according to the extent of inflation beforehand. New York prices fell 44 per cent, Pittsburgh about 50 per cent, and Louisville some 53 per cent.

It is a notable fact that in 1818-1820 price differentials among the four western markets were much smaller with agricultural staples (Index A) than with other commodities. This can readily be seen by comparing Chart XXXII with Chart XXXIII. Farm products rose in price after the middle of 1818 and on the whole held rather firm until about eighteen months later. However, the leaders (flour, wheat, corn, lard, and whisky) dropped sharply between November 1819 and December 1820. The amplitude of deflation was greatest in respect to these particular items. In short, they fell first and farthest.<sup>75</sup> The Cincinnati prices of butter, mess pork, and manufactured tobacco, on the other hand, did not decline to a comparable extent. Prices of other domestic products (cotton, sugar, molasses, iron, salt, etc.) fell considerably less in Cincinnati than in Pittsburgh in 1819 and 1820. As a matter of fact, molasses was the only commodity of this group which weak-

<sup>75</sup> Evidence on the Cincinnati currency situation in 1819-1820 (see below, n. 100) leads one to suspect that flour and other export staples were quoted in specie or eastern exchange, whereas imported goods were bought with local paper. If this is true, the published prices (and index numbers) exaggerate the discrepancy. However, a similar price displacement developed in other markets not affected with currency difficulties. Between June 1819 and the same month two years later the purchasing power of flour in Pittsburgh dropped from 70 to 44 per cent, in terms of the general weighted index numbers (base, 1824-1846).



ened at all in the Ohio market. As for foreign products, few of which were quoted regularly, Pittsburgh suffered little decline until the end of 1819, and Cincinnati values a year later were as high as they had been in 1818 or higher. The sharp peak during the winter of 1819/20, it should be mentioned, was due in large part to a scarcity of certain articles caused by the suspension of navigation.

The general tendency of prices in Pittsburgh and Cincinnati was to reach bottom in 1821 and improve during the succeeding year. There are traces of the worldwide flurry in flour and wheat late in 1821, and signs of a general price rise in the middle of 1822. The speculative movement which was common to all other markets in greater or lesser degree in the winter of 1821-1822 was communicated to the West only in an imperfect and halting manner, and it is doubtful how far the latter shared in the sharp recession towards the end of 1822. The general Pittsburgh index at the end of the year was higher than New York by about 10 per cent in 1818, by 36 per cent in 1819, and by 10 per cent in 1820; the two price levels approached equality in the first quarter of the year 1821. At the end of the last year New York prices were approximately 24 per cent above Pittsburgh, and the eastern market was about 9 per cent above Cincinnati at the beginning of 1823. As the year 1823 wore on, it became evident that a new equilibrium was being established. The levels of general prices in various American markets came nearer to approaching each other than they had since the beginning of 1816. In addition, the western price structure was recovering from the distortion to which it had been subjected during the period of greatest stress. Although flour, whisky, and other farm products remained low compared with the period 1816-1820, imported and manufactured goods continued to decline towards a point where relatively favorable terms of trade were re-established. The latter movement was undoubtedly connected with the reduction of incoming freight rates, but it also reflected the appreciation of western currency.

*Cincinnati Currency and Banking, 1818-1823.* The impact of deflation was felt differently in Cincinnati, as compared with Pittsburgh. The latter center suffered an industrial crisis but managed to retain a monetary circulation. The wartime prosperity of Pittsburgh manufacturing had been riddled in the years following peace;

although 1,960 hands were employed in 1815 making goods worth \$2,617,833, the labor force had shrunk to 672 and the product-value to \$832,600 by 1819. Necessarily, the ensuing collapse of market prices added injury to both manufacturer and merchant.<sup>76</sup> Nevertheless, the local banking structure did not collapse. Notes of the City Bank and the Bank of Pittsburgh stayed at par throughout 1821 and 1822, and those of three other local corporations were at a comparatively slight discount until a sudden flurry of depreciation took place in the spring of the latter year. Gold was then at a premium, the magnitude of which was not disclosed.<sup>77</sup> In this respect, the currency situation was generally similar to that in many smaller western centers, where bankers had been either more conservative or more successful in avoiding embarrassment.

The Cincinnati situation was unusual in that the community clung tenaciously to local bank paper in the face of one failure after another. As each one of the four issuing institutions was found in discredit, a temporary crisis took place, but paper of the others remained in circulation at a progressively larger discount in comparison with specie or eastern paper. The principal reason for this appears to be that the community desired a cheap money which would be accepted on deposit at local banks. Finally, with the rejection of Miami Exporting Company notes in May 1821, the merchants adopted specie for ordinary circulation. Since specie was at a premium for an interval of about two years and a half, in comparison with current money, the price level was more or less inflated; and if index numbers were compiled on the basis of specie prices, they would show that the Cincinnati market was much nearer in agreement with others. The West was under pres-

<sup>76</sup> Pittsburgh merchants attempted to prevent published quotations from falling, and an amusing controversy took place when a novice made a paid insertion of his own prices-current at somewhat lower figures (*Mercury*, Aug. 30-Sept. 20, 1820).

<sup>77</sup> Notes of the Farmers' & Mechanics' Bank, the Pittsburgh and Greensburgh Turnpike, and Pittsburgh city tickets were bought by brokers at 3 per cent discount until March 1822, when the first two became uncurrent because of a "sudden depression in our paper currency owing to exertions of a number of merchants who had set their heads together against the circulation" (*Statesman*, Mar. 23, 1822). In May and June all three were bought in Cincinnati at 50 per cent off (LH, May 1, June 15, 1822). J. Towne, a Pittsburgh note broker, advertised "the highest premium given for gold" in April and May 1822 (*Statesman*, Apr. 20-May 18, 1822).

sure all during the interval on account of the interregional trade situation. World prices of the principal exports were declining to a great degree, sales of public lands and inflow of immigrants were dropping *pari passu*, federal funds were transferred to the branch of the Bank of the United States and from there to the East, and mercantile debts owed to Philadelphia and Baltimore were under process of contraction.<sup>78</sup> This pressure was relieved from time to time, as will appear presently, only to return in another form.

*The Branch of the Bank of the United States.* The Cincinnati branch of the Second Bank of the United States faced the impossible task of reconciling the specie proviso of the Webster Resolution with the currency situation in the West. The problem of transferring government deposits to the branch was interconnected with that of accepting notes from banks which possessed comparatively little specie. In addition, notes issued by the Bank of the United States failed to improve the western circulation in that they were immediately sent to the East for purposes of exchange. In 1817 the Lexington cashier had decided to re-issue paper of state banks and restrict his own circulation; he earned a strong rebuke from President Jones.<sup>79</sup> The Cincinnati office tried for months to redeem a large sum in notes on various banks. Failing that, it lent about a million dollars of this paper (on good security) lest it depreciate further in the vault.<sup>80</sup>

The resistance of the western banking fraternity to contraction, particularly if it involved their ruin, is reflected in the contest waged between the Bank of the United States and the local Cincinnati banks in 1818. A mild crisis occurred shortly after July 20, when the mother bank ordered its Cincinnati branch to begin collecting all balances owed by Ohio banks at the rate of 20 per cent every thirty days.<sup>81</sup> Far from declining, the debt increased substantially during the summer, and the plight of the local institu-

<sup>78</sup> For discussions of the sequence of these events see Smith and Cole, *op. cit.*, pp. 32-33, 84.

<sup>79</sup> Sumner, *op. cit.*, p. 80.

<sup>80</sup> It is said that the notes were lent at par, although they had depreciated 30-40 per cent in the market. The Cincinnati office asked permission to lend them and proceeded to do so, although the parent board never acceded. Some three-fourths of the securities proved good in the end. (Burnet, *op. cit.*, p. 408; LH, Jan. 24, 1821.)

<sup>81</sup> These balances, amounting at that time to \$720,000, represented the United

tions was aggravated by an order to the land-office agent to accept only specie and United States Bank notes, together with an order to the branch cashier to collect the overgrown balances immediately, in the same media.<sup>82</sup> The Cincinnati office was singled out by the parent board on October 30 to give no credit to city banks until present balances were discharged and to receive none of their notes except after arrangement of the debts, and then only those of specie-paying banks.<sup>83</sup>

On November 5 the banks in Cincinnati were forced to drop the pretense of specie payment, and specie immediately went to 20 per cent premium in the brokers' market. Notes of the Bank of the United States were equally scarce, since they had all gone to the East. Kentucky banks suspended later in the month, and the Bank of the United States proceeded to further its policy of "restriction" by shipping coin to Philadelphia, to the bitter disgust of westerners.<sup>84</sup> The citizens held a "full meeting." It was no longer possible to buy farm land or town lots with Cincinnati bank notes without first exchanging them for specie or United States Bank notes at a substantial discount. Local prices, which had been pursuing an upward course in the second half of the year 1818 (they fell during the first half), began to soar.<sup>85</sup>

In May 1819, ten months after the "contraction" began, the Cincinnati branch was charged with \$2,400,000 of the total capital of the Bank of the United States, more than any other branch except Baltimore and Boston. The debt appeared to increase in spite of all measures adopted to reduce it.<sup>86</sup> The mother bank managed to lower the discounts of its eastern offices — the contraction was extreme at some points — but branches in the West and South continued to buy "race-horse" bills and so to increase the total amount of their credit outstanding. Between September 1, 1818, and May 24, 1819, the eastern offices received \$5,700,000 in south-

States government deposits (Catterall, *op. cit.*, pp. 51-62; D. R. Dewey, *The Second Bank of the United States* [1910], pp. 184-85).

<sup>82</sup> LH, Nov. 10-17, 1818.

<sup>83</sup> Catterall, *op. cit.*, p. 52.

<sup>84</sup> LH, Nov. 24, 1818; Jan. 5, Feb. 23, 1819; *Pittsburgh Gazette*, Mar. 5, 1819; Gouge, *op. cit.*, pp. 104-5. Several consignments of specie to Kentucky banks were noted in the summer of 1818 (*Western Spy, Advertiser*, July 21, 1818).

<sup>85</sup> *Advertiser*, Nov. 10, 1818; July 12, 1819.

<sup>86</sup> Catterall, *op. cit.*, p. 56, n. 1.

ern and western branch notes in the course of exchange.<sup>87</sup> This, together with the eastward movement of specie, indicates that extraordinary remissions of money rather than goods were being made to the Atlantic seaboard.

On October 1, 1820, the Bank of the United States finally closed its Cincinnati branch, in despair of collecting the local debt for the time being and of enforcing payment in specie or its own notes upon the community. Local banks and individuals owed \$2,289,414 at the time; and since many of the receivables were well secured by local real estate or choice farm properties which were put through legal process as they became due, the bank became a leading owner of Cincinnati real estate.<sup>88</sup> Opinions differ on the extent to which the bank was responsible for the inflation and its ensuing distress — one authority lays complete responsibility for the western inflation, at least, at its doors — but there can be little disagreement that the bank did not succeed in engineering its admittedly difficult task with a minimum of risk and injury.<sup>89</sup> Failure to assign capital to the branches and to limit their loans and discounts resulted in a large mass of frozen credit in the West. President Cheves saw the elimination of the western branches as a solution, but the final action of the parent board was to drop only that at Cincinnati and later to re-distribute capital so that no other western office could lend any further.<sup>90</sup> The lines of action pursued by high executive officers of the bank appear inexcusable in view of England's announced policy of gradual deflation in

<sup>87</sup> New Orleans merchants reported to Ohio exporters that the draft of an "unprecedented number of bills . . . from your place, anticipating the sales of property sent to market, has had a serious tendency in depreciating prices generally, and causing forced sales at almost any price" (LH, Apr. 9, 1819; Catterall, *op. cit.*, p. 53).

<sup>88</sup> Cashier Wilson became anathema in Cincinnati. (*Western Spy*, Oct. 12, 1820; LH, Dec. 23, 1820; *Niles'*, XIX, 316 (Jan. 13, 1821); Senate Document 98 (22nd Cong., 1st Sess.), 22-36, cited by Catterall, *op. cit.*, pp. 66-67.)

<sup>89</sup> "It may perhaps be just to say that but for the Bank of the United States the West would never have been drawn into the inflation" (Sumner, *op. cit.*, p. 109). For able statements more sympathetic to the bank consult Charles Hammond, "Banks and Banking," CDG, Sept. 17, 1833; and "CORRECTOR" in the *Advertiser*, Nov. 11, 1818.

<sup>90</sup> Catterall, *op. cit.*, pp. 68 ff., 72-81. The capital was not redistributed until December 1822. New Orleans was allowed \$1,000,000, but Lexington, Louisville, Cincinnati, Chillicothe, and Pittsburgh were vouched none at all.

preparation for the resumption of specie payments; nevertheless, they can hardly be held responsible for the plan of resuming payment in the United States at the pre-war standard as early as the beginning of 1817.<sup>91</sup> From its own point of view, the bank ultimately suffered practically no financial loss, on account of the recuperative powers of the West. This is not to deny that its methods and policies resulted in heavy losses by various individuals.

*The Local Bankers, 1818-1823.* In late October 1818 the trade of Cincinnati was carried on with a variety of bank notes, chief among which were those issued by four local institutions: the Bank of Cincinnati, Farmers' & Mechanics' Bank, Miami Exporting Company, and John H. Piatt & Company. Shortly before the banks formally suspended specie payments, these notes sold in Philadelphia at a discount of only 6 per cent, except Piatt's, which were accepted at 4½ per cent off.<sup>92</sup> Insufficient data are at hand to indicate the precise course of events after the banks suspended specie payment. Within two weeks it required \$120 bank paper to buy \$100 in specie. Both city and county committees were convened which found the banks guilty of no unjustifiable action and passed resolutions of confidence in "Piatt's Bank." It was explained that the fall of other bank paper from par had concentrated pressure upon the Cincinnati institutions since issues of the latter could still be turned in at the branch of the Bank of the United States for eastern exchange. The suspension, however, admittedly caused a general stoppage of regular trade and uncertainty in the money market.<sup>93</sup> The currency situation underwent many more changes until the beginning of 1823. As a local authority expressed it at a later date:

The mad career of banking, in Ohio, from 1812 to 1820, affected the whole state more or less. It is, however, remarkable that the Miami country was more pressed than any other division of the state. . . . A

<sup>91</sup> "Any picture of an isolated America generating booms and depressions in a vacuum lacks conviction . . ." (Smith and Cole, *op. cit.*, p. 21). The English fully realized the extent to which America was dependent upon the rest of the world, particularly London, in matters of trade and finance (*Niles*, XIX, 353-55 [1821]).

<sup>92</sup> LH, Oct. 27, 1818, citing *Grotjan's Price Current*. Piatt had been supply agent for the federal government during the war and had outstanding claims against his principal. He was a general merchant in Cincinnati.

<sup>93</sup> *Advertiser*, Nov. 11, 1818.

new system of trade was introduced, in which the current bank notes, at a fluctuating per cent upon their value in coin, was made the basis; . . . The currency system never got foothold in Ohio out of the Miami country. It was a peculiar fungus of that locality, and was doubtless produced by the unnatural and hot-bed expansion of Cincinnati and its banks. An expansion so sturdily maintained, that it yielded to no contraction, but that of unqualified explosion.<sup>94</sup>

The Cincinnati banks were not the first ones in Ohio to suspend payment of specie. As early as September 1818 it appeared that the land offices, the branch offices of the Bank of the United States, and the state auditor would accept the notes of only twelve banks in the state, as against sixteen institutions whose notes were "uncurrent." Many of the latter had been chartered only recently, and the rejection of their issues in payment of taxes did not go without comment.<sup>95</sup> Some merchants would accept the bad notes by marking up their wares, and the brokers who sprang up in various places would take them in trade for "bankable paper" at a price, which depended upon the distance of the bank concerned, the chances of its ultimate solvency, and the state of the demand and supply of the issue.

An Ohio law of February 8, 1819, prohibited buying or receiving bank notes at a discount on penalty of a heavy fine. Furthermore, the seller was given power to recover the discount. The law was a failure and was repealed the following January;<sup>96</sup> however, it was responsible for the manner in which different currencies were quoted in Cincinnati in March 1819. At that time specie carried a premium of 15 per cent, United States Bank notes 12½-15 per cent, and New York, Philadelphia, and Boston bank notes 10-12½ per cent. All other state bank notes were at a premium, varying from 2 to 10 per cent, according to the state. If the local currency is assumed to have been "par," it was apparently at a discount everywhere else.<sup>97</sup>

In August 1819 specie was at 20 per cent premium in Cincinnati. Bitter complaints were registered against the rise in prices of ne-

<sup>94</sup> CDG, Sept. 21, 1833.

<sup>95</sup> *Zanesville Messenger*, cited in *Advertiser*, Sept. 8, 1818.

<sup>96</sup> Ohio Laws, XVII (1819), 152; Chase, *op. cit.*, p. 1070, cited in Huntington, *op. cit.*, p. 295.

<sup>97</sup> LH, Mar. 9, 1819.

cessities, and the "shaving" by brokers, six of whom were said to have the power to depreciate the currency of a whole district. The scarcity of local currency appeared "to have no other influence but to increase its depreciation."<sup>98</sup> However, it was noted that the failure of eastern banks to suspend was producing bankruptcy in the East, whereas in Cincinnati "the pressure," though "severe and increasing," was "not insurmountable." Indeed, it was said that the city felt little of it, was improving almost beyond example, and had witnessed no bankruptcies nor imprisonments for debt. On the other hand, warning was issued to economize because the community could not expect to "stand unmoved amid the general shock."<sup>99</sup> In October a traveler noted that Cincinnati paper was negotiable only in the city for necessities, at 30 or 40 per cent below par (United States Bank paper). But in the following month a local editor denied that the average advance for specie or eastern funds during the preceding six months had exceeded 25 per cent, even though 50 per cent had occasionally been charged on small sums to pay discounts in the branch bank. Furthermore, he cited the advantages of the situation to the western country in that a check was given to the vast importations of foreign goods from the East so that merchants could turn their attention to the exportation of the immense surplus productions of the luxuriant soil. Country exporters, it appears, sold every silver dollar, half-dollar, or eastern note to the brokers at a premium and used the paper proceeds, which were nominally at par, to make purchases in the Cincinnati market.<sup>100</sup> Nevertheless, complaints as to the uncertainty of the situation, the unfavorable rate of eastern exchange, and the high cost of living continued to appear. In some quarters a metallic currency was held to be "visionary," owing to a decline of specie production in South America. Others felt that hard money should be coaxed out of hoards into circulation.<sup>101</sup>

The Farmers' & Mechanics' Bank was the first local authorized institution to fall by the wayside. On February 27, 1819, it pro-

<sup>98</sup> LH, Aug. 6-10, 1819.

<sup>99</sup> LH, July 23, 1819.

<sup>100</sup> Faux, *op. cit.*, pp. 170-171 (in Thwaites, XI, 171); LH, May 18, Nov. 23, 1819.

<sup>101</sup> LH, Aug. 10-13, 1819; *Advertiser*, Oct. 5, 1819.



posed to resume payment of specie on condition of gaining public deposits. The latter were granted by Secretary Crawford on the fifth of March and accepted by the bank on the fifteenth of May. It was believed that resumption by this bank would raise all Cincinnati currency to a par with specie. The plan failed because noteholders bought all Farmers' & Mechanics' paper in sight at a premium, then exchanged it at the bank for specie which was turned in for United States Bank notes to be sent to the East. Exchange was then at 20 per cent premium, in terms of currencies of the other local banks.<sup>102</sup> On July 29 Samuel W. Davies, the cashier, wrote Crawford that the run for coin forced a second suspension. The bank presently closed its doors; its paper was figured at 10 cents on the dollar in March 1821.<sup>103</sup>

Various corporations and individuals obeyed the call for more money by issuing their own notes. The merchants met and resolved not to accept them, with the exception of Piatt's paper. The latter, it was stated, was "bankable and well secured."<sup>104</sup> Less than six months later the same group "threw out" this currency, although several individual merchants advertised readiness to take it in trade. These notes, which had survived the shock of November 1818, several scares in the spring of 1819, and the ordeal of common approval mentioned above, finally fell from grace. They continued to circulate in Cincinnati at a discount of 33 per cent compared with other bank paper and were bought by Pittsburgh brokers during the year 1820 at discounts ranging from 50 to 60 per cent.<sup>105</sup> Early in 1821 the Piatt Company offered to sell tea, coffee, and other imported goods for its own notes provided that buyers paid 10 per cent in specie. The scale of prices for this unusual proposition was rather high; Young Hyson tea

<sup>102</sup> *Independent Press*, Mar. 13, 1823; *Advertiser*, May 18, 1819; LH, May 18, July 30, 1819.

<sup>103</sup> *Western Spy*, Mar. 17, 1821.

<sup>104</sup> LH, Aug. 27, 1819.

<sup>105</sup> Piatt's death undoubtedly affected the situation. A scare in February 1819 brought forth a statement signed by William Lytle, Isaac G. Burnet, and three others designed to show that the outstanding notes were amply covered by Piatt's estate and the \$85,273 surplus of the company. At that time note liabilities were \$242,393; "drafts on sundry places, and cash on hand" amounted to \$49,086.72. (*Advertiser*, Mar. 2, 1819; LH, Feb. 4-22, Aug. 29, Dec. 13, 1820; *Statesman*, Jan. 11-Dec. 15, 1820.)

TABLE 27

RATES OF DISCOUNT ON BANK NOTES IN THE CINCINNATI MARKET AT CERTAIN DATES BETWEEN JANUARY 1820 AND OCTOBER 1823

Bank	1820			1821				1822				1823			
	Jan. 25	Apr. 21	Jun. 15	Feb. 10	Apr. 12	Jun. 30	Sept. 15	Jan. 15	Apr. 20	Jul. 20	Oct. 12	Jan. 14	Apr. 15	Jul. 15	Oct. 21
UNITED STATES															
Bank U.S. & branches	½-1*	1*	1*	2½*	1½*	½-1½*	1-2*	1-2*	½-1*	par-½*	par-1*	par-1*	par-1*	par-1*	par-1*
OHIO															
Bank of Cincinnati ..	26	27-28	..	73	71	uncertain	75	75	75	70	70	70	60	80	80
F. & M., Cin. ....	..	..	..	..	..	uncertain	no sales	..	..	..	..	..	..	..	..
Miami Exp. Co. ....	26	27-28	45	30-31	31-33	60-62½	62-65	62-65	62½	70	70	75	75	70	70
J. H. Piatt & Co. ....	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..
Steubenville .....	2½	4	4	par	par	2-3	½-1	½-1	par	1	1	1	1	1	1
F. & M., Steubenville ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Pleasant .....	5	5	5	par	1	2-3	1-2	1-2	par	1	1	par	1	1	1
Western Reserve .....	8	5	5	1	2	2-3	..	..	2	2	2	2	2	2	2
St. Clairsville .....	5	5	5	1	2	2-3	1-2	1-2	1	2	2	2	2	2	2
Chillicothe .....	2	4	4	½	1	2-3	½-1	½-1	par-1	1½	1½	½	½	1	1
Lancaster .....	2	4	4	1	2	2-3	½-1	½-1	1	1½	1	1	1	1	1
Marietta .....	5	5	5	2	3	2-3	2	2	2	2	2	2	2	2	2
Columbus .....	25	24	30	2	3	2-3	2	2	2	2	2	2	2	2	2
West Union .....	25	..	30	25	..	..	40	40	50	50	50	50	50	50	50
Zanesville Canal .....	26	25	33	31½	42	..	40	40	50	50	..	..	20	25	25
Muskingum .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Portsmouth .....	26	25	33	15	15	10-12	12½	12½	8	8	6	6	6	6	6
Dayton .....	26	27-28	30	2-2½	2-3½	..	1-2	1-2	2	2	2	5	2	2	2
Hamilton .....	26	27-28	45	30-31	30-31	33½	33½	30-33½	33½	25	25	25	25	20	20
Canton .....	35	no sale	no sale	5	8	..	12½	12½	50	50	50	50	50	50	50
Smithfield .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cleveland .....	60	no sale	no sale	65	65	..	..	..	80	87½	87½	80	80	90	90
New Lisbon .....	60	no sale	no sale	40	45	..	..	..	50	50	50	50	50	50	50
Xenia .....	..	..	..	4	4	..	3	3	4	4	4	8	8	4	4
New Salem .....	..	..	..	..	..	..	..	..	..	..	..	87	..	87	87
F. & M., Chillicothe ..	60	no sale	no sale	70	70	..	..	..	80	87	87	87½	87½	..	..
Urbana .....	35	no sale	no sale	72	71	..	..	..	75	75	70	70	70	70	70
Lebanon .....	..	..	..	..	..	..	55	..	..	..	..	55	55	55	55

Bank	1820			1821				1822			1823				
	Jan. 25	Apr. 21	Jun. 15	Feb. 10	Apr. 12	Jun. 30	Sept. 15	Jan. 15	Apr. 20	Jul. 20	Oct. 12	Jan. 14	Apr. 15	Jul. 15	Oct. 21
<b>PITTSBURGH</b>															
Bank of Pittsburgh ..	par	par	par	par	par	..	par	par	par	par	par	par	par	par	par
City Bank .....	6	par	par	1-1*	par	..	par	par	par	par	par	par	par	par	par
F. & M., Pittsburgh ..	6	8	10	3	3	..	..	..	25	50	50	50	..	50	50
Brownsville† .....	5	..	2	par	par	..	par	par	1	2	2	2	2	2	2
<b>INDIANA</b>															
State Bank, Vincennes	8	8	8	33	40	..	75	75	75	85	85	85	..	..	..
Brookville, Corydon, Vevay .....	26-35	27-35	45	33-45	40-60	..	75	75	75	87	87	87	..	..	..
F. & M., Madison ..	25	..	33	3	3	3-4	25-3	25-3	2	3	3	3	3	3	3
Lawrenceburgh .....	25	..	45	30-31	30-31	37-40	35	35	37½	37½	35	37½	..	35	35
<b>KENTUCKY</b>															
State Bank & branches	25	20	25	23	25	45-50	33-35	35-37½	45-50	..	..	50	50	50	50
Commonwealth .....	..	..	..	..	..	..	30-37½	37½-40	45-50	..	..	50	50	..	..
Maysville .....	26	20	25	4	4	..	4	4	3	3	3	2	2	3	3
<b>ILLINOIS</b>															
Shawneetown .....	10	8	8	12½	12½	..	..	..	25	25	25	25	25	25	25
<b>MISSOURI</b>															
Bank of St. Louis ...	12½	8	8	10	..	..	..	..	75	75	75	87	..	75	75
<b>TENNESSEE</b>															
State Bank .....	25	20	33	23	..	..	33½	32-33½	33	33	33	33	21	30	33
Nashville .....	25	20	30	23	..	..	33½	32-33½	33	33	33	33	31	30	33
<b>VIRGINIA</b>															
Richmond & branches	3	par	par	par	..	..	1-1	1-1	1	2	1	1	1	1	1
North-West, Wheel- ing† .....	2	par	par	par	..	..	1	1	1	1	1	1	1	1	1
<b>MICHIGAN</b>															
Bank of Michigan ...	..	..	..	..	..	..	..	20	20	..	20	30	..	..	..
<b>EAST</b>															
N. Y. City banks † ..	par	1-1*	1-1*	2*	..	..	1-2*	1-2*	1-1*	1-1*	1-1*	1-1*	1-1*	1-1*	1-1*
Phila. city banks† ..	1-1	1-1*	1-1*	2½*	1½*	..	1-2*	1-2*	1-1*	par	par	par	par	par	par
Baltimore city banks	par	par	par	1-1*	..	..	1-1*	1-1*	1*	1*	1*	1*	1*	1*	1*
Massachusetts .....	..	..	..	par	par	..	..	par-1	par-1	par-1	par-1	..	..	..	..
<b>LOUISIANA</b>															
New Orleans .....	..	..	..	..	..	..	6-8	6-8	6-8	..	..	..	..	..	..
French crowns .....	..	..	..	..	..	..	..	..	..	..	..	\$1.06	..	\$1.06	\$1.06

\* Advance.  
† \$5 and up.  
‡ \$10 and up.

was to be counted at \$1.50-\$1.75, coffee at 56¼ cents, Spanish sole leather at 33-43 cents, and so on.<sup>106</sup>

Between 1820 and 1865 local note brokers ("shavers") advertised their rates of exchange in the Cincinnati newspapers with a fairly high degree of regularity. The data for 1820-1823 given in Table 27 have been chosen on a quarterly basis as nearly as possible. The firm of John and G. R. Gilmore inserted its "BANK NOTE TABLE" in the Cincinnati *Liberty Hall* and *Western Spy*, the Pittsburgh *Statesman*, and the Hamilton *Volunteer* during the greater part of this epoch. J. Towne gave out Pittsburgh figures, and in 1821 two other brokers — T. R. & S. L. Fosdick and V. W. Fish — occasionally inserted lists in the Cincinnati prints. As in the case of commodity prices, data were published only intermittently in 1820 and 1821. It appears in one advertisement that the published rates were buying rates at which the brokers sold specie,<sup>107</sup> but such information was not commonly stated. Notes of near-by specie-paying banks were accordingly at or near par; notes of the best eastern banks were at a premium on account of interregional exchange; and notes of all other banks were at more or less of a discount.

Table 27 indicates that the currency situation did not improve during the first half of the year 1820; on the contrary, notes of the Miami Exporting Company depreciated from 26 to 45 per cent discount, and those of the Bank of Cincinnati, which at first declined *pari passu*, were not acceptable in June. The issues of Richmond and Wheeling banks were at par, as were those of two of the Pittsburgh institutions, but the discounts on various Ohio country bank notes and those of Indiana, Kentucky, Illinois, and other western states were spreading out. In March, the notes of only two out of one hundred banks in Indiana, Ohio, Kentucky, and Tennessee were received at the land offices, and for practically all these concerns redemption consisted of "paying out bills as good as their own."<sup>108</sup>

The monetary affairs of Cincinnati reached another critical stage in June as a "drive" against the two remaining local institutions got under way. As usual, the origin of the movement could

<sup>106</sup> LH, Jan. 31, 1821.

<sup>107</sup> LH, May 23, 1821; advertisement of T. R. & S. L. Fosdick.

<sup>108</sup> James Flint, *Letters from America*, p. 192 (in Thwaites, IX, 219).

not be ascertained, but the reasons were especially hard to detect in this case because practically no other banks were paying specie and the formal statements of the Cincinnati concerns were not exceptionally alarming.<sup>109</sup> The popular belief was that the note brokers were responsible, though this idea was rivaled to some extent by the suspicion that stockholders or directors of the banks themselves were interested in depreciating their own notes so that they could buy them at a discount. Discussion on these points is deferred. The important thing here is that notes of the Bank of Cincinnati fell rapidly in value in June and July 1820, and the concern closed its doors in late August, after a futile effort to collect outstanding loans.<sup>110</sup> The only standard currency left to the mercantile community was Miami Exporting Company paper. At this point the general attitude began to turn sharply against paper money. It appears that the people did not complain when notes depreciated as much as 30 per cent and prices were marked up accordingly; but whenever notes of a particular concern reached this critical point, there was a widespread tendency to reject them — in particular they became no longer “bankable” — with the result that they fell rapidly to a discount of 50, 60, 75 per cent or more. The thoughts of Cincinnati editors turned to securing a dependable currency. Opinions were expressed that removal of the Miami paper might lead to the adoption of notes from Kentucky or Ohio country banks. Such an event, it was felt, would only lead to further crises, and sentiment grew for the adoption of a specie circulation in local trade even though this entailed a radical adjustment in prices and wages.<sup>111</sup>

The fear of lower prices, it was reasoned, was a factor which was prolonging the depression, and the only solution appeared to be to “brush away the rags” and be content with low prices in specie. Manufacturing and the export trade would quickly be revived because people would adapt their dealings to the new and

<sup>109</sup> *Advertiser*, June 27, 1820.

<sup>110</sup> LH, June 3, Oct. 25, 1820.

<sup>111</sup> LH, July 1, 1820; *Advertiser*, June 27, 1820; *Western Spy*, June 22-29, 1820. At a meeting in Springfield, Ohio, on June 27 the consensus was that there was plenty of specie but that the banks were guilty of bad faith by impounding it and speculating in their own notes. A resolution was passed to refuse the paper of all non-paying banks after July 15, 1820.

stable situation. In the meantime, people were advised to "look out more diligently for exchange [barter]." Furthermore, it was realized that depreciated paper was not an unmixed curse in that it had been and would continue to be applied at par to the payment of debts. If money had stayed at par, debtors would have been greatly injured by the 50 per cent decline in the prices of commodities and real estate. As a matter of fact, this was true in the case of the Bank of the United States, whose notes could be repaid only at 100 per cent advance. It can be seen that if a debtor could use notes in paying interest or principal which had depreciated at the same rate as commodities, labor, and real estate, the situation would not have changed materially so far as purchasing power was concerned.

There is ample evidence that merchants and speculators took advantage of the depreciation of the currency, and that some profited by retiring obligations to certain banks with the practically worthless paper of the same banks. Advertisements were frequently inserted to the effect that certain uncurrent paper was "wanted" or would be accepted in trade. As late as 1825 one individual sought \$300 in Bank of Cincinnati notes, presumably to liquidate a suit for debt.<sup>112</sup>

With the closing of the Cincinnati branch of the Bank of the United States early in October 1820, the only local currency remaining was that of the Miami Exporting Company. The opinion was expressed that if the Company would pay specie, the community would soon have a good currency and the "rags" would disappear. So long as it did not honor its notes, however, the contrary would be true.<sup>113</sup> According to quotations by brokers in Pittsburgh, Miami Exporting Company paper went as low as 65-70 per cent discount during the flurry in July, but recovered to 25 in August and fluctuated between 35 and 50 from that time until May 1821. The notes of the Bank of Cincinnati and J. H. Piatt & Company continued to be bought at discounts ranging between 50 and 75 per cent, and the former definitely declined in value over

<sup>112</sup> *Emporium*, Oct. 13, 1825; LH, June 24, 1820, and Aug. 28, 1822. See the newspaper files for 1820-1823. On June 15, 1820, Samuel W. Davies advertised domestic goods and Franklin fireplaces for sale for notes of the Bank of Cincinnati, of which he was the cashier (*Western Spy*, June 15, 1820).

<sup>113</sup> *Western Spy*, Oct. 12, 1820.

the winter of 1820-1821.<sup>114</sup> As has already been related, Cincinnati prices tended to rise in relation to those in Pittsburgh and eastern centers, but flour and other staple articles of export continued to fall everywhere to a notable extent. The problem of quoting prices in the store or newspaper became very difficult because they depended upon the current value of the type of money offered in trade. In August 1820 the editor who nine months before had congratulated Cincinnati wrote: "Cincinnati necessarily shares in the present distressed state of commerce; it could not be expected that she should escape the general pressure of the times."<sup>115</sup> Merchants began eliminating money as a circulating medium, although they usually retained it as a basis of account in barter.<sup>116</sup>

In early May 1821 a "great and sudden depreciation" took place in Miami Exporting Company paper which ended a chapter in the currency history of Cincinnati. Newspapers published a financial statement showing cash funds of \$15,500 to be compared with liabilities totaling \$865,242.00. Of the latter, notes outstanding came to only \$104,157, but the debt to the Bank of the United States was \$381,907. One editor professed bewilderment at the runs on the bank because its paper alone was current in the community, and it was the only place where other currency was bankable.<sup>117</sup> Table 27 shows that the notes failed to recover in value. In 1823 it was reported that directors of the company were selling them at 2 or 3 per cent below the market, and another editor advised as follows: "if any is wanted by those who owe the bank — (nobody else would take it as a gift) — they would do well to apply next door to this office."<sup>118</sup> The community was given the choice of importing notes of other Ohio banks, the new paper of the Kentucky Bank of the Commonwealth, or specie. It appears to have chosen the last course, although this involved transacting a good deal of business on a barter basis for several months. Many

<sup>114</sup> Advertisements of J. Towne and Gilmore's Exchange (*Statesman*, 1820-1821).

<sup>115</sup> LH, Aug. 9, 1820.

<sup>116</sup> Note advertisement: "Salt exchanged for wheat," in LH, Oct. 28, 1820.

<sup>117</sup> LH, May 12, 1821. See also *Western Spy*, May 12, 1821; *Hamilton Volunteer*, May 16-23, 1821.

<sup>118</sup> *Independent Press*, June 26, 1823. According to the financial statement the company had mortgage loans of \$153,642; notes of individuals, \$474,624; "safe" judgments, \$135,761, among other assets.

problems arose over the old depreciated paper. For instance, the county treasurer, who had accumulated \$10,000 in bank paper and scrip to build a hospital, found that it was worth only \$3,158.15 in the brokers' market and would be woefully inadequate because the wages of carpenters and mechanics had not fallen to anywhere nearly the same extent.<sup>119</sup> Again, the city corporation had issued scrip bearing 6 per cent and payable (in currency) in one year, in return for its own notes and tickets. At that time currency was at 33 per cent discount compared with specie. It was proposed later to receive the scrip for taxes at the same discount since specie had come into common usage.<sup>120</sup>

The spread of barter during 1821 and 1822 is shown by the fact that several merchants and newspaper offices advertised their willingness to accept goods in trade with and without specified values in terms of money. Niles estimated that there was a greater value of articles traded in one week than ordinarily in a year's time.<sup>121</sup> Reports are conflicting as to the money situation. In July 1822 the publishers of *Liberty Hall* contemplated discontinuing the midweek issue on account of "the great scarcity of money," but they decided to lower their price instead in order "to conform to the pressure of the times."<sup>122</sup> On the other hand, the accounts of Pierce & Brightwell show a considerable number of transactions in specie during this period. In October 1821 Hayden and Aubin were instructed by Henry Weir to sell a shipment of cotton from Louisville for the best market price in specie.<sup>123</sup> Provisions prices were published in specie, and attention was especially drawn to that fact on the few occasions they appeared. The mills and packers advertised payment in specie for wheat and hogs late in 1821. By October 1822 the local circulation of coin was estimated at between \$150,000 and \$200,000; only an occasional solitary note appeared, which was generally "looked upon with suspicion."<sup>124</sup> In the following year, however, it was reported that Ohio currency, taking the whole state, was as good as any in the country.

It is probable that the mere transition to a specie standard and

<sup>119</sup> *Western Spy*, Mar. 17, 1821.

<sup>120</sup> LH, Aug. 15, 1823.

<sup>121</sup> *Niles*, XX, 137 (Apr. 28, 1821).

<sup>122</sup> LH, July 20-24, 1822.

<sup>123</sup> M. C. Weeks, *Calendar of the Kentucky Papers* (1925), II, 211.

<sup>124</sup> *Advertiser*, Oct. 22, 1822; LH, Jan. 24, Aug. 15, 1823.



the reduction of the price scale which it involved did not in themselves result in a great deal of hardship because prices of goods had been low for some time if specie was offered in trade. At least some coin had been bought and sold all during the series of crises beginning in 1818, and several country banks had maintained payment at least nominally.<sup>125</sup> Brokers accepted notes on these institutions at par or a very small discount all during the years 1821-1823 (Table 27), and their purchasing power in Cincinnati was correspondingly high. Even notes of the Bank of the United States, which carried a premium of 2½ per cent early in 1821, later subsided to par or 1 per cent advance. Furthermore, the load of debt had been lifted in large part by the failure of banks and the depreciation of their notes, as has been already explained. To be sure, this was offset in large measure by the loss to members of the community occasioned by the depreciation of money in hand. Only the debt to the East, the Bank of the United States, and to other specie-paying concerns remained to weigh upon farmers, merchants, and others. Nevertheless, Cincinnati's future was clouded by the fact that facilities for credit were almost entirely lacking, prices of her exports were at rock bottom, and other leading sources of strength — sales of lands and immigration — were at a low ebb.<sup>126</sup> In short, the channels whereby specie would flow in were badly clogged. It was necessary for a public committee to collect subscriptions for the purchase of copper coin from the United States mint.<sup>127</sup> Towards the end of 1822 a petition got under way for a new bank in which specie might safely be deposited. Feeling against banks was so strong that a second petition was circulated asking that no charter be granted. It was argued that prices were high enough for purchasers and shippers, and that organization of a bank invited a resumption of the horrible uncertainties from which the community had just escaped.<sup>128</sup> The project did not materialize.

<sup>125</sup> Huntington, *op. cit.*, p. 311.

<sup>126</sup> The state auditor's figures show that the number of voting males in Ohio increased only about 26,000 between 1819 and 1823, compared with about 34,000 in the preceding four-year period. Between 1823 and 1827 the increase was only 21,000, indicating that the number was declining between 1819 and 1823. (Ohio Exec. Doc. [1855], pt. II, no. 1, cited by Huntington, *op. cit.*, pp. 332-33.)

<sup>127</sup> LH, Jan. 2, 1822.

<sup>128</sup> *Independent Press*, Nov. 7, Dec. 19-26, 1822.

Another phase of the depression was the widespread liquidation of real estate which took place in spite of various attempts on the part of the state to protect mortgagors against confiscation. The Ohio relief bill of January 1821 provided that no interest be charged on a judgment-debt in the event of the failure of a sheriff to sell the property. Furthermore, valuation was to be made by three men in the township and no sale could be made for less than two-thirds of their appraisal. The defendant was allowed to retain many items such as implements, tools, and machinery, if other property could be found sufficient to satisfy the execution. The law was reported not to have accomplished the desired result. At any rate, the newspapers of the epoch frequently carried columns of notices of sale, some of which were due to foreclosures on the part of the United States Bank.<sup>129</sup>

*Kentucky Banking, 1820-1823.* In order to sidestep the effects of the depression Kentucky adopted a policy which included relief laws and a new type of bank. The Bank of the Commonwealth was chartered on November 29, 1820.<sup>130</sup> Sumner described this institution as "a mere paper money machine" because it had no capital paid in specie. As a matter of fact, only a few thousand dollars were appropriated by the state, which really operated the concern, for printing notes and other incidental expenses. Like the Tennessee State Bank, the Missouri Loan Office, and Bank of the State of Indiana, the Commonwealth Bank of Kentucky was part of the relief system in that it was authorized to lend only small sums in its own notes to those pressed for debt or desiring to finance exports. The paper was made legal tender to and from the state, and certain lands were set aside the proceeds of which were to go towards its retirement.

Although they all issued paper money — a practice which condemned them in the eyes of Gouge, Sumner, and other advocates of hard money — the relief banks differed greatly from ordinary state-chartered banks or the banks of the United States so far as

<sup>129</sup> See, for instance, LH, Dec. 16, 1820; Jan. 10, April 11-18, July 28, 1821; Dec. 31, 1822, etc.

<sup>130</sup> Some forty independent banks had been chartered in 1818, which supplied the circulation together with the older Bank of Kentucky (Frankfort, 1806). However, the former were overturned in February 1820 as a money monopoly (Sumner, *op. cit.*, pp. 59, 90, 122-25).

purpose of organization, scope of operation, and actual effects were concerned. The banks of the United States were established to help finance the federal government and restore order in the national currency by pursuing a conservative policy and forcing state banks to do the same. The latter were founded primarily to facilitate credit in mercantile transactions or to aid speculators in their thirst for profits from public lands and commodities. The relief banks, on the other hand, were designed to minimize the transference of properties at a time of wholesale liquidation which would necessarily involve a great deal of undeserved hardship and loss. In other words, they sought to ease or prevent the effects which were certain to follow a resumption of conservative policy by the Second Bank of the United States following an era of wild state banking. It is highly possible that they failed in their purpose in so far as insiders managed to get control. However, it is not accurate to suppose that they were entirely unsuccessful, nor reasonable to censure them simply because they used paper money as an instrument. As a matter of fact, Sumner found fault in one connection because the Bank of the Commonwealth was inflationary in general, and in another because it was to a large measure self-liquidating. The latter was true in spite of the fact that the principles of the charter were altogether unorthodox from the private banker's point of view.<sup>131</sup> The recovery of western land values and prices in the twenties not only placed good assets behind Commonwealth paper but also made possible repayment either to the original creditor or to the bank itself.

During 1821 and 1822 Commonwealth paper apparently served as the par currency of Lexington, Louisville, and other Kentucky markets. It depreciated fairly rapidly. Specie advanced to 40-66 $\frac{2}{3}$  per cent premium by the middle of 1821, and to about 100 per cent a year later.<sup>132</sup> It was noted in October 1822 that the \$2,300,000 in Commonwealth paper outstanding were worth only \$1,150,000 because of depreciation, compared with a former situation when Bank of Kentucky notes were worth in the aggregate \$2,500,000. As has already been related, Louisville merchants resumed a hard-money system shortly thereafter and reduced all

<sup>131</sup> Sumner, *op. cit.*, pp. 137, 139.

<sup>132</sup> *Niles'*, XX, 383 (Aug. 11, 1821); *Louisville Public Advertiser*, Apr. 24-June 29, 1822. See Table 49, Appendix B.

prices approximately 50 per cent, so that they were very nearly on a par with Cincinnati, Pittsburgh, and other leading markets.

Lack of space prohibits the recital here of the absorbing account of the experience of Kentucky banks in the courts during the twenties, culminating in the case of *Briscoe vs. Bank of the Commonwealth*, heard in the United States Supreme Court in January 1837. The question of interest to us is not whether the notes were bills of credit issued by Kentucky in contravention of the United States constitution, but rather whether they served their economic and social purpose. It has long been recognized that enforcement of a dollar contract after a major decline of prices is highly inequitable and that the sale of a debtor's property to fulfil such a contract is even more undesirable, especially if such a sale takes place under temporarily unfavorable conditions. Although data are not available to show all the prices at which various contracts in the West were drawn between 1810 and 1820, it is presumed that the great majority were entered into during the epoch when speculation was at its height. Commodity and land prices dropped roughly 50 per cent between 1818 and 1821, and recovered gradually thereafter. If it could be shown that variations in the discount on paper of the Commonwealth Bank roughly conformed to the degree of decline and recovery in land and commodity prices, one could conclude that injustices due to changes in the value of money were largely offset by the "paper-money machine." There is reason to believe that such a rough conformity did take place. The discount in Louisville gradually shrank from 50 per cent in 1822 to 12½ per cent by the third quarter of 1828. The circulation, which stood at \$2,400,000 in 1822, was only \$50,000 twelve years later. Public burnings of the notes were state ceremonies.<sup>133</sup> There were undoubtedly many cases where creditors and others were injured by the workings of the institution, and it is equally true, as Gouge averred, that adjustment of individual contracts according to changes in the purchasing power of money would have been a more equitable procedure.<sup>134</sup> However, it is difficult to conclude from this that the scheme was a total failure or that it was a means of wholesale legal fraud.

*The Multiple Paper Standard — Conclusions.* The actual stand-

<sup>133</sup> Sumner, *op. cit.*, pp. 140-41; *Louisville Public Advertiser*, 1822-1828.

<sup>134</sup> *Op. cit.*, pt. II, pp. 126, 132.

ard of payments employed in the United States during the early nineteenth century was complicated in its nature and effects. Aside from a limited amount of gold, silver, and baser coins, a rather large mass of more or less inconvertible paper currency was in circulation, secured by the general assets of private and semipublic institutions. The nominal "par" employed by note-brokers in Cincinnati after January 1820 consisted of specie or convertible notes, and currencies admitted to this standing changed from time to time. Notes of the Bank of the United States remained at a slight premium, and a number of paper issues circulated at various discounts from par, the extent of which depended primarily upon the prospects of convertibility.<sup>135</sup> During the years 1818-1821, when confidence in banks and credit was on the wane, the tendency was towards a greater degree of dispersion among individual issues so far as depreciation was concerned. The problem of predicting which ones would fall first or farthest was not unlike that of ascertaining which banks will suffer a "run" during a critical period. A few issues depreciated as much as 33 or even 45 per cent and recovered to some extent at a later date, but, in general, depreciation beyond 20 per cent became progressively worse. This was true because the banks in question were as a rule forced to suspend operations entirely, so that demand for their paper became restricted to only a few members of the community.

In the Miami country and in Kentucky, the situation was further confused by the fact that merchants accepted paper at its face value so long as it was "bankable," even though such paper was far below parity with specie for a fairly long interval of time. In other words, the actual means of payment depended upon the requirements of the creditor. After February 1817 the federal government received only coin or notes on specie-paying banks, and the policy of the Second Bank of the United States was guided

<sup>135</sup> A study of eighteen Ohio banks in the interval 1819-1823 shows that the timing and degree of depreciation bore no relationship to the amounts issued. There was, however, some degree of correspondence between the rate of depreciation and (1) the amount of specie on hand reported to the state auditor or (2) the ratio of quantity in circulation to specie on hand. Thus, the coefficient of similarity between (1) the discount reported in Cincinnati on January 14, 1823, and (2) the circulation/specie ratio at the beginning of 1819 was +.35 for these eighteen banks. Comparing discounts with circulation figures alone, one arrives at a coefficient of -.02. The operating data are taken from Huntington, *op. cit.*, p. 306.

along similar lines. Payments to local merchants or banks, wage-earners, or landlords could be made with local bank paper or Commonwealth notes before June 1821 (Cincinnati) or December 1822 (Kentucky). Of course, people paid specie or convertible notes in local transactions if prices were lowered accordingly, but the ordinary procedure was first to buy local paper at a discount and then offer it in payment or deposit. Payments of debts to broken banks were commonly made in their own notes, which could be bought in the market at a heavy discount. A substantial number of debtors profited in this way during a period of major price decline, because the obligations of their creditors depreciated more rapidly than commodities or real estate.<sup>136</sup>

Under such a multiple currency standard it is not a simple question whether specie rose in value or paper money depreciated, because both took place. Specie and depreciated paper were bought and sold like commodities, but the paper was strictly neither a "negotiable instrument" nor "merchandise"<sup>137</sup> because, unlike the former, it required no endorsement and, unlike the latter, it had no utility except as a means of payment. Furthermore, it is apparent that Gresham's law did not apply to the situation because inferior types of money could not be passed at face value except in the situations mentioned above. On the other hand, many elements were present which are characteristic of currency derangement. Issues which were actively depreciating undoubtedly increased in their velocity of circulation. Despite the efforts of all concerned to buy currency cheap and sell it dear, losses on money in hand must have been suffered by unexpected changes in market quotations. This was offset in part by gains due to appreciation of certain issues.

The data at our disposal indicate that commodity prices in the East reached a peak in 1814 from which they declined in a fairly steady manner. Bank currency in the interior carried the move-

<sup>136</sup> Some banks were known to profit by purchasing their own depreciated currency in the open market; and debtors profited who had borrowed comparatively valuable currency and repaid it after it had fallen in the market relative to other currencies. This "money" profit is not the same as the "purchasing power" profit gained by a debtor who borrows "par" currency and repays it after prices rise; the former type of gain could be realized even if the general price level were declining, provided the borrowed notes depreciated to a sufficient extent.

<sup>137</sup> Sumner, *op. cit.*, pp. 2, 28, 65, 137. See also Gouge, *op. cit.*, pt. I, p. 55.

ment on and upward for several years after the war. In Cincinnati prices were about 15 per cent higher in the late part of 1819 than they had been during 1814, whereas Louisville quotations towards the end of the year 1822 were probably about 25 per cent higher than they were eight years before. Nevertheless, the Webster Resolution and charter of the Second Bank of the United States, as the latter was interpreted by Cheves, placed an effective brake upon inflation. Individual banks which pursued a liberal lending policy eventually found themselves powerless to keep their notes at par, and the latter lost their purchasing power by degrees until many went out of circulation. The state of Kentucky was able to stem the tide of deflation for three years, but the instability of exchange, among other factors, was finally found so intolerable that its markets adopted a hard-money standard. The confusion and unpredictability of the post-war boom left their mark upon the people of the West for several decades. Banks were detested by many members of the rural classes, and the Bank of the United States was treated with special antipathy because it collected its debts in "good money" or foreclosed.

## CHAPTER XIII

### CYCLICAL DISTURBANCES AND PRICE BEHAVIOR, 1823-1835

#### THE THIRD TIDE: FLOW PHASE

THE INTERVAL 1821-1835 was one of rather even and decidedly prosperous expansion in the Ohio Valley, as in the United States as a whole. Fundamentally, an efficient population and fresh capital were combining with superior soil and other natural resources. This was made possible, of course, by extensive migration of people and capital from the East, internal improvements, and expansion of the market for surplus output. The entire development took place with prodigious speed; and yet it was steady and solid in character compared, say, with the speculative and inflationary excesses of the years 1816-1820 or 1835-1839.

The younger the state, the higher was the rate at which it absorbed new population. Between 1820 and 1830 the population of Kentucky increased only about 22 per cent, compared with 61 per cent for Ohio, 135 per cent for Indiana, and 185 per cent for Illinois. Corresponding figures for the following decade are 13, 62, 100, and 203 per cent. Taking the four states together, the number of inhabitants increased 58 per cent in the twenties and 63 per cent in the thirties, so as to equal almost 3,500,000 by 1840. Of the latter, over 1,500,000 lived in Ohio. Other data reflect the unfavorable agricultural situation which prevailed until shortly after the middle of the twenties. Thus, the number of adult white males in Ohio increased only 17 per cent between 1823 and 1827, to be compared with 21 per cent in the succeeding four-year interval and 33 per cent for 1831-1835.<sup>1</sup> Ohio tax statistics give a

<sup>1</sup>The figures are: 1823 . . . 124,635; 1827 . . . 145,745; 1831 . . . 176,300; 1835 . . . 235,225 (Huntington, *op. cit.*, pp. 332-33). In a masterful interpretation of the population data for Michigan available for the interval 1820-1845, Joseph Schafer has developed a pattern which is notably similar to that expounded here. This authority, however, prefers to regard the westward movement as "spasmodic" rather than tidal in its fluctuations. Cf. "Peopling the Middle West," *Wisconsin Magazine of History*, XXI, 88-94 (Sept. 1937).



similar picture. Between 1803 and 1820 the state revenue and area subject to levy had increased from \$22,321 to \$205,347 and from 6.1 to 13.3 million acres, respectively; and the proportion of the burden borne by residents had grown from 30 to 59 per cent between 1808 and 1819.<sup>2</sup> This development was arrested in the early twenties; as a matter of fact the total acreage and revenue were both slightly smaller in 1825 than in 1820. In 1825-1835, however, the grand valuation of property (both real and personal) increased from \$58,000,000 to \$96,000,000. Only a minor part of this gain was due to a broadening of the base, and it was estimated that real estate was returned at not over one quarter of its market value in 1835.<sup>3</sup>

Some economic items increased at a considerably faster rate than others, according to the summary figures in Table 28. Indeed, in several instances the year-to-year variations were fairly submerged in the expansion. Yet the "intermediate trends" were not all of exactly the same shape. As an illustration, steamboat construction on western waters showed a higher rate of growth before rather than after 1830, but the opposite was true of the sales of public lands or receipts at the Land Office (see also Chart I, p. 33). Taking everything into consideration, it is difficult to apply the term "bad times" to the entire interval 1815-1843, especially as concerns the United States and, *a fortiori*, the younger sections thereof. It is true that particular economic sectors of the world, such as the agriculture of England, the tidewater area of the South Atlantic, and New England suffered during this twenty-eight-year interval. However, it is more probable that proponents of this generalization have drawn their interpretation from the behavior of general indices of wholesale commodity prices, which would not give a true picture of the economic world (taken by regions or by industries) even if it were possible to compile them in a form superior to those now available.<sup>4</sup> Other analysts use the year 1830 as a major turning point in economic experience. This choice — also probably suggested by price indices but later ex-

<sup>2</sup> Bogart, *Financial History of Ohio*, pp. 184-86.

<sup>3</sup> Bogart, pp. 205-10. Real property constituted about 75 per cent of the total.

<sup>4</sup> For a good discussion of the "Long Wave" hypotheses, especially as concerns the period after 1920, see A. H. Hansen, *Fiscal Policy and Business Cycles* (1941), pp. 31 ff.

**TABLE 28**  
**SELECTED SERIES OF ANNUAL ECONOMIC DATA, 1816-1835. FIVE-YEAR AVERAGES AND RATES OF CHANGE. RATES OF AVERAGE ANNUAL INCREASE BETWEEN 1821 AND 1835**

Series	1816-20 Ave.	1821-25 Ave.	Per cent Change	1826-30 Ave.	Per cent Change	1831-35 Ave.	Per cent Change	Ave. Ann. Inc.
Cin. Gen'l Index, <sup>a</sup> weighted	184.8	96.8	-48	93.4	-3	102.8	10	2.2
Cin. Index A <sup>a</sup>	155.2	80.6	-48	83.6	4	104.4	25	4.5
Bills of exchange, <sup>b</sup> Bank of U. S.		30.3	..	78.3	159	218.9	179	20.0
Circulation and deposits, <sup>b</sup> Bank of U. S.	14.6*	16.2	11	26.7	65	33.9	27	6.8
New Orleans rec'ts <sup>c</sup>	10.0†	10.0‡	0	25.0	150	40.2	60	15.6
Number steamboats <sup>d</sup>	15.6	14.0	-10	43.2	224	57.0	32	19.4
Tonnage steamboats <sup>e</sup>	2,523	2,015	-20	5,445	170	7,144	31	18.3
Land sales, acres <sup>f</sup>	2,180	776	-72	1,183	52	5,264	125	21.9
Land sales, dollars <sup>g</sup>	2,396	628	-74	797	27	2,462	223	17.6
U. S. immigration <sup>h</sup>		8.1	..	20.6	154	50.5	145	12.2
U. S. exports, mdse <sup>i</sup>	80.6	68.8	-15	70.1	2	91.8	30	5.5
U. S. imports, mdse <sup>i</sup>	105.9	73.9	-30	72.0	-3	107.5	49	6.8
U. S. imports, coin <sup>i</sup>		6.2	..	7.6	22	10.3	36	3.5
Cotton production <sup>j</sup>	295.0	436.8	48	693.6	59	914.6	32	7.7
Cotton exports <sup>k</sup>	207.6	336.6	62	538.2	60	736.8	37	8.0

\* 1817-1820. † 1816-1818. ‡ 1822-1825.

<sup>a</sup> Annual arithmetic averages of monthly data, calendar years. Base, 1824-1846.

<sup>b</sup> Annual totals of monthly purchases of inland exchange, in millions. Monthly averages of circulation and deposits, in millions. Calendar years. (Catterall, *op. cit.*, pp. 505-12.)

<sup>c</sup> Annual index, base 1810-1862. Years end September 30.

<sup>d</sup> Number launched on western waters annually (Hall, *op. cit.*, pp. 290-98).

<sup>e</sup> Tonnage of steamboats launched on western waters. See Table 1, Appendix B.

<sup>f</sup> Sales of public lands in the U. S. in thousands of acres. Calendar years. (B. H. Hibbard, *History of Public Land Policies*, pp. 100, 103, 106; Smith and Cole, *op. cit.*, p. 185.)

<sup>g</sup> Receipts at Land Office from Ohio, Indiana, and Illinois, in thousands of dollars. Calendar years. (A. H. Cole, *Review of Economic Statistics*, IX, 57 [1927].)

<sup>h</sup> U. S. Immigration Commission, *Reports*, III, 4. Years are irregular.

<sup>i</sup> *Commerce and Navigation of the United States* (1907), pp. 38-39. Years end September 30.

<sup>j</sup> U. S. Department of Agriculture, *Atlas of American Agriculture* (1918), pt. V, sec. A, p. 18. Thousands of 500-pound bales or equivalent, gross weight. Crop years.

tended in application — conflicts with practically all economic series referring to the American West. Rather, it appears advisable to regard the early 1820's as the "era of bad feeling."

*A General Pattern, 1820-1861.* The strength and continuity of the upward intermediate trend between 1820 and 1836 are sufficient to blur year-to-year fluctuations in a general pattern compiled by the Frickey median-link-relative method from nine of the series in Table 28, if the interval 1820-1861 is used as the basis of analysis and a "conversion constant" of 9 is employed.<sup>5</sup> Relative figures for the part of this pattern relevant here are as follows (Chart VI, p. 98):

1820 . . . . 100	1826 . . . . 118	1831 . . . . 132
1821 . . . . 91	1827 . . . . 116	1832 . . . . 139
1822 . . . . 102	1828 . . . . 115	1833 . . . . 137
1823 . . . . 106	1829 . . . . 122	1834 . . . . 132
1824 . . . . 107	1830 . . . . 119	1835 . . . . 151
1825 . . . . 117		1836 . . . . 180

The nine series of annual data embraced in this pattern have been chosen by the criterion of estimated importance, and an effort has been made to avoid duplication. Taking the period 1820-1861 as a whole, it appears that the rate of expansion beginning in 1821 was at least as high as that having its origin in 1843, and probably somewhat higher. Furthermore, the configuration of Index A is rather more closely characteristic of other economic series than Index B or the general index, in spite of the fact that Index A, as such, has not been employed in the computation.

*Cincinnati Expansion.* It was during the interval 1821-1835 that Cincinnati clinched her position as the leading point of concentration for the export of surplus of the Ohio Valley. Her onward march appears hardly to have been affected by the price depression of 1821-1827. There were, it is true, definite signs of shrinkage in the quantities of flour and whisky handled between

<sup>5</sup> Details on method are given in Appendix A. The "conversion constant" is chosen to enable comparison with the general Cincinnati price index. A higher constant, which would fit other series more closely, places still more emphasis on the upward movement prior to 1836. See Edwin Frickey, "The Pattern of Short Time Fluctuation in Economic Series, 1866-1914," *Review of Economic Statistics*, XVI, 248-55 (Dec. 1934).

1822 and 1827 compared with the figure reported for 1818, but by 1832 the receipts of these two items by the Miami Canal alone were more than 97,000 and 40,000 barrels, respectively — imports via road and river were stated to be equally large.<sup>6</sup> According to these data, the flour trade increased very nearly fivefold between 1825 and 1832, the whisky almost sevenfold. Cincinnati was aided by a steady expansion of the pork trade. Figures given in Chapter VIII, above, indicate an increase of about 1,000 per cent in the hog pack between 1823 and 1835, and most of this growth took place before rather than after 1831.

A spurt in building confirms the fact that Cincinnati was thriving during the twenties — her population increased from 9,602 to 24,695 during that decade. As early as 1823 a “noticeable improvement” was noted in the local situation; a hundred houses were under construction. This increased to 180 by 1826, and two years later every street was reported to be filled with building materials because the citizens were continually tearing down old structures and erecting new ones.<sup>7</sup> An unusual abundance of funds was noted in the autumn of 1827 which was ascribed to an influx of capitalists and to expenditures on the Miami Canal. The latter was opened to traffic in 1828, and local construction continued at an increasing rate thereafter. In 1832–1834 — even during the “memorable pressure” — the annual number of new units remained over 300; and this number rose to about 350 in 1835–1836.<sup>8</sup> Most of this expansion, it should be noted, took place without the aid of local banks.

*Channels of Capital Flow to the West.* The principal channels through which capital flowed to the West during this period were the Bank of the United States, the federal government and the states, and direct investment on the part of individuals, probably most of whom were immigrant farmers, capitalists, and merchants. The desperate need of the Cincinnati area for capital and the margin of profit on investment may be judged from the comment

<sup>6</sup> LH, Feb. 7, 1833; CDG, Jan. 4, 1828.

<sup>7</sup> *Advertiser*, July 23, 1823; Drake and Mansfield, *op. cit.*, p. 28; *Western Tiller*, July 25, 1828. The term “houses” apparently included commercial structures.

<sup>8</sup> *Saturday Evening Chronicle*, Oct. 13, 1827; LH, Apr. 8, 1830, Jan. 27, 1831; Cist, *Cincinnati in 1841*, pp. 40–42. Cist's figures for 1829–1830 are considerably smaller than those currently reported.

that in 1827 interest on large sums was commonly between 10 and 20 per cent, that on small sums 36 per cent. Good investments paid from 10 to 15 per cent. As will appear in a later connection, usury laws in the West were honored in the breach.<sup>9</sup> Unfortunately, no figures are at hand to show the aggregate annual investment or the proportions of long-term and short-term capital. It appears, however, that the Bank of the United States was the dominant channel, especially for more liquid forms, whereas the other groups furnished long-term capital for the most part.

During this interval the federal government continued to play a generally passive role in so far as placing capital at the disposal of the West was concerned. Indeed, its conservative fiscal and monetary policies may have acted as a salutary governor upon expansion. That is, the picture would have been different if the United States had undertaken a comprehensive program of improving the internal waterways or giving large subsidies to canals, turnpikes, and railways. However, the government did contribute to no small extent. Direct investment was limited to the National Road and the expenses of surveying and selling lands, but other aid came in the form of land grants to the states specifically for public works, together with lands for education which were diverted by the states into investment in canals or banks.<sup>10</sup> The prohibition of credit in the purchase of federal lands, by the Land Act of 1820, undoubtedly tended to curb expansion, but this was offset to a great extent first by the reduction of the minimum plot to eighty acres. A further decrease, to forty acres, came in 1832. During the greater part of this interval, moreover, the net proceeds of land sales were lent back to westerners through the agency of the National Bank. This was made possible by the fortunate fiscal position of the federal government, in turn due in large part to the flow of capital (as merchandise) from abroad.

The states were far more active participants in developing their economic resources by securing long-term capital from outside. Figures show that most of the loans were floated after 1835. That

<sup>9</sup> Drake and Mansfield, *op. cit.*, pp. 82-83. The rate was still higher in Illinois (Sumner, *op. cit.*, p. 93, citing Ford).

<sup>10</sup> For instance, Ohio received 1,230,525 acres as aid in her canal program by acts of 1827 and 1828. The land sold at good prices. (Bogart, *Internal Improvements and State Debt in Ohio* [1924], pp. 36-37.)

is, debts of almost \$108,000,000 were incurred during the three-year interval 1835-1838 compared with only about \$68,000,000 over the fifteen-year period 1820-1835.<sup>11</sup> Nevertheless, the policy was definitely adopted during the period just mentioned, and New York and Pennsylvania appear to have set the example. Thus, the importance of the successful Erie Canal to Cincinnati and several other western districts lay not so much in furnishing transportation, which was practically limited to bringing certain imported goods from the East, as in setting the pattern of development for several decades. Ohio itself borrowed \$6,101,000 between 1825 and 1835 for canal construction; she did not participate in the loans of 1835-1838. Indiana and Illinois, on the other hand, together borrowed less than \$2,500,000 in the early thirties, compared with \$21,000,000 in the boom which followed. Mention has already been made of the impact upon Cincinnati trade ascribed to expenditures in 1827, and a similar result probably occurred in Louisville, where the canal to Portland was under construction at about the same time. Late in 1825 almost two thousand laborers were employed on the northern section of the Ohio Canal alone, and between that time and 1828 wages advanced from \$8 to \$15 per month (with board) because of competition offered by the Pennsylvania Canal.<sup>12</sup> This generated a growth in the local demand for foodstuffs which continued even after the completion of the projects. The laborers gave way to settlers who, as has been observed above in connection with earlier periods, constituted a true "home market." Indeed, it was observed in 1836 that Ohio canal tolls had not increased to a great extent, compared with the preceding year, largely on account of the high rate of settlement in the newer counties. In other words, there was a smaller surplus to ship out.<sup>13</sup> In time, of course, local production far exceeded consumption and found a better market at a lower cost.

No dependable estimate is available as to the amount of the huge direct private investment entailed in the expansion of the West between 1821 and 1835. Perhaps the Ohio tax figures cited above give the best general clue as to the magnitude of the sums involved. Around 1834 James Hall, Cincinnati banker and author,

<sup>11</sup> Ratchford, *op. cit.*, p. 79, citing Tenth Census, VII, 523.

<sup>12</sup> Bogart, *Internal Improvements*, pp. 23-25.

<sup>13</sup> Bogart, p. 38, n. 101.

wrote that the federal land policy, as amended in 1820 and with allowances for "squatters' rights" as then practiced, was almost ideally suited to the encouragement of immigration and investment. The price was apparently sufficiently low to allow purchase and improvement by the occupant and yet high enough to discourage the preëmption of large tracts by speculators.<sup>14</sup> A recent authority has found that settlement of southern Illinois and Indiana during the generation before 1835 was predominantly small-scale in character and largely upon an ownership basis. The interest of big eastern capitalists in land speculation did not revive until 1835 and 1836; a horde of speculators then descended upon the choice parcels, and the pattern of landholding was altered considerably.<sup>15</sup> Turner, writing of the 1820's, gave the cost of a 320-acre farm on the edge of the Illinois prairie as a little over \$1,000. Many settlers, perhaps the majority, could not afford such an outlay and either squatted or bought eighty acres, hoping to increase their holdings later on.<sup>16</sup> A critic of the "safety-valve" theory gives a similar figure applicable to the 1850's, but emphasizes that a great deal of land, such as that already improved or located near a canal river, or city, could be bought only at higher prices.<sup>17</sup> In other words, capitalization of future income had a strong tendency to raise the investment on the part of newcomers, and this process fed upon itself so long as immigrants and funds were forthcoming. Finally, one must not overlook the merchants and capitalists who thronged to centers such as Cincinnati and established themselves at least in part from past earnings. The average investment in manufacturing, steamboating, and commerce was undoubtedly much higher than in agriculture.

*The Bank of the United States in the West, 1821-1835.* This redoubtable institution reversed its policy of withdrawal from western operations during the period under observation, and developed its business in the interior in such a manner and to such an extent that it once more faced the problem of frozen loans in

<sup>14</sup> *Notes on the Western States*, pp. 174-86.

<sup>15</sup> P. W. Gates, "Land Policy and Tenancy in the Prairie States," *Journal of Economic History*, I, 62-69 (May 1941).

<sup>16</sup> *Rise of the New West*, pp. 86-87.

<sup>17</sup> Clarence H. Danhof, "Economic Validity of the Safety-Valve Doctrine," *The Tasks of Economic History*, 102 (Dec. 1941).

1832 and 1833. Although many citizens of Cincinnati were incensed at the appreciation of real estate held by the Bank once their property, and although the entire state felt strongly about the contest over the taxing issue, there was considerable sentiment for a reopening of the branch as early as 1823.<sup>18</sup> In 1825 the Bank commenced once more to receive deposits and lend funds in Cincinnati, which was then without any other bank; <sup>19</sup> one of the immediate motives was to facilitate liquidation of the suspended debt which had hung over since 1820.<sup>20</sup>

Space does not permit a full account of the operations and policies of the Bank in Cincinnati and other capital markets of the West and Southwest between 1821 and 1836, but there is no question that they were of cardinal importance to these sections and to the nation as a whole. During Biddle's entire presidency of that institution his principal object was to furnish an elastic paper currency, and it was attained, except in one or two instances, by keeping state banks in debt to his own, collecting these debts in time of contraction, and issuing United States Bank notes only.<sup>21</sup> The First Bank of the United States, it was generally conceded, had also been able by sheer size to regulate the discounts and note issues of state banks.<sup>22</sup>

On his accession to office Biddle followed the policy of his predecessor by building his sphere of operations in the East; yet he did manage to place the exchange operations of the New Orleans branch upon a sounder footing. It soon developed, however, that

<sup>18</sup> *Cincinnati National Republican*, Sept. 23, 1823, cited in CDG, Feb. 27, 1834.

<sup>19</sup> *Niles'*, XXVIII, 176 (May 14, 1825).

<sup>20</sup> The natural growth of Cincinnati—plus good management—enabled the Bank to make a profit on the loans of 1817-1820 rather than suffer a large loss, long considered inevitable. The debt reached a figure of \$2,528,350 at one time, and a probable loss of \$851,000 was estimated in 1821. Yet on August 30, 1822, only \$94,156.17 was definitely written off. The process of collection and liquidation through foreclosure and dealings in real estate was still going on in 1833, at which time no loss at all was anticipated. Indeed, the Bank's final losses in the West were considerably less than in the South and at the Baltimore branch. (Exec. Doc. 118, 24th Cong., 2d Sess., pp. 114-15; H. R. 460, 22nd Cong., 1st Sess., p. 244; Catterall, *op. cit.*, pp. 65-67, 400; *Niles'*, XXIII, 94; CDG, Feb. 22, Sept. 21, 1833.)

<sup>21</sup> Catterall, *op. cit.*, pp. 94-97. United States Bank notes could be kept in circulation if state banks' notes could be prevented from depreciating (J. J. Knox, *History of Banking in the United States* [1900], p. 495).

<sup>22</sup> Holdsworth, *op. cit.*, pp. 92, 109-10.



the capital of the bank was once more gravitating towards the West. The reopening of the Cincinnati office is a sign of this trend. The branches in the interior not only increased their discounts but also developed a highly profitable trade in branch drafts and bills of exchange. Employment of the latter instruments enabled the bank to secure a rate of interest substantially higher than that permissible under the usury laws, and the branch drafts were sold at a premium, whereas branch notes (most of which were used for the same purpose, i.e., to transfer funds to the East) were issued at par. Annual purchases of inland exchange expanded from \$31,000,000 to \$75,000,000 between 1824 and 1828; and the proportion of the total bought in the West and Southwest increased from 29 to 38 per cent.<sup>23</sup> In 1828 Biddle publicly announced the workings of a triangular exchange policy (New Orleans, New York, and the western offices) whereby "the funds of the bank have naturally sought a temporary employment in those sections of the Union where there is less banking capital, and where the productions of the great staples of the country seem to require most assistance in bringing them into the commercial market." The fact that the aggregate transactions in the West proceeded upon a much larger scale after that time, partly owing to keen competition in Boston and other eastern banking centers, and the fact that branch drafts were introduced in 1827 may well be interpreted as further steps in a policy already in successful operation, rather than signs of an abrupt change in the Bank's attitude towards western finance.

Maturities of the bills of exchange varied between two and six months, and, aside from offering a better rate of interest, they offered less difficulty to the Bank in the matter of renewal compared with regular discounts for accommodation. Total purchases expanded from \$75,000,000 to \$238,000,000 between 1828 and 1832, declined in 1833 and 1834, and reached a new high level (\$260,000,000) in 1835. The proportion bought in the West and Southwest rose to 60 per cent in 1832 and receded to 49 per cent in 1835. In May 1832 offices in the interior held almost \$14,000,000 in bills of exchange, or over 50 per cent more than all other offices. Regular discounts also expanded more rapidly in the West than in the East. As for branch notes, a similar trend

<sup>23</sup> Catterall, *op. cit.*, pp. 94-97, 112-14, 127-28, 132 ff., 505-7.

towards the West is evident. On January 2, 1823, only \$46,000 in western notes were in circulation. The net circulation nine years later was \$5,445,000 — an increase of over a hundredfold. In the country at large, the note issue of the Bank increased about fivefold, from \$4,333,000 to \$21,248,000.<sup>24</sup> These sectional differences, together with the effects they wrought on local bank policy and hence on total purchasing power, in all probability contributed to the relative rise of western prices.

In ordinary times the premium on branch drafts and the discount on bills purchased were kept at a nominal figure and varied between par and 1 per cent whether the office of issue (or redemption) was Cincinnati, New Orleans, or New York. However, when the policy of restriction was in effect during 1833 and 1834, rates were set so as to make western exchange considerably more expensive than eastern. Thus in October 1834 bills on Cincinnati were bought in Boston at 2½ per cent discount, whereas bills on Boston were bought at ½ per cent in Cincinnati.<sup>25</sup> This discrimination formed the basis for claims that the Bank charged too much for exchange and altered local credit conditions so as to make more profit in this department.<sup>26</sup> Taking the period 1823–1835 as a whole, however, it is probable that the West and South witnessed lower and more uniform rates of exchange than obtained for many years before or after. The seasonal variations in the Bank's credit form another point of interest because they corroborate the observations made in a preceding chapter as to the marketing season. Between 1817 and 1835 total accommodations, represented by note issues and deposits, showed a regular tendency to increase between October and April and decline during the remainder of the year. Credit reached a peak in the autumn in only one year out of eighteen (1831), whereas April was the high point eleven times and July four times.<sup>27</sup>

Even Biddle's astute management did not prevent western credit from freezing into permanent rather than temporary loans, thus creating embarrassing situations. Many abuses in the form of renewals and racehorse bills were corrected, but after 1832 the

<sup>24</sup> Catterall, *op. cit.*, pp. 137 ff., 408, 507.

<sup>25</sup> Catterall, pp. 505–7.

<sup>26</sup> See, for instance, Dewey, *op. cit.*, p. 234.

<sup>27</sup> Catterall, *op. cit.*, p. 427.

western business was neither conservatively nor soundly managed. Branch control was a most difficult problem. The Cincinnati office was the scene of a fair share of these difficulties. In 1827 permission was given to lend to former debtors not yet clear with the Bank. Early in 1832 it was discovered that borrowers were influencing the officers of the branch and securing unauthorized loans of doubtful term and security.<sup>28</sup> Curtailments were ordered in the West all during the winter of 1831-1832, but credit expanded instead. By 1832 and 1833 the Bank had expanded credit somewhat further than other large eastern institutions and lost control over them.<sup>29</sup>

One of the keenest contemporary observers in the West had no doubt as to the general beneficence of the Bank to the nation in general and the city in particular and repeatedly warned that its removal would certainly lead to inflation and ultimate depreciation of bank currency. Besides, it was predicted that the withdrawal of such a large amount of eastern and foreign capital from the West would result ultimately in painful liquidation, derangement, and individual losses.<sup>30</sup>

*Western Banks.* The currency of western states improved greatly in quality through the combined action of several favorable factors. As has already been noted, local banks were forced by the Bank of the United States to avoid speculation and to hold tighter reins on credit. The country banks which survived the ordeal of 1818-1822 were the soundest of all and were prudently managed; in addition, the comparatively few newly chartered institutions were launched under more auspicious circumstances and generally with sufficient backing. The construction of public works, the Erie Canal especially, and the success of steamboat navigation, sale of land, and immigration all gave impetus to the importation of capital other than that furnished directly by the national bank. An improvement of the balance of trade in favor

<sup>28</sup> Catterall, pp. 160-61, 391.

<sup>29</sup> Sumner, *op. cit.*, pp. 206-8.

<sup>30</sup> CDG, Nov. 25-26, 1833, July 28, 1834. Other thinkers admitted the advantages of a nationally uniform and safe paper currency but criticized Biddle's banks for (1) manipulating exchange rates, (2) concentrating credit control in the hands of an aristocracy, or (3) manipulating the cotton market. See, for instance, Charles Duncombe, *Duncombe's Free Banking* (1841), pp. 182-88. Duncombe suggested a national system of banks with popularly elected management.

of the West was another factor favoring the conservation (or increase) of specie resources and confidence in banks in general. Finally, English money and prices were also comparatively stable except for one severe crisis (1825), and the full effects of the latter were not communicated to America. These tendencies made for not only a greater stability in general prices but also a closer rapprochement among values in different parts of the nation.

Despite the prosperous growth of the Miami market during this epoch, it had no banks of its own until the early thirties. It was forced to rely upon other sources for its currency, notably the Bank of the United States and the country institutions of Ohio. It is probable that between 1821 and 1825 specie came into more common use than had been the case theretofore, for the branch of the national bank did not return to Cincinnati until that year, and, furthermore, the state banks were few in number and able to support only a small state-wide circulation. In 1826 the notes of only ten Ohio institutions circulated throughout the state; yet their general quality is indicated by the manner in which they rose steadily in value in eastern markets.<sup>31</sup> For the most part these ten were the ones which had continued to pay specie throughout 1820-1822. Such security and stability rendered brokerage in currency relatively unprofitable, and bank-note tables appeared in newspapers more infrequently.

Until local banking capital could be attracted to Cincinnati, merchants were compelled to finance themselves to a large extent; this was no easy task, since the trade and population of the city were growing at a rapid rate.<sup>32</sup> Efforts to organize a bank in 1826 were futile, and those of the following year met with no more suc-

<sup>31</sup> Ohio notes, which had been quoted at 12½-25 per cent discount at the end of 1820 and had risen to 5-12 per cent in January 1821, mounted to 6 per cent in the middle of 1822, to 4 per cent in 1827, and reached 1½ per cent by the beginning of 1831 (Huntington, *op. cit.*, pp. 333, 488-89; Comptroller of the Currency, *Annual Report* [1876], p. lxxxvi). "At present there is no section of the Union that has a better circulating medium than Kentucky, Ohio, Indiana, Illinois and Missouri—vexed as they have been with manufactories of paper money" (*Niles'*, XXXII, 37 [Mar. 17, 1827]).

<sup>32</sup> A marked recovery took place in 1823. Exports mounted, and business men reoccupied every store and warehouse. Yet all purchases were upon a cash basis. (*Niles'*, XXIV, 32 [Mar. 15, 1823], XXV, 94-95 [Oct. 11, 1823].)

cess.<sup>33</sup> The Commercial Bank was finally authorized in 1829, but stock subscriptions were not taken until two years later.<sup>34</sup> Events moved at a more rapid pace after 1830; one large bank was chartered in 1833, to be followed by two others the following year.<sup>35</sup> In addition, the moribund Miami Exporting Company, which had failed in 1822, was revived in 1834.

A similar trend was visible in the rest of Ohio and in other western states. Not only was a definite need felt for more local banking facilities, but opportunities were presented to take up government deposits and a large additional business after 1836; the future of the United States Bank, whose charter was due to expire in that year, was already most uncertain. Various projects for a State Bank of Ohio died in the legislature in 1832-1833. Then followed a sudden burst of activity. Ten local banks were chartered in the single session of 1833-1834. In 1828 there had been no local institution in operation in Kentucky, Indiana, Illinois, or Missouri. Illinois had suffered under the State Bank of 1821 and encouraged no further banking until federal deposits began to be transferred in 1835.<sup>36</sup> Kentucky granted charters to three large banks in 1833-1834. As in Cincinnati, the funds were quickly subscribed, largely in the East.<sup>37</sup> Indiana, which had closed its State Bank in 1823, allowing the Madison branch alone to continue, chartered a

<sup>33</sup> Huntington, *op. cit.*, pp. 342-43; LH, Sept. 15, 1826; CDG, Nov. 19, 1827.

<sup>34</sup> Once the books were opened, the capital of \$500,000 was eagerly taken up, largely by eastern capitalists. It was raised to a million in 1833. (Huntington, *op. cit.*, pp. 344, 359 ff.)

<sup>35</sup> The Franklin Bank (1833) and the Lafayette Bank (1834) each had an authorized capital of a million dollars. The Ohio Life Insurance & Trust Company (1834) had a total capital of \$2,000,000 authorized, half of which was to be devoted to banking. It was eagerly subscribed by brokers in the East. (Huntington, pp. 364-66, 370-71.)

<sup>36</sup> According to Ford, contemporary Illinois authority on the subject, the Bank of the State of 1821 had no competent management and was deeply entangled in state politics (Sumner, *op. cit.*, pp. 157-61, 166; Knox, *op. cit.*, pp. 715 ff.). A small group from Cincinnati, led by Samuel Wiggins, M. J. Williams, and Griggs and Company, subscribed for much of the stock in 1835. Wiggins and a few Illinois enterprisers had contracts to place eastern capital in western banks. Cincinnati had become a capital market. (G. W. Dowrie, *The Development of Banking in Illinois, 1817-1863* [1913], pp. 59-61.)

<sup>37</sup> Authorized capital totaled \$13,000,000, though actual capital never exceeded \$9,030,000 (Knox, *op. cit.*, p. 635).

**TABLE 29**  
**RATES OF DISCOUNT ON BANK NOTES IN THE CINCINNATI MARKET NEAR THE END OF EACH YEAR, 1825-1835**

	1826		1827	1828	1829	1830	1831	1833		1834	1835
	Jan. 20	Dec. 15	Dec. 21	Dec. 12	Dec. 14	Dec. 24	Nov. 10	Jan. 8	Nov. 15	Dec. 15	Dec. 8
<b>U. S.</b>											
Bank of the U. S. & branches	½-1	½-1	½-1	½-1	..**	..	..	..	..	par	par
<b>OHIO</b>											
Commercial Bank Cin. ....	..	..	..	..	..	..	par	par	par	par	par
Franklin .....	..	..	..	..	..	..	..	..	par	par	par
Ohio L. I. & T. Co. ....	..	..	..	..	..	..	..	..	..	..	par
Lafayette .....	..	..	..	..	..	..	..	..	..	..	par
Miami Exporting Co. ....	..	..	..	..	30	..	..	30	..	..	..
Chillicothe .....	2	1	1	1-1½	1½	1	1	1½	1	1	1
Lancaster .....	2	1	1	1-1½	1½	1	1	..	..	..	..
Columbus .....	2	1	1½	1-1½	1½	1	2	..	..	..	..
Steubenville .....	2	1½	..	1-1½	1½	1	1	..	..	..	..
Marietta .....	2	1½	1½	1-1½	1½	1	1	1½	1	1	1
Mt. Pleasant .....	2	1½	1	1-1½	1½	1	1	..	..	..	..
Western Reserve .....	2	1½	1½	1-1½	1½	1	1	..	..	..	..
Portsmouth .....	2	1½	1½	1-1½	..	..	..	..	..	..	..
Dayton .....	10	..	..	..	5	..	3	⅓	1	1	par-1
Hamilton .....	35	..	..	..	5	..	3	3	..	..	par
Urbana .....	..	..	..	..	50	1	1	..	..	..	..
St. Clairsville .....	4	2	2	1-1½	1½	1	1	..	..	..	..
Farmers' Bank, Canton .....	..	..	..	..	..	1	3	..	..	..	..
Commercial Bank, Scioto .....	..	..	..	..	..	1	1	..	..	..	..
<b>INDIANA</b>											
State Bank .....	..	..	..	..	no sale	..	no sale	no sale	..	..	1
<b>KENTUCKY</b>											
Commonwealth .....	..	..	..	..	30	..	25	20	20	20	20
Bank of Ky. & branches .....	..	..	..	25-30	30	..	25	20	20	20	20
<b>MICHIGAN</b>											
Farmers & Mechanics .....	..	..	..	..	..	..	2	..	..	..	..
Detroit .....	..	2	1½	1½	2	1	1½	..	..	..	..

	1826		1827	1828	1829	1830	1831	1833		1834	1835
	Jan. 20	Dec. 15	Dec. 21	Dec. 12	Dec. 14	Dec. 24	Nov. 10	Jan. 8	Nov. 15	Dec. 15	Dec. 8
<b>TENNESSEE</b>											
State Bank .....	..	..	..	..	10	..	10	5	5	5	6
<b>LOUISIANA</b>											
State Bank .....	..	..	..	..	..	..	3	..	..	..	..
Bank of Louisiana .....	..	..	..	3-4	5	..	3	2	3	5	5
Bank of Orleans .....	..	..	..	3-4	5	..	3	2	3	5	5
<b>MISSISSIPPI</b>											
State Bank .....	..	..	..	3-4	10	..	..	2	3	5	6
<b>ALABAMA</b>											
Bank of Mobile .....	..	..	..	..	10	..	3	10	15	15	10
State Bank .....	..	..	..	..	..	..	3	uncertain	15	15	10
<b>GEORGIA</b> .....											
											6-10
<b>SOUTH CAROLINA</b> .....											
											6
<b>NORTH CAROLINA</b> .....											
											6
<b>VIRGINIA</b>											
North West, Wheeling .....	2	2	1½	1½	1½	1	1	1½	1	1½	1
Bank of Virginia .....	2	2	1½	1½	1½	1	1	1¼	1½	1½	1
<b>PENNSYLVANIA</b>											
Pittsburgh .....	1	1	1	1	2	1	1	1½	1	1½	1
Philadelphia .....	1	1	1	1	1½-2	1½	1	1-1½	1	1½	1
<b>MARYLAND</b>											
Baltimore .....	1	1	2	1½	1½	1½	1	1	1	1½	1
Other Maryland banks .....	..	..	..	1½-2	1½-2	..	..	1-1½	1½	1½	1
<b>NEW ENGLAND</b> .....											
											3
<b>NEW YORK</b>											
City .....	2	2	2	2	3	2	1-3	1-3	3	2-3	2
Country .....	..	..	..	3-4	2-6	..	..	1-3	3	3	2
<b>EXCHANGE</b>											
Drafts on East .....	..	..	½-1*	..	..	..	½-¾*	..	..	..	..
New Orleans .....	..	..	..	..	..	..	½	..	..	..	..

\* Advance.

\*\* Omitted beginning Oct. 22, 1829.

new State Bank in 1834 with ten quite independent branches.<sup>38</sup> Indeed, the "rage" for new banks, which was not at all confined to the Ohio Valley, aroused alarm in conservative quarters, where it was feared that it would accumulate strength until the results of twelve to fifteen years before were reproduced.<sup>39</sup>

*Cincinnati Currency.* The general stability in western currency between 1823 and 1835 is reflected in year-end quotations on various issues (Table 29). Between September 1823 and December 1825 the Cincinnati newspapers entirely dispensed with bank-note tables. J. & G. R. Gilmore then began to insert a short list in which most of the discounts were low and rather invariable. This firm appears to have continued in operation until 1832, and it was joined by Th. Henry Yeatman in the middle of the year 1829.<sup>40</sup> Yeatman's advertisements appeared intermittently until 1839.

From 1826 to 1829 notes of almost all Ohio country banks were received by Cincinnati brokers at a nominal discount from specie — 1-1½ per cent. Paper of the branches of the Bank of the United States was accepted at a still smaller discount until it disappeared from quotation in October 1829. Philadelphia and Pittsburgh notes were carried at 1 per cent, and even the "Bank at Detroit" notes were bought at a discount of 1½ per cent. Southern paper varied between 3 and 4, as did New York country banks. Drafts on the East were at par much of the time and rarely rose above ½-1 per cent advance. Notes on suspended and defunct

<sup>38</sup> A law was passed in 1829 providing for the liquidation of the Farmers' & Mechanics' Bank, formerly the Madison branch. Its notes were redeemed some years later.

The Indiana constitution of 1816 forbade establishment of private banks other than the two then in operation (Knox, pp. 692-94; Sumner, *op. cit.*, p. 157; W. F. Harding, "The State Bank of Indiana," *Journal of Political Economy*, IV, 1-35 [Dec. 1895]).

<sup>39</sup> Hammond noted that Cincinnati wanted three millions more capital, expected to come from abroad, and noted the change in sentiment towards foreign capital from that expressed in the campaign of 1832 (CDG, Jan. 8, 1833).

"Those who recollect the creation of banks, from eighteen to twenty-four years back, cannot fail to see, in these present conditions, a great probability of the evils of from 1815 to 1822, in all their distressing and destructive vicissitudes. The same causes must produce something like the same effects. Banks are put in operation, not by money lenders, but by money borrowers. They can have but one career, but one termination . . ." (*ibid.*, Apr. 14, 1834).

<sup>40</sup> *Advertiser* (1823-1826); *Western Teller* (1826-1831); CDG (1827-1835).



institutions — such as the Miami Exporting Company, the Bank of Hamilton, the Urbana Banking Company, or the Bank of Kentucky — were advertised only occasionally, at rates of discount between 30 and 50 per cent.

A notable depreciation took place in southern notes during the critical months towards the end of the year 1829. In some instances they fell as low as 15 per cent. New England and New York country banks also declined to as much as 5 or 6 per cent. The currency situation remained fundamentally "sound," however, and became even more so in 1830 and 1831. By that time Hamilton, Dayton, New Orleans, and Alabama notes were up to 3 per cent, and Kentucky currency had risen from 30 to 25 discount.<sup>41</sup> Exchange on the East and South was sold at less than 1 per cent advance in the winter of 1830-1831.

Throughout the years 1833 and 1834 the notes of the newly established Cincinnati banks and those of the United States Bank circulated at par, but others were bought at a nominal discount corresponding roughly to the distance from the point of redemption. Exceptions were notes of the Miami Exporting Company, which appeared from time to time at 30 per cent discount, Kentucky notes, which had appreciated to 20 per cent, and Alabama, which rested at 15. Louisiana, Mississippi, and Tennessee currency began this two-year period at 2 per cent but gradually declined to 10 in the fall of 1834; they recovered to 5 per cent in the last quarter of that year. American gold was quoted at par @ 3 per cent advance between September 1833 and March 1834, but it lost its agio thereafter. In the nation at large the currency was deemed especially "sound" in the summer of 1834. Large amounts of specie were brought to the banks, so that the ratio of specie to circulation was greater than 1 to 7.<sup>42</sup> In other words, neither the rising wave of new banks nor the "memorable pressure" of 1833-

<sup>41</sup> It is notable that Kentucky Commonwealth Paper advanced in Louisville somewhat more rapidly than in Cincinnati.

<sup>42</sup> This ratio did not apply in Tennessee, Mississippi, Maine, Connecticut, Massachusetts, and South Carolina. New York city reported an abundance of specie at the end of 1833; large quantities of Spanish dollars were brought to the banks for paper. They had carried 4-5 per cent premium the preceding summer. Furthermore, the customary 4-5 per cent advance secured by brokers on American gold disappeared. (*Advertiser*, Jan. 15, 1834; *Niles'*, XLVI, 188, XLVII, 20; CDG [1833-1834].)

1834 greatly impaired confidence in the currency, and the figures in Table 29 show that the situation was even better at the end of 1835.

Conservative writers point to the period 1821-1835 as a fine example of the organization and administration of credit, and there is a great deal of truth in this view. To quote Sumner: "So much as to matter of fact; as to the matter of opinion, the correctness of which is open to doubt, there was scarcely anybody amongst the classes conversant with affairs who did not believe that the Bank of the United States was to be credited with having brought about this state of things."<sup>43</sup>

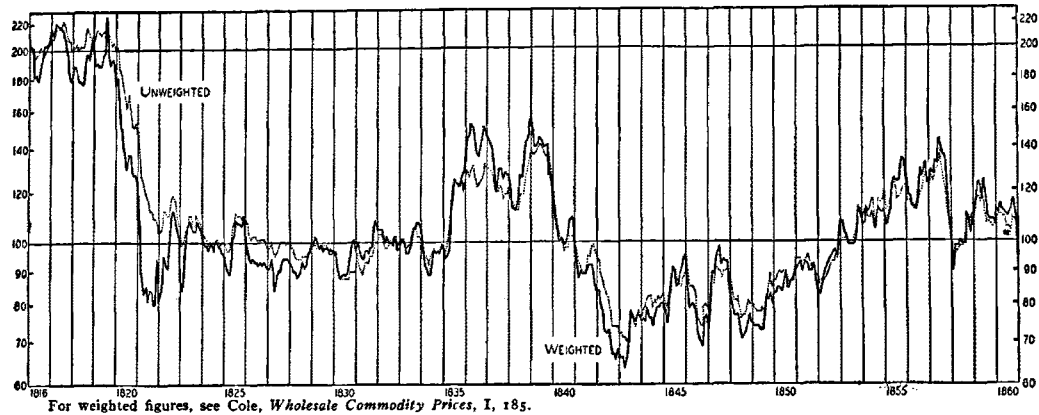
*Annual Variations, 1821-1835.* General index numbers, whether weighted or not, show that the outstanding feature of western prices between 1823 and the end of 1834 was stability (Chart XXXIV). The maximum range between the low and high points of the weighted figures was hardly more than 24 per cent; the index numbers fell below 90 in only twelve months out of 144 and upon no occasion rose as high as 110. Prices in other parts of the United States were also remarkably stable (Chart VI, p. 98), and, compared with 1820 and prior years, a high measure of year-to-year agreement developed between Cincinnati prices and those at seaboard points.<sup>44</sup> The latter, however, underwent an unmistakable downward drift during the 1820's which is present in the unweighted but not in the weighted index for the West. It should be added that the inclusion of more data on dry goods and other manufactured items — if such had been available — would most probably have yielded Cincinnati index numbers more similar, in this respect, to those for other markets.

The interval 1823-1834 provides a parallel to 1921-1930 so far as general price behavior is concerned. Furthermore, one finds the same disharmony *within* the price structure in each instance, with the important difference that the western prices of agricultural items were rising in one case and falling in the other. Accumulated prosperity and profits appear to have led to an agricultural boom in the nineteenth century and to fever in the security markets in the more recent case. Chart IX (p. 123) shows that the diversity between Index A and Index B was particularly notice-

<sup>43</sup> *Op. cit.*, p. 198.

<sup>44</sup> See also A. H. Cole, *Wholesale Commodity Prices*, p. 106 (Chart 51).

CHART XXXIV  
GENERAL WEIGHTED AND UNWEIGHTED INDICES OF WHOLESALE COMMODITY PRICES  
AT CINCINNATI, 1816-1860  
(Base: Monthly average, 1824-1846)



able during the interval 1821-1835 because the former was rising and the latter was falling in an equally steady manner. The purchasing power of farm prices, which had recovered from 42 in 1821 to 67 two years later, mounted to 96 by 1834; yet the latter figure was the *lowest* between 1830 and 1842 (Chart X, p. 125). There is no evidence of such a steady and consistent improvement of agricultural prices in the East. New York figures show a sizable reduction in the spread between 1825 and 1826, to the advantage of agriculture, but the curves are very nearly parallel between 1826 and the mid-point of 1835. Philadelphia group index numbers, on the other hand, move in general agreement until 1830, when agricultural prices first begin to rise above industrial in a fairly consistent manner.<sup>45</sup> This difference may be partly due to one artificial consideration: cotton was counted among agricultural items in Philadelphia, and the price of this important staple drifted downward during the 1820's. However, one would not expect a single item to exert a perceptible influence upon an unweighted geometric average of price relatives, particularly when the number of series is quite large.

In short-time fluctuations, the greatest discrepancy among the regional index numbers occurred in 1824-1825, according to Chart VI. Cincinnati, New York, and New Orleans were practically at parity in the middle of 1823, but an agricultural depression carried Cincinnati prices down for about two years,<sup>46</sup> while New York remained quite stable and New Orleans tended to rise. For a brief interval in 1825 the cotton market carried New Orleans up to a figure not equaled between 1819 and 1861. Cincinnati responded only feebly, although local cotton also climbed to dizzy heights and pork products rose to some degree. By 1826 prices in the three markets were back in agreement, and no other spread of comparable magnitude was opened up for some years thereafter. All subsided until 1827, rose to a peak in early 1829, and fell

<sup>45</sup> Smith and Cole, *op. cit.*, pp. 65, 159; Bezanson, *op. cit.*, I, 13, 354-55. Except in 1843-1844, Philadelphia agricultural prices remained above industrial until 1860, and the spread tended to increase. Cotton is classified as "agricultural," and the choice of base period (1821-1825) probably influences the results to some degree.

<sup>46</sup> This depression affected grain prices in particular, and they were dropped from quotation for some years. Flour reached a low point of \$2.25 in the summer of 1826, almost on a par with the dark days of 1821-1822 and undercut only once in the succeeding thirty-five years (September 1846, \$2.12½). See Charts XVI-XVII.

sharply in the following year (New Orleans declined further still in 1831). Prices mounted to a peak in 1833, relapsed in the spring of 1834, and shortly began the long yet sharp rise of 1835-1836. The curves representing Cincinnati and New York are in especially notable synchronism.

The depression of 1834 was felt severely in western flour, whisky, and grain markets, though they had been under a gradual decline since the beginning of 1831. Pork products remained comparatively high, as did cotton. Western supporters of the United States Bank, who sought to maximize the depression as the effect of Jackson's policies, naturally selected flour and whisky as the "true criterion of depreciation — they come to market from the country."<sup>47</sup> Yet Index A and Index B each fell to approximately the same extent, the former from 105 to 86 and the latter from 114 to 94 in the short space of six months (Chart IX).

The year-to-year variations in other economic data are fairly submerged in the pattern covering the period 1820-1861, as has been explained in the preceding pages. However, a pattern computed from the same data but restricted to the interval 1820-1835 yields results in sharper outline, owing to the fact that allowances are made for the intermediate trend as well as for the long-time drift. The grouping of link relatives, it should be noted, is not quite so regular as the one Professor Frickey discovered among thirteen quarterly series pertaining to the era 1866-1914, but wide disagreement is the exception rather than the rule, and the derivation of closely similar patterns from other combinations of series leads to the conclusion that the results are significant. The chain pattern, using a "conversion constant" of 6, is as follows:

1820 . . . .	100	1826 . . . .	100	1831 . . . .	107
1821 . . . .	91	1827 . . . .	98	1832 . . . .	111
1822 . . . .	97	1828 . . . .	99	1833 . . . .	108
1823 . . . .	99	1829 . . . .	102	1834 . . . .	105
1824 . . . .	98	1830 . . . .	99	1835 . . . .	115
1825 . . . .	103				

Peaks occurred in 1823, 1825, 1829, 1832, and 1835; troughs came in 1821, 1824, 1827, 1830, and 1834. In other words, the picture of year-to-year variation is substantially similar to that

<sup>47</sup> CDG, Apr. 24, Mar. 5, 1834.

given by Index A in Chart IX. It also meshes with Gouge's compact chronicle of the eastern money market between 1821 and 1832. In general he found money to be "plenty" in years of recession (1827, 1830-1831) and "scarce" in times of prosperity (1828-1829, 1832), and it is remarkable that Sumner misinterpreted these terms.<sup>48</sup>

The extent to which the pattern is characteristic of the component series may be inferred from coefficients of similarity<sup>49</sup> between link relatives of the former and each of the latter:

Cincinnati general weighted index	Public land sales, U. S. (acreage)
..... +.53	..... +.30
Index A * <sup>50</sup> .....	Public lands receipts * .....
..... +.74	..... +.16
Index B * .....	U. S. imports .....
..... +.31	..... +.47
Interior bills of exchange, B. U. S. ....	U. S. exports .....
..... +.64	Ratio, specie imports/exports * .....
Circulation and deposits, B. U. S. ....	..... +.47
..... +.23	U. S. immigration .....
Number of steamboats (Hall) .....	..... +.23
..... +.44	Index of receipts, N. Orleans * .....
Tonnage of steamboats (Census) .....	..... -.10
..... +.19	

The relative size of these coefficients corroborates impressions gained from graphic inspection. It appears that the prices of northern agricultural products (Index A) agree most closely with the pattern, although this particular series is not a component

<sup>48</sup>"The years of expansion and 'good times' were 1821, 1824, 1827, 1830-31. The years of crisis and 'hard times' were 1822, 1825, 1828-9, 1832." Sumner gives a résumé of the workings of the short cycles emphasizing Raguét's hypothesis: that usury laws forced banks to vary the volume of credit rather than the rate of interest (*op. cit.*, p. 181, citing Raguét, *Currency and Banking*, 104; see also Gouge, *op. cit.*, pt. II, pp. 174-75).

<sup>49</sup>The Davies coefficients here employed are unrefined but simple to calculate. Other methods, it is found, yield higher coefficients but do not disturb the relative ranking. Since the various series possess different degrees of amplitude, each one is matched against a pattern computed with a "conversion constant" equal to the quartile deviation of the series in question. Thus the constant applicable to general prices, circulation and deposits, and exports is 5.5; that corresponding with Hall's steamboat data is 38.

<sup>50</sup>The series marked with an asterisk are not direct components of the pattern. The similarity with receipts at New Orleans from the interior applies to 1823-1835 only.

thereof. Of the component series, the general weighted index of Cincinnati prices comes comparatively close to coincidence with the pattern. Index B, on the other hand, pursues a relatively independent course. Although price indices, taken from a long-range point of view, do not directly show the process of expansion, it appears that they can be highly faithful in reflecting the ups and downs from year to year.

These figures suggest two points on the credit policy of the Bank of the United States. In the first place, western prices were in close synchronism with the annual totals of domestic bills of exchange bought by the Bank. Indeed, link relatives representing Cincinnati prices and the bills of exchange agree perfectly with each other (and with the pattern) in respect to the directions of the rate of annual change. Furthermore, other data show that the percentage of the Bank's total exchange bought in the West and Southwest fluctuated sympathetically. Thus it rose in 1825, declined to 1827, rose until 1832, then fell off in 1833 and 1834. Secondly, since credit was distributed to the West by branch drafts as well as notes, it is not surprising to find that the deposits and circulation of the Bank, taken singly or together, were frequently at substantial variance with the other series. For example, circulation contracted in 1822 and 1823 but rose in 1825. It rose again in 1830.<sup>51</sup> Absence of comparable data for other banks precludes final or positive proof that Biddle's bank dominated the picture, but those available indicate that it furnished the lion's share of short-term finance.

Although space does not permit description of all the peculiarities of other economic series covering this epoch, a few points are worthy of note. It is found that data compiled from Hall's alphabetical list of steamboats are considerably more closely associated with other series than are the official registry figures on tonnage. As a matter of fact, the only substantial departures of the Hall data from the pattern occur in 1826 (a sizable increase) and 1835 (a slight decrease). These might well be interpreted as evidence of a lag due to the time absorbed in construction. Of the two series dealing with public lands, the acreage figures are in generally higher agreement than the data on dollar receipts, in spite of the fact that the latter have been restricted to northwestern

<sup>51</sup> Catterall, *op. cit.*, p. 507.

states for the purpose of analysis (dollar figures for the entire nation are at still greater variance). The high figure for 1824, apparently due to unseasonably large receipts in the third quarter of the year, is especially "out of line." It is probable, in view of the acreage sold that year, that this item represents payments of accounts in arrears rather than the purchase of new tracts.

Although export prices were more variable than import prices, the dollar volume of merchandise exports of the United States was more stable than imports, judging by the fact that the quartile deviation of link relatives for the latter series is almost three times as large as that for the former. Except for their decline in 1829 and slight increase in 1834, the imports of merchandise were in rather close agreement with Cincinnati prices and other series. Exports behaved in a contrary fashion in 1828, 1830, and 1834, probably because of the importance of cotton. As for the data on immigration, which are submitted to a lag of one year, the agreement is generally poor between 1823 and 1827. The number of immigrants was in rather close agreement during other years, however, and the diminutive size of the movement during the middle twenties is consonant with the information on westward migration cited above.

The specie ratios (imports to exports) appear to have lagged one year behind other series largely because a "good" year was frequently followed by a decrease in shipments, and conversely. For example, they dropped from \$8,800,000 to \$4,700,000 between 1825 and 1826, and from \$9,000,000 to \$2,100,000 between 1831 and 1834. On the other hand, the exports of specie rose in 1822, 1825, 1828, 1831, and 1835 — all years following recession. For the period 1823-1835 a closer relationship with other series is secured by comparing the prices of 1824, for instance, with the ratio of specie imports in 1823 to specie exports in 1825. This procedure, which has more evident basis also on grounds of logic, is limited in application because separate data are not reported for the trade in coin before 1821.<sup>52</sup> Incidentally, the specie flow from New Orleans to the East, partly by way of the Ohio Valley, was estimated at \$22,500,000 between 1820 and 1832. Although critics

<sup>52</sup> Over the period 1823-1835 the coefficient of similarity is +.39 between link relatives representing the imports/exports ratio, both lagging one year, and the pattern of which the ratio series is a component. If the imports of specie lead by



charged the Bank of the United States with drawing it to the East for purposes of export, Sumner reported that the Bank's employment of branch drafts tended to retard this very movement.<sup>53</sup>

The index of New Orleans receipts, which was omitted from the pattern for lack of complete data, is perhaps the most independent of all. Between 1823 and 1828 receipts (strictly, adjusted link relatives) varied in the same direction as the pattern, but year-to-year fluctuations were commonly in the opposite direction thereafter. This brings us face to face with the fact that in an agricultural economy large production may accompany prosperity or depression. That is, one finds comparatively little evidence of a generally positive relationship between the short-term movements of wholesale prices and the volume of production, both *taken as aggregates*, such as statisticians have repeatedly found in data pertaining to manufacturing in a later age. Attempts to find a connection between the behavior of New Orleans receipts and the cotton economy have proved no more successful. One could attribute the boom in the former in 1834, for instance, to fortunate price and crop conditions in the South. Such an explanation, however, could not possibly serve for the year 1830, when shipments to the South were high in spite of an unfavorable price and crop of the staple in that region. One cannot hope to measure the efficiency of various factors affecting the shipment of farm products down the Mississippi without comprehensive data on rainfall, yield, actual extension of the acreage under cultivation, and number of migrants to the West. The last-named factor, it will be remembered, was occasionally of sufficient power to reduce the surplus production of the area.

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one year and the exports lag the same amount of time, the corresponding figure is +.60.

The lag in coin ratios, as with immigration, may be due to the fact that most years ended September 30. This does not explain, however, why years of excess imports of merchandise were commonly followed by excess *imports* of coin, and conversely. The latter may have led by a space of two years.

<sup>53</sup> *Op. cit.*, p. 203.

## CHAPTER XIV

### CYCLICAL DISTURBANCES AND PRICE BEHAVIOR 1835-1843

#### THE THIRD TIDE: FLOOD PHASE

THE PRINCIPAL object of the treatment in the pages to follow is to add to the statistical record now rapidly accumulating with respect to these turbulent years. Attention is devoted largely to price and currency conditions in Cincinnati — a market which, though not so completely engulfed in the storm and stress as it had been twenty years before, was a sensitive point because it constituted a main link between the interior and the outside world.<sup>1</sup> During the recession of 1838, for instance, a local authority found that, although Ohio as a whole was progressing rather satisfactorily, "Cincinnati, on account of the recent derangements of the monetary affairs of the country, and the consequent embarrassments in all the various branches of trade, should be regarded more with reference to her past than her present business. . . ."<sup>2</sup> The emphasis placed here upon currency and banking is largely due to the availability of more data in these fields, rather than to a desire to verify or disprove any special theory of the business cycle. It may be mentioned, however, that several contemporary and later students of the period have been unable to discover the connection between currency and credit on the one hand and prices on the other.<sup>3</sup>

The behavior of prices — or rather the general economic affairs of the United States — during the 1830's is a bothersome problem to students of crises and depressions, particularly those seeking to formulate rules governing cycles in general. Aside from the com-

<sup>1</sup> The scattered data at hand indicate that more spectacular events occurred in the Southwest (particularly Louisiana and Mississippi) and the younger Northwest (Chicago, Detroit, etc.).

<sup>2</sup> W. D. Gallagher, *op. cit.*, p. 188.

<sup>3</sup> See, for instance, *Cincinnati Daily Chronicle*, Apr. 18, 1840, Oct. 6, 1842; CDG, Jan. 7, 1837; Sumner, *op. cit.*, p. 259.

plication that more than one crisis was involved, it is not easy to pick definite turning points because several different combinations give equally satisfactory (or unsatisfactory) interpretations. One definite tendency has been current among later observers: to whittle down the importance which the panic of 1837 has long occupied in American history. Some authorities speak of the crisis of 1836-1839, whereas others emphasize the fact that complete liquidation was suspended until after 1839 and that the most painful event was the long depression which ensued.<sup>4</sup> Another feature of recent interpretations is to assume a single major cycle beginning as far back as 1830 or 1832. The general tendency is still to regard the 1830's as one of the most lively periods in the century, but Schumpeter is disposed to treat it as a late and unexpected ripple in the descending phase of a "Long Wave."

Hardly a shred of evidence which has come to light in the course of this investigation can be cited to support the last idea. On the contrary, all the facts and figures, beliefs and expectations, point to the conclusion that the latter 1830's represent a high-water mark in economic experience before 1861 which was not duplicated except in 1794-1797, 1815-1820, and 1853-1857 so far as the West (and most probably the United States) is concerned. The years 1835-1839 can well be regarded as the inevitable and direct culmination of a process operating as early as 1821, and the decline which ensued (1839-1843) restored the economy to a position remarkably similar to that obtaining two decades before. One must be careful, it is true, not to seek to draw too exact a parallel by pointing to similarities and disregarding differences, but with allowance for bias in this direction it still remains that the period 1821-1843 was a repetition of 1803-1821 in many respects. As for the question of dating the major crisis in 1836, 1837, or 1839, observation and convenience both dictate that 1834-1838 and 1838-1843 be treated as separate minor cycles, measuring from trough to trough, both of which occurred near the peak of the major cycle. In most geographical areas and in lines of activity the crisis of the first cycle was perhaps more decisive, but in several departments of the western economy, at least, it appears that the tide did not begin to ebb until 1839 or as late as 1841. The

<sup>4</sup> R. C. McGrane. *The Panic of 1837* (1924), p. 123; Smith and Cole, *op. cit.*, pp. 61-63; Schumpeter, *op. cit.*, I, 295-301.

second minor cycle was admittedly "irregular" because the general tone of the interval turned into deflation and liquidation.

The relevant portion of our general pattern for 1820-1861 is as follows, employing a conversion constant of 9 (Chart VI, p. 98):

1834	.....	132	1840	.....	147
1835	.....	151	1841	.....	137
1836	.....	180	1842	.....	119
1837	.....	176	1843	.....	108
1838	.....	159	1844	.....	124
1839	.....	173	1845	.....	123

The rise of 48 points within two years (1834-1836) is spectacular but may justifiably be regarded as an accentuation of the process begun in 1821, the relative figure for which is 91 (p. 409). These data also indicate a substantial recovery in 1839, which, however, was considerably short of the heights of 1836. Third, the decline of 65 points between 1839 and 1843, which occupies four consecutive years, is matched by few others in duration and magnitude. As a matter of fact, it is the most noticeable movement within the confines of the particular period for which this pattern was computed. A fourth point of interest lies in the fact that the value for 1843 is not only appreciably lower than 1830 and 1834 (especially the latter) but also smaller than 1824 and 1827. Each successive trough between 1821 and 1838 is higher than the preceding, but 1843 represents such a setback that it is comparable only with 1821.

Cincinnati lagged behind other markets in the recovery of late 1834 and early 1835 (Chart VI) partly because of the fact that cotton, the leader in this movement, was of secondary importance in the upper interior. In February 1835 the New Orleans weighted index number reached 112, the New York 106, and Cincinnati was at 95. Speculators finally seized the situation late in the spring, when they were favored by a combination of circumstances. Unusually wide spreads in the prices of flour and other leading staples were opening between New Orleans and Cincinnati; prospects for large crops of grain and hogs were not bright; and an apparently unlimited line of bank credit was available.<sup>5</sup> For a short time, the Cincinnati market wavered and then was pulled as though by

<sup>5</sup> For a good account of the flour situation in early 1835 see CDG, Oct. 19, 1835.

a rope suddenly become taut.<sup>6</sup> From then until March 1836 it was in continual danger of overreaching the seaboard markets — indeed, this very thing happened upon several occasions with respect to quotations on the leading vehicles of speculation.<sup>7</sup> Local observers were frankly at a loss to explain the speculative craze, which at first was restricted to leading commodities such as bacon and flour, the market demand for which apparently changed in no essential particular at the time. Perhaps, they thought, it was due to scant crops, or efforts to corner the market, or an overabundance of bank credit.<sup>8</sup> In the beginning little emphasis was placed upon the last-named factor, but by the end of 1835 it became evident that a plethora of “rags” was nourishing the mania, if it had not started it in the first place.<sup>9</sup>

*Price Dispersion.* At that time, the Cincinnati price level had risen 50 points compared to the preceding year and attained a lofty position approximately at parity with New Orleans and considerably above New York.<sup>10</sup> The unweighted index numbers, however, utterly failed to share in the lift of late 1835 because of an unusual torsion of the price structure (Chart XXXIV). A

<sup>6</sup> Prices-current momentarily disappeared because fluctuations were of such dimensions that “no dependence could be placed on a Cincinnati prices-current printed the following day” (CDG, Apr. 15, 1835).

<sup>7</sup> In August, Cincinnati flour rose to \$6.00, higher than in New Orleans. It mounted so rapidly in Hamilton and other country villages that some was shipped back from the river. Liverpool began sending flour and wheat to the United States in a small way, while commercially large shipments were made from Baltimore to New Orleans. Towards the end of 1835 the quotation in Cincinnati was 75 cents higher than in Baltimore. (CDG, Aug. 24, Oct. 15-21, Dec. 23, 1835.)

Whisky climbed from 22 cents in March to 40 cents in June, considerably overshooting the mark, but after a sharp recession in the summer it soared to 45 cents in March 1836.

<sup>8</sup> CDG, Mar. 31, May 13, Apr. 6, 1835.

<sup>9</sup> “Are we not beginning to swell again in a mode indicating another blow-out, in seven or eight years?” (CDG, Mar. 31, 1835). “These prices are undoubtedly fictitious. Abundance of credit, in other words, of bank paper, and an inordinate rage for speculation have occasioned the increase of prices. The causes, which traders themselves have imagined, and persuaded themselves and others to believe in, as foundation upon which to build increased prices, are, in verity, but imaginations” (*ibid.*, Mar. 29, 1836; see also WCA, Dec. 25, 1835).

<sup>10</sup> Chicago prices of farm products were much higher than those in Cincinnati. In February 1836 flour was \$12 in the Illinois village; corn, \$1.00; pork, \$5.00-\$6.50, etc. In April, flour was down to \$10-\$12, and mess pork was selling at \$20-

greater disparity opened up between Index A and Index B. Although prices had been very close together in 1834, commodity by commodity and group by group, such was far from the case a year later. In December 1835 (which was not the peak of the movement), fifteen of the twenty series in Index A reached 130 or higher, and only one (cotton) in Index B exceeded 122.<sup>11</sup> The price family was rent asunder, with relatives spaced rather evenly between 74 and 229 and all the leading agricultural products in the top quarter of the distribution.<sup>12</sup>

By March 1838, very nearly three years after marked inflation began to develop, the four sets of price indices were back in close alignment and all less than 20 points above corresponding figures for January 1835.<sup>13</sup> But each declined in its own manner. The fall of agricultural prices, by far the most spectacular (from 173 to 114 in an interval of twenty-four months), was sharply interrupted on two occasions; after dropping to 142 in July 1836, Index A rebounded to 167 in the following four months, and it also ricocheted from 125 to 143 between May and August of 1837. These jagged sawteeth are also reflected in the general weighted

\$22. Prices of groceries and other imported goods were also at a higher elevation at interior points. (CDG, Feb. 24, May 7, 1836.)

<sup>11</sup> Flour, whisky, lard, bacon, and pork ranged between 147 and 176, and the first two were considerably above cotton, the supposed progenitor of the movement. Of the major series in Index B, iron was at 97, coffee at 96, and salt at 83.

The hog-raisers of the Miami country, embittered at the huge profits made by bacon speculators after the close of the 1834-1835 season, cried "monopoly" and pledged each other to hold out for higher prices in 1835-1836 (CDG, Nov. 25, 1835).

<sup>12</sup> The dispersion was reduced in 1837-1838 but increased again and tended to maintain itself until after 1839, although the big staples fell from rank at times. Thereafter, a reverse displacement took place with the prime farm products in the lower half of the array.

These are the quartiles of the price-relative distribution for selected dates:

	May 1834	Jan. 1835	Mar. 1836	Nov. 1836	May 1837	Apr. 1838	Aug. 1839	Dec. 1841	Feb. 1843
Q <sub>3</sub> . . . .	101.0	103.2	159.5	152.2	138.2	125.5	164.5	107.5	78.0
Q <sub>2</sub> . . . .	93.5	99.5	118.0	129.5	120.0	111.0	120.0	90.5	70.5
Q <sub>1</sub> . . . .	83.5	86.0	104.2	109.0	102.0	100.8	106.5	75.8	59.8

<sup>13</sup> In January 1835 the general unweighted index, the weighted index, Index A, and Index B were close to parity. The exact figures were 97, 94, 93, and 95. In the same order they were 114, 113, 114, and 111 in March 1838.

index numbers, though in somewhat blunter form. As for Index B, the decline was concentrated for the most part between October 1836 and July 1837; there was a slight interruption in the winter of 1837-1838 — probably seasonal in nature — but the prices in this group settled comparatively gently and did not reach a temporary low until May 1838 (p. 123). The downward path of the general unweighted index numbers was even more gradual and devoid of irregularities.

As might be expected, the dispersion of price relatives is considerably smaller for 1838 than for 1835 or 1836 because of the fall of the high and stability of the low relatives. Some displacement took place, however, by reason of the fact that a number of commodities declined rather more in price than others — indeed, a few (such as salt) went directly contrary to the general drift. On the whole the leading export staples depreciated to the greatest extent, and of these, lard and whisky dropped heavily, particularly in the spring of 1837.<sup>14</sup>

*Timing.* It is difficult to tell exactly when the speculation of 1835-1836 came to a head, not only because the various sets of index numbers fail to agree but also because there are two peaks in 1836 of almost equal height.<sup>15</sup> In the months of March and November the general weighted index reached peaks of 152 and 151, whereas Index A soared to 173 and 167. Correction for sea-

<sup>14</sup> Note the relatives of leading series for selected dates:

	May 1834	Jan. 1835	Mar. 1836	Nov. 1836	May 1837	Apr. 1838	Aug. 1839	Dec. 1841	Feb. 1843
Bacon . . . . .	86	82	190	140	113	116	159	47	54
Flour . . . . .	70	83	158	190	146	125	116	131	68
Lard . . . . .	90	86	207	200	102	106	164	70	68
Pork, mess . . . . .	90	103	179	174	145	123	174	58	55
Whisky . . . . .	74	101	196	152	96	107	174	66	58
Coffee . . . . .	100	103	100	100	96	94	91	87	73
Cotton . . . . .	113	135	158	158	86	...	...	95	65
Iron, bar . . . . .	86	86	111	135	135	114	111	87	87
Salt, K'wha . . . . .	88	83	78	123	104	153	184	71	49
Sugar . . . . .	100	100	145	130	103	83	100	83	60

<sup>15</sup> Cotton reached its high point (180) in the summer of 1835, whereas flour was at its peak (190) in November 1836. Whisky rebounded to 155 in December 1837, before undergoing its fourth major collapse since 1834. Cf. Charts XVI-XVII, XXIV, and XXVIII.

sonal variation raises the March numbers and detracts a few points from the November, and in the case of the agricultural prices, at least, the high point appears to have been in March 1836 (the general shape of the curve supports this interpretation). On the other hand, the unweighted general index and Index B were stodgy in their behavior: the former attained only 129 in March and 132 in November (the slight elevation of the latter month is negated by adjustment for seasonal forces). The rise of manufactured and imported commodities in 1835 was still smaller and more delayed, and not until the first half of 1836 did they respond in any great measure to the tide of the times, reaching a figure of 126 in June and rising to 128 in October.

One notable feature in the behavior of the Cincinnati price level, compared to New Orleans and New York, is that Cincinnati did not lag after the middle of 1835 and even preceded one or both of the others on occasion.<sup>16</sup> As for amplitude of movement, it has already been suggested that the price level rose higher in the West than at the seaboard — and this due primarily to the dearness of the leading western exports! Compared to seaboard markets, it would appear that the interior was not quite so badly off in the second half of 1837, although most if not all of the “advantage” was wiped out at the end of the year. Since Cincinnati prices fell from a higher pinnacle in late 1836, however, the magnitude of the absolute decline between 1836 and 1838 was approximately equivalent to that in New Orleans and several points greater than New York.<sup>17</sup> Therefore, aside from the afore-mentioned suspension of the Cincinnati decline in 1837, it is impossible to deduce from the general price figures alone that conditions in the West during this phase of liquidation were noticeably better or worse than in other regions of the country.

*Expansion of Bank Credit.* The leading banks of Ohio were in a strong position at the beginning of 1835, holding \$2,500,000 of

<sup>16</sup> The general behavior of Philadelphia agricultural and industrial prices (geometric unweighted indices) was similar to the Index A and Index B of Cincinnati. Yet there are significant differences in detail; for instance, the eastern prices of farm products rose most rapidly in early 1835, the peak in March 1836 was very secondary, and the collapse of 1837 did not begin until April. (Bezanson, *op. cit.*, I, 354-55.)

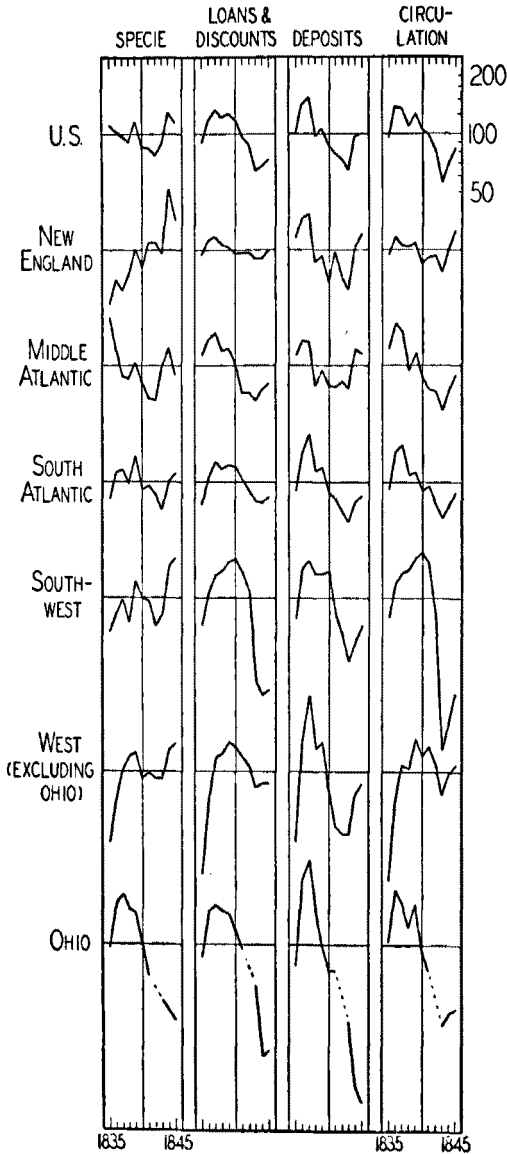
<sup>17</sup> From the peak to the trough, Cincinnati fell from 151 to 112, New York from 141 to 108, and New Orleans from 140 to 100.



### CHART XXXV

RELATIVE ANNUAL CIRCULATION, DEPOSITS, LOANS AND DISCOUNTS, AND SPECIE IN  
STATE BANKS (INCLUDING THE BANK OF THE UNITED STATES),  
ACCORDING TO REGIONS, 1835-1845

(1835-1845 = 100)



Absolute figures are given in Table 50, Appendix B. They pertain to the first of the year, approximately.

specie against a circulation of \$4,600,000; paid-in capital and discounts amounted to \$5,800,000 and \$6,800,000, respectively.<sup>18</sup> Thus the ratio of specie to circulation compared favorably with the nation as a whole.<sup>19</sup> The general tendency of this ratio was to fall during 1835 and 1836, and Ohio was no exception. Chart XXXV, which gives pertinent data for Ohio and other sections, shows that by 1836, around January, liberal lending had raised discounts of reporting banks to \$17,100,000 and circulation to \$9,700,000; since specie rose only to \$2,900,000, the reserve ratio fell to 30 per cent. This was the largest Ohio circulation reported before 1850. The exact rate of growth between 1835 and 1836 may not be measured because the figures for the former year are rather more incomplete. The disestablishment of the Bank of the United States in Cincinnati necessitated no contraction, since its assets were split up among the Commercial Bank, the Lafayette Bank, and the Trust Company.<sup>20</sup> In Indiana and Illinois credit expanded at a somewhat more rapid rate, and the movement continued beyond 1837. Furthermore, though the reserve ratio was falling, the absolute amount of specie on hand increased remarkably. Note the curves for the West (except Ohio) in Chart XXXV. Discounts of the new State Bank of Indiana rose eightfold (to \$4,300,000) between January 1835 and March 1837. Circulation increased fivefold during the same interval (to \$2,600,000), whereas government deposits reached a peak of \$2,400,000 in August 1836 (they did not begin until May 1835). Since individual deposits rarely exceeded \$500,000 during this epoch, they were of minor importance. Monthly figures also show that specie reserves went from \$750,000 to \$1,250,000 from the beginning of 1835 to the same month two years later. As for Illinois, consolidated balance sheets of the new State Bank reveal that loans, discounts, and bills of exchange expanded altogether tenfold (to \$3,000,000) between September 14, 1835, and January 17, 1837. Circulation rose to \$1,429,815 (over seven times), individual deposits to \$475,623 (about four times), and capital to

<sup>18</sup> Huntington, *op. cit.*, pp. 372-73. Figures are for twenty-seven chartered institutions only.

<sup>19</sup> Data for the United States (in millions) were: specie, 42.9; circulation, 101.9; capital, 231.3; loans, 350.8. See Appendix B, Table 50.

<sup>20</sup> Niles', XLIX, 181 (Nov. 11, 1835).

\$1,413,360 (five times). Specie went from \$243,223 to \$552,703.<sup>21</sup>

*The Specie Circular.* Other evidence is at hand to corroborate the report of a contemporary western observer that the immediate effect of the "specie circular" was to expedite the flow of precious metal into the West and Southwest. The data in Chart XXXV suggest that all sections gained at the expense of the Middle Atlantic region. Western banks stopped discounting and sold all eastern funds on hand for specie in the expectation that they would need it for land purchases and as a defense against the Treasury.<sup>22</sup> During the year ended in March 1837 the Commercial Bank of Cincinnati alone imported \$892,580 in silver and gold coin from New Orleans, Philadelphia, and St. Louis, as well as from out-of-state banks, at an average cost of 1-1½ per cent. This, however, was reportedly paid out to individuals and other banks in the city.<sup>23</sup> In Indiana, discounts of the State Bank leveled off to about \$2,800,000 between April and October 1836 — an abrupt suspension of the trend of the times. Circulation dropped and specie reserves increased. These measures proved unnecessary at first because government deposits in the Bank rose a great deal during the summer of 1836. At the end of the year, however, the government began to withdraw as rapidly as it had deposited.

It is notable that land sales fell off greatly in the second half of the year 1836, but agricultural prices, which had suffered a sharp drop during the spring of the year, underwent an equally sharp revival between July and November. Rumors then arose that flour and pork could not be sustained because of declines in Atlantic markets. The commodity market wavered and tottered, and merchants struggled to preserve their credit even at sacrifice sales. Men began to go "under the hammer" for the payment of debts; the interest rate in Cincinnati climbed to 24 per cent; and banks began to feel a strain around March 1837 which reached critical proportions.<sup>24</sup>

*Local Opinion, 1835-1836.* There were signs of resentment in certain quarters during the first phase of expansion. Government

<sup>21</sup> Harding, *op. cit.*, pp. 109-11; Dowrie, *op. cit.*, p. 105.

<sup>22</sup> *Chronicle*, Oct. 6, 1842.

<sup>23</sup> CDG, Mar. 16-22, 1837.

<sup>24</sup> *Chronicle*, Oct. 6, 1842; and CDG, Sept. 7-24, 1836; Nov. 24, 1836; Jan. 7, 1837.

deposits, it was noted, had enabled pet banks to sustain enormous provision and flour speculation at the hands of officers and friends. Small tradesmen and mechanics could not discount small sums of "real business paper," especially after the pressure began to set in; the banks, it was argued, had let the funds out on loans of a permanent nature. The customer's rate to pork merchants was equivalent to 15 per cent, but many loans were made at 18 per cent or more — by means of time bills of exchange. Local institutions were accused of undue liberality in accepting bank notes of certain depositories at par which brokers, mechanics, and merchants were inclined to shave.<sup>25</sup> Criticism was also voiced of the large eastern land operators, who were buying sections and even townships in Indiana with New York bank notes; however, it was appreciated that the latter furnished western banks with free eastern exchange.<sup>26</sup>

*Currency Quotations, 1835–February, 1837.* The progress of the Cincinnati currency market is summarily reviewed by semi-annual quotations (Table 30). In spite of the abundance of paper money and the drop in its purchasing power over commodities, there was no indication of depreciation at the hands of "shavers." On the contrary, the general tendency between January 1835 and February 1837 was for all notes to approach par, probably because of the continued import of specie and other forms of capital. Alabama currency rose from 15 to 3–5 per cent discount; a 5 per cent discount on New Orleans and Tennessee paper was cut in half; even the notes of the resurrected Miami Exporting Company were traded at par after August 1836.<sup>27</sup> Wheeling, New York, Pittsburgh, and Philadelphia notes, which had carried a nominal discount in 1835 (1½–3 per cent), reached par in the following year and maintained this standing in early 1837.

The currency trade was once more in a thriving condition, according to the number of brokers whose advertisements regularly

<sup>25</sup> This was a reversal of the more common tendency for trade to accept notes after banks refused (CDG, Dec. 10, 1835; June 10, 1836; May 10, 1837).

<sup>26</sup> CDG, May 16, June 4, 1836. See Gates, *op. cit.*, pp. 68–69.

<sup>27</sup> One exception was the Bank of the Commonwealth (Kentucky), which persisted at 20 per cent discount although notes of the newer Bank of Kentucky (and branches) rose from that figure to par between December 1835 and August 1836 (CDG, Jan. 19–Dec. 8, 1835; Aug. 15–Oct. 15, 1836; Feb. 27, 1837).

appeared. Between 1837 and 1841 bank-note tables were sponsored at various times by L. Murphy & Company, William Surtees, Delafield & Burnet, H. H. Goodman, Rowland Ellis, and B. W. Hewson & Company. The Exchange Bank dealt in currency rather than credit. Furthermore, newspapers occasionally maintained their own bank-note tables. The mortality among brokers was comparatively high, and their market was frequently quite disorganized, judging by the fact that sizable discrepancies persisted among simultaneous quotations on particular issues.

*The Currency Crisis, 1837.* At the beginning of 1837 the circulation came under attack from several quarters. The federal Treasury was laying plans to transfer the surplus from the depositories in specie. Private hoarding was commencing to attract public notice, and Ohio was waging a campaign against small notes, some of which were readily withdrawn.<sup>28</sup> On or about January 1 the total issue of Ohio banks had receded to \$8,326,975, of which the Commercial Bank of Cincinnati, a depository, had \$1,115,548 outstanding. Deposit liabilities were also comparatively large, but, since specie holdings came to \$3,153,335, Ohio banks were undoubtedly in a stronger position than most others at that time.<sup>29</sup> Nevertheless, it was reported in February that "we hear much of hard money but see nothing but rag money," and during a flurry in March specie was "carted from corner to corner." The rumor circulated that the Exchange Bank was a tool to extract specie from the legitimate banks for the benefit of the pet Commercial Bank; and though it was stoutly denied by officers of the latter, there is no doubt that Cincinnati lost quantities of coin through brokerage concerns.<sup>30</sup> Eastern exchange, which had long sold at nominal figures, advanced to 2½ per cent premium in March and April. Cincinnati became the focal point for a temporary drain to the East.

The government balance in the State Bank of Indiana declined steadily during the first quarter of 1837. Indeed, there is apparently a correlation between this monthly series and Cincinnati commodity prices. The link of relationship is missing, however, because discounts and circulation did not contract at that time.

<sup>28</sup> Huntington, *op. cit.*, p. 383; CDG, Sept. 24, 1836.

<sup>29</sup> CDG, Mar. 16, 1837.

<sup>30</sup> CDG, *loc. cit.*; LH, Mar. 16, 1837.

TABLE 30  
RATES OF DISCOUNT ON BANK NOTES IN THE CINCINNATI MARKET AT SEMI-ANNUAL INTERVALS, 1836-1842

	1836 Dec. 8	1837 June 16	1837 Dec. 21	1838 June 15	1838 Dec. 14	1839 June 28	1839 Dec. 20	1840 July 11	1840 Dec. 18	1841 June 17	1841 Dec. 15	1842 June 15	1842 Dec. 15
<b>OHIO</b>													
Trust Co. demand	par	par	7*	par	par	par	par	6*	3*	6½*	9½*	1½*	½*-par
Other Cin. banks	par	par	par	par	par	par	par	par	par	par-2½	par-2½	1½*-75	½*-75
Country, \$5 & up	par-1	par-2	par	par-1½	par-1½	1	1	par-2½	par-2	par-3	par-2	par-75	par-no sale
Country, small notes	..	..	..	1½	1½	1½	..	2-2½	..	2	2	..	..
Farmers Bank, Canton	..	..	..	40	40	5	10	7	5	5	5	no sale	..
Manhattan	..	..	..	..	..	..	..	2½	no sale	50	50	no sale	..
<b>INDIANA</b>													
State scrip	..	..	..	..	..	..	..	..	..	5-12	..	..	..
State bank & branches	par-1	par-2	par	par	par	1	1½-2	par	par	par	par	par	par
<b>ILLINOIS</b>													
State scrip	..	..	..	..	..	..	..	..	30	30	..	..	..
State bank & branches	1½	2	1½	1½	1½	1½	2½	1½	1½	1	1	60	60
Shawneetown	2	5	2	1½	1½	1½	2½	1½	..	1	4	35	56
Small notes	..	..	5	5	5	5	5	..	..	..	..	..	..
<b>MICHIGAN</b>													
\$5 & up	1-2	10-unc.	10	8	5	no sale	10-unc.	10	10	25	50	no sale	..
Small notes	..	..	no sale	12	20	no sale	unc.	..	..	..	..	..	..
<b>KENTUCKY</b>													
State scrip	..	..	..	..	..	..	..	20	14	14	14*	1½*	1½*
All banks	par-1½	par	par	par	par	1	par	par	par-2	par	3½*	1½*	1½*
<b>TENNESSEE</b>													
All banks	5	10	10	15	5	6	12	8	8	5	3	15	4-6
<b>MISSOURI</b>													
State bank & branches	..	..	..	..	..	..	..	..	par	par	par	par	par
<b>LOUISIANA</b>													
Municipality	..	..	..	..	..	..	..	5	5	5	5	20	..
N. Orleans banks	2-3	5	8	6	4-5	3	3	2	par	par	4*	15	par

TABLE 30 (CONTINUED)

MISSISSIPPI													
All banks	3-4	unc.	10	18-30	8-50	30-unc.	25-unc.	..	no sale	no sale	..	..	no sale
ALABAMA													
All banks	3-5	unc.	10	15	6	5	12	5-7	5-6	5-6	½-2	30	20-25
VIRGINIA													
All banks	1	2	par	par-unc.	par-unc.	par-unc.	par-unc.	1-1½*	1*	3*	4*	5-8	1½-2
MARYLAND													
Baltimore	par	par	par	par	par	par	par	2*	2*	3*	4*	2*	par
Others	..	2	..	par-2	par-2	par-2	par-2	1*	2*	2*	4*	2*	par
NORTH CAROLINA													
All banks	..	unc.	10	5-unc.	5-unc.	5-no sale	5-no sale	2½-3	..	..	..	..	..
SOUTH CAROLINA													
All banks	..	unc.	10	5	5	5	5	par-2	..	..	..	..	..
GEORGIA													
All banks	..	unc.	10	5-unc.	5-unc.	10-unc.	10-unc.	7-10	..	..	..	..	..
NEW YORK													
City	par	par	par	par	par	par	par	6*	4*	8*	9½*	2*	par
Country	..	2-5	par	par-1	par-1	par-1	par-1	3-5*	2-3*	7*	8*	2*	1
PENNSYLVANIA													
Philadelphia	par	par	par	par	par	par	par	2½*	2*	4½*	5½*	2*	2
Country	..	2	par-1	par	par	par-unc.	par-unc.	1*	1*	4*	4*	par	10
NEW ENGLAND													
Generally	..	3-5	2	par-5	par-5	par-unc.	par-unc.	2-4*	2-3*	7*	9½*	2*	1

\* Premium.  
unc. Uncertain.

On the contrary, discounts, individual deposits, circulation, and specie all increased during the first half of 1837 and reached a peak just before the suspension of specie payments in May. It is possible, but not probable, that Indiana prices were rising at this juncture, so as to lag behind Cincinnati by six months. Again, the credit movement may have been entirely seasonal in character, though definite patterns did not emerge in Indiana until 1844. A third interpretation is that Indiana was the recipient of funds (and debts) from Cincinnati and other western points. Unfortunately, Ohio data are not available on a comparable basis.

*The First Suspension.* Late in April 1837 the Cincinnati currency and exchange market began to lose its strength as disquieting news floated in from other sections. Southern notes fell to 10-15 per cent discount, Michigan to 5-10, and Ohio country banks 1-3 per cent, according to distance.<sup>31</sup> "Something of consternation" developed among the city brokers, and at the beginning of May their quotations were at such variance that publication of a table was impossible. Though eastern paper held at par, all southern and Michigan notes (other than those payable at Detroit) were refused at any price.<sup>32</sup> The local banks thought themselves essentially sound but decided to suspend specie payments in self-protection, since this step had been taken in almost every section of the nation.<sup>33</sup> By the end of the month brokers were offering a premium of five cents on the dollar (in city bank notes) for silver. Half-dollars had reached a much higher premium in New Orleans (20-21 per cent) and New York (11 per cent). As for currency, Cincinnati brokers took Michigan only at a 10-20 discount, New Orleans at 10-15, and shaved more or less on all other issues. Tennessee, Mississippi, and Alabama paper was still not acceptable.<sup>34</sup>

After the suspension the notes of Ohio country banks went to

<sup>31</sup> CDG, Apr. 20, 1837.

<sup>32</sup> CDG, Apr. 21, May 1, 1837.

<sup>33</sup> Huntington, *op. cit.*, p. 387. The terms of suspension were not uniform everywhere. In June 1837 the State Bank of Indiana was paying specie not only for small change but also on "deposits intended to be paid in specie" (McCulloch, *Men and Measures*, p. 119, cited by Harding, *op. cit.*, p. 16).

<sup>34</sup> LH, June 1, 1837; Sumner, *op. cit.*, p. 283; *Argus* (Kentucky), July 21, 1837. Specie advanced to 25 per cent in New Orleans on July 1.



a discount, but within a month the market for "uncurrent money" partially recovered. By June merchants were accepting Ohio, Indiana, Kentucky, and Illinois paper at par, and the Trust Company reportedly resumed specie payments, as of the fourteenth, in order to avoid forfeiture of its charter. Its notes, however, were published at "par" until December 1837, and this indicates that the resumption was nominal rather than real. Commodity prices rose smartly after the suspension, and it was reported that a rise throughout the nation sustained bacon and flour better than the fondest expectations.<sup>35</sup>

By the end of 1837 deposits in Ohio and other western states, which consisted largely of the government account, had declined about 50 per cent on the average, compared with the preceding year. The circulation of Ohio banks was cut from \$8,300,000 to \$6,200,000 but discounts were reduced only one million dollars (\$18,200,000 to \$17,200,000) during the year. The situation was similar in Kentucky at that time. As for Indiana, Illinois, and Michigan, discounts and circulation continued to expand in spite of the drop in deposits at the end of 1837. This is reflected in the curves in Chart XXXV. As for specie holdings, it appears that these states, along with New England, were the only ones which gained at that time. Ohio, the South, and the Southwest all suffered a drain, and the Middle Atlantic section succeeded in holding its losses much better than in 1835 and 1836.

*Specie Prices and Interregional Exchange, 1837-1838.* Since the price of specie varied from place to place, the suspension of payments was accompanied by a dislocation of domestic exchanges. An exact comparison between New York and Cincinnati is impossible because of the manner in which coin was quoted in the latter market prior to 1840. The available figures suggest, however, that the western premium was very little higher than the eastern but lagged three or four months. Most Cincinnati reports mentioned "specie" at that time, and there is reason to believe that the premium referred to both gold and silver when it was very small. Indeed, the phrase "silver and gold" was used in January and February 1839. The price of gold, however, exceeded silver whenever coin was scarce, according to the separate quotations available, and the distinct use of the terms "specie" and "gold" in a

<sup>35</sup> CDG, June 14-22, 1837.

single report leads to the interpretation that the former ordinarily signified silver coin.<sup>36</sup>

On June 22, 1837, silver was quoted in Cincinnati at 6-8 premium, whereas gold was worth 8-10. Nine days later the New York prices for the two metals were 10½-11 and 10-12, respectively. New York reached a peak in June and declined to such an extent during the autumn and winter that the premiums were nominal by May 1838.<sup>37</sup> In comparison, the price of "specie" apparently did not reach the highest point (10 per cent) in Cincinnati until August or September 1837 (Chart XXXVI), and the agio did not disappear for practical purposes until resumption was planned in August 1838.

The year 1837 marked the inauguration of regular quotations on eastern exchange in the Cincinnati market. Prior to that time, we are told, the normal charge for eastern funds had fallen to ½-1 per cent for any part of Ohio because of the reduction of transportation costs over the Pennsylvania Canal. The Ohio commissioner of banks was of the opinion that western banks used the suspensions of 1837-1838 and 1839-1842 as an excuse to pad the charge for the service. This may have been true, but it is difficult to see how the agents could have raised the premium successfully unless the demand for eastern funds was more than the current supply. As early as February 1837 the price of New York exchange rose to 2½ per cent in Cincinnati, and it went to 3½ after the suspension in May, even though New York notes were at a greater discount compared with specie than the par currency of the western center.<sup>38</sup> Exchange rose, as New York paper appreciated more rapidly than Cincinnati, and reached 7 per cent in

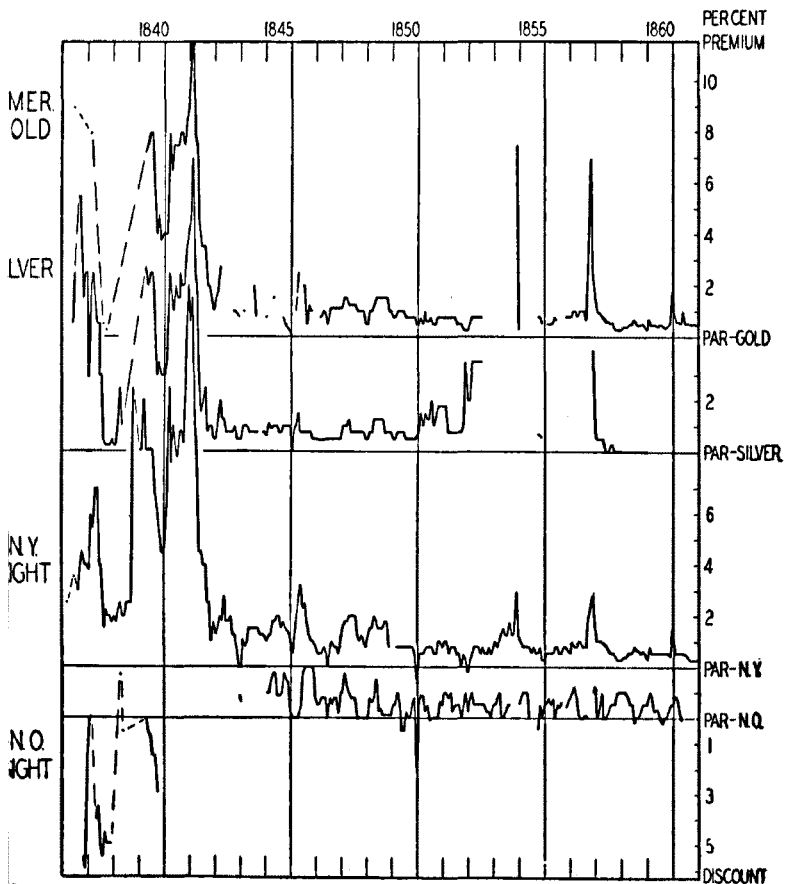
<sup>36</sup> "Specie. Bought at 5 and sold at 6 @ 7 premium, by the brokers. Gold is sold at a premium of 8 per cent" (CDG, Feb. 15, 1838). Note also the following report: "Mexican dollars and 5 Francs have been in demand in New York for shipment to France, the effect of which has been in some measure felt here. We now quote Specie at ½ @ ¾ prem" (LH, Sept. 20, 1843). According to McCulloch, silver was "exclusively" used in the West until 1848. See below, p. 488, n. 34.

<sup>37</sup> The New York prices refer to half dollars and American gold, new coinage (Jonathan Elliot, *The Funding System* [1845], pp. 1142-47). For a continuous series of average monthly gold prices (not specified) see Warren and Pearson, *Wholesale Prices*, p. 76.

<sup>38</sup> It is notable that Cincinnati brokers offered no premium for eastern bank notes in 1837 and 1838, except when New York city notes were quoted at par @ 1 premium in the summer of the latter year.

### CHART XXXVI

MONTHLY SELLING RATES IN CINCINNATI ON AMERICAN GOLD, SILVER ("SPECIE"),  
 NEW YORK SIGHT EXCHANGE, AND NEW ORLEANS SIGHT EXCHANGE, 1837-1861.  
 PER CENT PREMIUM OVER CURRENCY



For data, see Tables 51-54, Appendix B.

April and May 1838. It appears that several factors favored the movement of available coin towards the East. There was a lull in long-term investment in western lands, state bonds, and other enterprises. Furthermore, a contraction took place in short-term credit. No figures are at hand on the balance of trade between the West and the East, but it was ordinarily heavily against the West, and there is no reason to believe that it improved to any extent at this particular time.

As for New Orleans, quotations on sight exchange were at a discount of 4-6 per cent in the autumn of 1837 and during the greater part of 1838 (Chart XXXVI). The discount was therefore somewhat smaller than in New York, where New Orleans sight drafts were taken at 11 per cent discount in the summer of 1837 and 9 per cent in the spring of 1838. The comparison is not exact, however, because Cincinnati quotations are not available for the middle of the former year. New Orleans bank notes were bought at 10 per cent off in June and July and at 14 in September. The banking situation in the Louisiana market was far less favorable than in Cincinnati.<sup>39</sup> Furthermore, total payments to the interior in the latter half of 1837 were not sizably decreased by the fall of agricultural prices on account of the fact that shipments down the river increased. The index of receipts, which stood at 47 in 1836, rose to 53 and 61 in 1837 and 1838, respectively.

#### THE THIRD TIDE, EBB PHASE (1838-1843)

*Resumption of Expansion, 1838.* The general pattern cited above exhibits a rise of about 9 per cent (159 to 173) between 1838 and 1839, and this is most probably an understatement of the recovery so far as certain sections of the Northwest are concerned. "Bond sales reached a peak during 1838 and remained heavy until the fall of 1839"<sup>40</sup> because various projects of internal improvement had not been finished when the crisis of 1837 inter-

<sup>39</sup> At the end of March 1838 specie was rising in New Orleans to 8-9 premium, with some sales at 10. Three weeks later western money readily commanded 1, and bank checks on New York 8 per cent premium. Post notes operated to depreciate other bank paper 6 to 9 per cent. By August notes of Illinois, Kentucky, Indiana, and Ohio were 2-3 premium, eagle dollars brought 5½-6½, American gold was 8-10, and Treasury Notes 6-7. Exchanges in Nashville and other points were as far as 20 per cent off par. (CDG, Mar. 30, Apr. 19, Aug. 2, 1838.)

<sup>40</sup> Ratchford, *op. cit.*, pp. 80, 86.

vened. The repeal of the circular, resumption of specie payments, expansion of bank credit, sales of public lands, and rise of commodity prices all moved in the same direction. Sharp sectional differences are reflected in the three types of data just named. In Alabama and Mississippi, for instance, there was no sign of recovery in lands. On the contrary, the aggregate receipts over the four years 1837-1840 formed only a small fraction of the corresponding figures for the single year 1835 (or 1836). In Ohio, Indiana, Illinois, and Michigan an increase did take place in 1839, but it was slight compared with former data. The largest sales, relatively speaking, took place in Iowa, Wisconsin, Missouri, and Louisiana. As a matter of fact, new high records were established in three of these states in 1839 or 1840.<sup>41</sup> In commodity prices, it is noteworthy that cotton did not recover to the same extent as northern agricultural products.<sup>42</sup> Flour, it is true, also rose to a smaller extent than other items in its category, and there is therefore a parallel with 1819-1820. Whisky, corn, wheat, mess pork, and keg butter, however, reached and maintained extremely high levels (Charts XVI-XVII).

Broad sectional differences are also evident in banking policy (Chart XXXV). The curves for loans and discounts show that contraction was the dominant course followed in the Atlantic states between 1837 and 1843. The younger states in the Northwest, on the other hand, continued to expand until around 1839, whereas the Southwest did not reach its peak until a year or so later. In general, Ohio closely followed the East in this respect, but the situation was unique in that the charters of two-thirds of the banks expired in 1843 and 1844, and the note privilege of the Life Insurance and Trust Company was also due to end at that time. The liquidation was not, therefore, entirely forced in the same sense as it was in the Southwest. The data also reveal that deposits were built up in the East at a comparatively early date, yet did not begin to recover in the West (outside of Ohio) until after the beginning of 1844. The circulation and discounts data are obviously correlated, except that Ohio witnessed an expansion

<sup>41</sup> Smith and Cole, *op. cit.*, pp. 55-58.

<sup>42</sup> This statement is based upon data for other markets since no Cincinnati quotations are available for these years (Cole, *Wholesale Commodity Prices*, II, 255-71).

of the former in 1838 and the rest of the Northwest saw larger issues in 1838 and 1840. As for specie, New England gained and Ohio lost rather steadily throughout. Other sections suffered withdrawals from the banks to some extent between 1839 and 1843, but the Northwest managed to prevent losses of any magnitude after 1840. A pronounced recovery took place in all sections after 1842, though some individual states, including Ohio, were decidedly backward.

*The Price Inflation, 1838-1839.* Cincinnati prices were at the lowest point in the spring of 1838 since early in 1835, but business was so much improved over 1837 that it was reported "very brisk" and "animated." Receipts of produce continued to increase, and large stocks were arriving from the East at comparatively low prices.<sup>43</sup> The seeds of another expansion of the price level were nevertheless being sown at that very time; quotations began to soar in May and continued upon an upward path with practically no interruption until the end of the year. As in 1835-1836, the movement was headed by the agricultural list with significant differences in the behavior of leading commodities. Between April and December 1838 the general weighted index climbed from 112 to 155, the latter representing a point slightly higher than either of the peaks in 1836. The unweighted index moved from 112 to 139 between May and December, and in this case the new level was notably higher than any attained two years previously. As for the group indices, diversity again was the characteristic feature; Index A jumped from 114 to 156 between April and September, when it commenced to level off, but Index B rose only slowly during the summer and did not gather much momentum until the last quarter of the year.<sup>44</sup> But, whereas Index B declined early in 1839 practically as rapidly as it had risen, such was not the case with the farm exports. The latter remained upon a high, level plateau until August before falling off as though from a precipice. Similarly, both general indices tended to hold at high figures during the first eight months of that year.

<sup>43</sup> CDG, Mar. 14-16, May 2, 1838.

<sup>44</sup> The sudden appreciation in the winter of 1838-1839 of coffee, salt, sugar, and other commodities of similar type, induced by an unusually long suspension of navigation, was responsible for the fact that the general index reached its top in December.

As has already been emphasized, flour failed to share consistently in the movement of 1838-1839, though whisky and provisions were well up among the leaders. Beans, corn, and several other items belonging to Index A supported the rise so strongly as to reach peaks in 1839 above those attained at any time in 1836.<sup>45</sup> Salt was the only important commodity in Index B to reach its high point in 1839; cotton had recovered to only a limited extent up to the time quotations were dropped until the end of 1841; and the general tendency of other commodities in this group was to rise to some extent over 1838 but not to approach 1836. Therefore the close agreement between the two general indices after January 1839 is not due to a reduction of the dispersion among the family of price relatives. The price structure was widely spread out compared to other years (note the quartiles above), but it happened that the highly weighted series were evenly scattered throughout the array so as to exert no pronounced twist on the weighted summaries one way or the other.

The commercial prosperity of Cincinnati in 1839 was comparatively short-lived on account of the decline of seaboard prices, inconstancy of navigation, and pressure accumulating in the money market. Activity in the commodity markets was reported in March and April, and the outlook for a prosperous summer season was marred only by lack of water in the river.<sup>46</sup> In May the money market appeared to be getting easier every day,<sup>47</sup> but reports in June and succeeding months stressed more and more the difficulties attached to obtaining sufficient money to meet daily calls. In September the banks were refusing to discount altogether, forcing traders to rely upon their own resources and employers to refuse contracts because they could not collect cash enough to pay their hands.<sup>48</sup> Sheriff's sales then began to appear prominently in the newspapers. On October 7, for example, the *Gazette* carried six

<sup>45</sup> Compare the peak relatives for 1836 and 1839 of these commodities: beans, 217-290; corn, 162-197; linseed oil, 135-153; manufactured tobacco, 166-194. On the other hand, a few articles were lower in 1839, including hemp and wheat.

<sup>46</sup> CDG, Mar. 13, May 7, 1839; *News*, Apr. 1-30, May 1-15, 1839.

<sup>47</sup> *News*, May 15-21, 1839. Specie and eastern exchange were found no longer scarce; in fact, the former had become a drug on the market at a very slight premium.

<sup>48</sup> CDG, July 30, Sept. 21, 1839.

columns of notices in fine type, headed THIS DAY; another batch of properties was similarly advertised on February 17, 1840.

*The Deflation.* Between September 1839 and February 1843 (an interval of forty-one months in length) all prices underwent a deflation comparable to those of 1819-1821 and 1929-1933. The general indices clung together rather well on the whole, especially during the first half of the movement, and the weighted index went from 141 to 64. Index A declined most of all, from 156 to 63; manufactured and imported goods, ordinarily comparatively inflexible in their behavior, changed from 116 to 66. The wide spread between the group indices which had persisted ever since 1835 was therefore narrowed and reversed, and the four series of index numbers were once more in almost identical position.<sup>49</sup>

As has been indicated in earlier chapters, individual commodity series did not decline at the same rate throughout this interval. This was especially true of agricultural products influenced by "the seasons." Pork was "scarce" in 1840, and flour enjoyed a boom in 1841. Index B as a whole stopped in its downward course for a rather long time — between June 1840 and October 1841. Nevertheless, such details are picayune compared to the broad general sweep characteristic of the early forties. Charts IX and XXXIV help to show the dimensions and perspectives of the liquidation and depression.

The ratios between Index A and Index B in Chart X indicate that annual fluctuations in the purchasing power of farm products were of considerable amplitude in 1834-1843. Between 1834 and 1836 the ratio increased from 96 to 131, and, though it declined in the two succeeding years, it returned to 130 in 1839. Compare this with the figure for 1842 (92), which proved to be the smallest between 1830 and 1860, and to be even lower than the trough of 1821 if comparison be made with the ordinate of trend. Fortunately, recovery was rapid thereafter.

As in 1835-1838, Cincinnati prices behaved generally similar to those in New York and New Orleans, although there were rather more significant differences in timing and amplitude (Chart VI). The western price level continued to stay above that at the seaboard all through 1838, 1839, and 1840. New York and New Orleans, however, like Cincinnati Index B, postponed their de-

<sup>49</sup> In the usual order the index numbers were 70, 66, 65, and 66 in April 1843.



cline in 1840-1841 so that the position of the regional indices was reversed: except for the very nadir of early 1843, Cincinnati remained consistently below the others after 1841. In other words, the fall of western prices, though it began some three months later in 1839 (perhaps owing in part to poor navigation during that year), was of greater dimensions, since it started from a higher level and finished in a deeper trough. New York declined from 135 to 72, measured from the peak in early 1839;<sup>50</sup> the Louisiana market fell from 131 to 62; whereas Cincinnati (weighted) went from 145 to 64. The parallel to the collapse of 1818-1821 is striking indeed.

In a period of rising prices speculative profits were exaggerated by the time-lag between receipt of information from the seaboard and the forwarding of produce from the interior; conversely, losses were almost inevitable at a time like 1839-1841, since the western market failed to keep pace with the East in the decline. As buyers in 1835-1836 frequently pushed Cincinnati quotations to points equal to or exceeding latest news from New Orleans in anticipation of a further rise before the goods could be landed in that port, so in 1840-1841 the reduction of interior quotations frequently seemed to go too far; yet an opportunity for a shipping profit was lessened by fear of a decline in the sales market by the time goods were bought and delivered. Most pork dealers who profited heavily in 1835 and 1836 had been submerged in losses as early as October 1839. It was remarked that "the effect of a revolution in values remains to be realized, as commodities come to market."<sup>51</sup>

The full impact of depression began to be felt in Cincinnati early in 1840. In February "the hardness of the times, and the state of navigation for the past month . . . almost rendered a Cincinnati Price Current a thing that might be stereotyped."<sup>52</sup> A month later the wharf was deserted and drays were moving

<sup>50</sup> New York prices declined from 135 to 121 between February and August 1839, thus opening a very wide spread in respect to Cincinnati. Since New Orleans dropped from 131 to 118 in this same interval, the margin of shipping profit on exports disappeared.

<sup>51</sup> CDG, Oct. 13, 1839. The editorial, by Charles Hammond, was entirely consistent with his views published from 1833 onward; it appeared the day before news arrived of suspension of payments in the East.

<sup>52</sup> CDG, Feb. 5, 1840.

lazily along the streets, looking for a barrel or box to pick up, or were standing idle at the corners.<sup>53</sup> The export trade in flour picked up strongly during the spring; the supply was huge, and there was a fine opportunity to profit on eastern exchange.<sup>54</sup> Indeed, the premium upon the latter was about the only price-supporting factor in operation at that time. To be sure, 1840 was such a bare provision year that the total Cincinnati stock was exhausted some months before the commencement of the season.<sup>55</sup> In general, however, the speculative spirit was gone — in contrast to the five preceding years — and the continual decline of quotations on most of the export staples in New Orleans and New York furnished a steady damper to activity. Business was so dull and prospects were so gloomy throughout the three years 1840–1842 that reporters were at vocabulary's end to express the inactivity from week to week and month to month.<sup>56</sup> Finally, in the fall of 1842 a "revival of spirits" and confidence among local business men began to put in an appearance, although no change was immediately noticed in scale of actual operations.<sup>57</sup>

*The Resumption of 1838.* In mid-1838, partly because of the repeal of the "Specie Circular," banks in the East and West were making preparations to resume payments. Sound New York banks were already on a paying basis, as well as those in Michigan, and resumption by the United States Bank was expected momentar-

<sup>53</sup> CDG, Mar. 7, 1840.

<sup>54</sup> CDG, Mar. 14, 1840. In the first thirty days of canal navigation, over 30,000 barrels were received at Cincinnati. "There is a strong probability that this activity will be kept up until mid-summer; — — First, because the supply is very great, and next, because it is the best remittance to New York and Boston, which the barter and traffic system of this day allows. The difference of exchange between bankable funds here, and specie funds in New York is alone an ample profit" (*ibid.*). See also *Chronicle*, Apr. 11, 1840.

<sup>55</sup> *Chronicle*, Sept. 12, 1840.

<sup>56</sup> Perhaps the following is a typical statement: "The low quotations of the principal articles of export at the south forbids heavy shipments in that direction. At the last dates from New Orleans flour was represented as dull at \$3.50 per barrel. The difference in price between that city and Cincinnati would not pay freight, notwithstanding the low rates at which steamboats offer to take cargoes, in consequence of the scarcity of articles to ship, and the unwillingness of produce dealers to 'experiment' in that way, with the remote prospect of better prices." (CDG, June 17, 1840.)

<sup>57</sup> *Chronicle*, Sept. 17, Nov. 19, 1840.

ily.<sup>58</sup> It was apprehended that hoarding of specie and contraction of bank loans would cramp the circulation considerably, even though the "rags" of discredited institutions had resulted in comparatively little loss and the fight against small notes had abated.<sup>59</sup> When Ohio banks joined in an agreement with several other states to resume on August 13, 1838, the premium fell on specie and eastern exchange.<sup>60</sup> Ohio circulation, however, appears to have expanded in the last quarter of that year, judging from the fact that it stood at \$8,200,000 around the beginning of 1839, compared with \$6,200,000 a year before (Chart XXXV). On the other hand, specie, deposits, and discounts were all slightly smaller. A much greater expansion took place in other western states, and, since their notes continued to be received at par in Cincinnati, they tended to drive local paper out of circulation. This movement was apparently set off by speculation in both cotton and flour. The manipulation of the western flour market in early 1838, financed from New York, had attracted the attention of local people.<sup>61</sup>

Loans and discounts of the State Bank of Indiana expanded from \$3,200,000 to \$5,000,000 between August 1838 and March 1839. The latter figure is considerably higher than the peak in early 1837 and was not again exceeded for over a decade. Circulation went from \$2,500,000 to \$3,900,000, and, since individual deposits and specie both increased, it is a fair inference that Indiana bankers were taking advantage of a fresh import of capital. The situation was similar in Kentucky, Illinois, and Missouri, except that the latter states succeeded in holding their specie until after the end of 1840. The peak of the Illinois circulation was not reached until that time, and, if Chicago prices were available, they would probably show that the highest point was not reached until after 1839.

The exact shape of affairs in Cincinnati local credit during 1839

<sup>58</sup> *Chronicle*, June 7, 1838. "Some of the New York banks resumed in April, and those of Boston likewise, for \$5 notes. The New York 'Journal of Commerce', of the 23rd, said that the resumption was complete." (Sumner, *op. cit.*, pp. 281-82.)

<sup>59</sup> CDG, Apr. 9, 1838.

<sup>60</sup> CDG, July 30, Aug. 6, 1838. Louisiana banks failed to resume until 1842.

<sup>61</sup> Flour climbed from \$5.00-\$5.25 on February 7 to \$7.50 on June 20. It was felt that this rendered it impossible to ship to England at a profit—a market then

is unknown, but a wide contraction took place between April 30 and the end of the year. The circulation of the home banks was reduced to \$818,500, or about 20 per cent of its size several months before. This was offset to some extent by a growth in deposits, which, as a matter of fact, exceeded circulation for a time. Specie declined to \$408,600. In Ohio at large the picture was not greatly different. Circulation fell from \$7,200,000 to \$4,600,000, discounts from \$16,800,000 to \$13,400,000, and specie from \$2,600,000 to \$1,800,000. A steady drain from Cincinnati to the country and the East was reported as early as April 19.<sup>62</sup>

The tightness of the local money market was relieved to some extent by the inflow of outside notes described above. Prices of the export staples, with the exception of flour, remained at a high level until the second suspension. Merchants, brokers, and others deposited these foreign notes in comparatively safe local banks and withdrew specie to be sold at a premium. In self-defense the leading institutions finally refused to accept or pay out any paper, other than their own, and made arrangements with brokers to buy outside notes and return them for redemption. This relieved Cincinnati of a mass of doubtful paper but was naturally unpopular at the moment.<sup>63</sup> One sees, therefore, a partial repetition of the 1820-1821 situation in Cincinnati and the 1840-1841 one in Philadelphia. The presence of a few weaker institutions undoubtedly encouraged the run on Cincinnati, and they were forced to close permanently as a result (Exchange Bank and Miami Exporting Company). However, the pressure at Cincinnati was probably more generally due to the fact that this was the leading market for eastern exchange in the West, and the demand for eastern funds tended to outrun the supply for a fairly long period of time. Phila-

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open for a large supply—thus causing a loss of English exchange in early 1839 and contributing to a drain of specie abroad. (*Advertiser*, June 20, 1838; CDG, Feb. 7, 1838, and Sept. 7, 1839.)

<sup>62</sup> *Chronicle*, Aug. 27, 1842; *Cincinnati Daily News*, Apr. 19, 1839; CDG Jan. 1, 1840. Ohio invoked a second prohibition of small notes, and required a bank to close if it suspended specie payments over thirty days in any year.

<sup>63</sup> The Cincinnati banks had refused small notes in the autumn of 1838. It was then estimated that three-quarters of the city circulation consisted of notes under \$5.00, over two-thirds of which were supplied by out-of-city and out-of-state banks. Refusal by the banks caused a discount of 1-2 per cent on small notes, even on institutions whose large notes were at par. (CDG, Aug. 31, 1838.)

delphia was another point along the channel, and it found specie going to New England at a more rapid rate than it was coming in from the interior.

Partly because of the measures taken against various outside banks, the currency of the Ohio Valley was in good shape in 1838 and 1839 compared with other sections (Table 30). At the time of resumption (August 1838), Cincinnati, Indiana, Illinois, Ohio, and Kentucky were at or very near to par, and the only paper at a premium was New York, which varied between par and 1½ advance.<sup>64</sup> Only one Ohio bank was quoted at a sizable discount (Canton, 30-35 per cent), whereas New Orleans notes were bought at 6 off, Tennessee and Alabama at 12-14, Mississippi River banks at 15-16 (Interior at 20-30), Detroit at 4-5, and Michigan country at 50. During the course of the next few months, southern notes definitely improved, so that their discount was at a minimum in February 1839.<sup>65</sup> However, the currency market received one shock after another in the succeeding spring and summer. Mississippi and Michigan currency could not be sold in April at any price, and other southern paper tended to depreciate throughout the year, with the exception of New Orleans currency, which held rather firmly to a 2 per cent discount.<sup>66</sup> Yet the par currency, composed to a large extent of the large notes of Ohio, Kentucky, and Indiana banks, was considered especially secure; a premium upon specie appeared in the spring but soon declined; at the same time eastern exchange was reported scarce and remained at 2½ per cent for a good part of the time — a figure reportedly above the specie export point.

*The Suspension of 1839.* News of a suspension of specie payments in Philadelphia on October 9 reached Cincinnati on October 14, and precipitated a difficult problem for Ohio institutions, since they were enjoined by a law of February 16 not to suspend for more than thirty days at a time during any year.<sup>67</sup> Pittsburgh, Wheeling, and Kentucky banks suspended within a very few days,<sup>68</sup> and Ohio and Indiana were finally forced to adopt the same

<sup>64</sup> CDG, Aug. 16, 1838.

<sup>65</sup> Alabama was up to 4, Mississippi State Bank opened at 5-6, Louisiana was at 1-2, and Tennessee at 5.

<sup>66</sup> CDG, Feb. 15-Oct. 15, 1839.

<sup>67</sup> WCA, CDG, Oct. 15, 1839.

<sup>68</sup> CDG, Oct. 19-21, 1839.

course. Two Cincinnati banks were reported to have resumed payment in the early part of November.<sup>69</sup> Partly because of a fear of penalty under the law, and partly because of the fact that wholesale liquidation was taking place in certain sections, the suspension brought no relief to the situation; on the contrary, it was followed by tighter money rates than ever and complete stagnation in every department of trade.<sup>70</sup>

The sound banks in Ohio continued to contract their loans and circulation in 1840 and the following year. In this respect they anticipated other western states, as has already been mentioned. Some attempted to obey the specie-payment law, only to be run upon for the whole amount of their notes outstanding.<sup>71</sup> The contraction proceeded at an unusually rapid rate in the first half of 1842, as the Ohio notes shrank from \$3,353,883 in January to \$666,097 in June.<sup>72</sup> However, a few "rotten concerns" threw out large emissions of bad paper during 1840, 1841, and early 1842 which furnished a common medium of circulation in some parts of Ohio, including Cincinnati, until it was eventually discredited because of the explosion of the parties of issue.<sup>73</sup> By the end of 1842 the circulation of sound local banks had been reduced to a "very trifling amount," and bankable currency was almost exclusively composed of the convertible notes of the State Bank of Indiana.<sup>74</sup> One bank, however, would take nothing but specie,

<sup>69</sup> CDG, Oct. 9, 1839; Jan. 1, 1840.

<sup>70</sup> In December the report was: "Money very difficult to be obtained, even at the highest rates." The latter were probably as much as 3 or 4 per cent a month. (CDG, Dec. 17, 1839.) On New York rates see Smith and Cole, *op. cit.*, pp. 83, 192.

<sup>71</sup> *Chronicle*, Aug. 27, 1842. The legislature of 1841-1842 demanded instant resumption or forfeiture of charter.

<sup>72</sup> An important factor in the situation was that many of the bank charters were due to expire at the beginning of 1843 (*Chronicle*, Aug. 27, 1842).

<sup>73</sup> *Chronicle*, Aug. 27, 1842. In January 1842 the market was tightened by the rejection from circulation of Longee's checks and the notes of the Miami Exporting Company, the Bank of Cincinnati, and the Exchange Bank, which reputedly constituted the principal currency. (CDG, Jan. 19, 1842.) "It will be observed that we have left a blank against a number of kinds of currency; some of which institutions are broken, others discredited, and not likely to pass again, and at present refused by the brokers" (*Chronicle*, Jan. 15, 1842).

<sup>74</sup> "The Indiana Bank notes being almost the only ones in circulation, some interest is felt in the continuance of the resumption in that State . . ." (*Chronicle*,

and the Trust Company received on deposit only specie and Ohio bank notes.<sup>75</sup>

*Currency, 1839-1842.* Many of these facts are indicated in the bank-note tables of the period, which were on a "currency standard" from late in 1839 until specie became a common article once more in February 1843. The currency situation was even more confusing than it had been twenty years earlier, because of its greater heterogeneity and a high frequency of change in the quotations on individual issues. Par currency, or notes acceptable for deposit by the banks, consisted for the most part of notes on the State Bank of Indiana and its branches, those of country banks in Ohio (except those which fell from grace from time to time), Kentucky banks, and several of the city banks.<sup>76</sup> Post notes of the Trust Company were at par until retired, but according to most tables the demand notes were uniformly at a premium equal to silver indicating that this bank continued to pay specie.<sup>77</sup> New York and other eastern notes also generally fluctuated at a

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June 29, 1842). "The currency of the State may now be said to be fairly based upon specie . . ." (CDG, May 25, 1842).

<sup>75</sup> *Chronicle*, Nov. 5, 1842. The banks were doing no business in discount or exchange but were receiving deposits and making collections for other banks as well as individuals. Six weeks later Niles reported the circulation to be made up almost exclusively of hard money (*Niles'*, LXIII, 280 [Dec. 31, 1842]).

<sup>76</sup> ". . . a bank note table is of considerable importance in the present degenerate and fluctuating state of the currency . . ." (*Chronicle*, May 29, 1841).

<sup>77</sup> The notes of three other city banks (Lafayette, Franklin, Commercial) were at par until March 1842, when they were listed at 7 per cent premium. Apparently they resumed payment at that time, as silver was then at the same price and all city notes were bought at the specie price thereafter.

Kentucky bank notes began to appreciate gradually in May 1841 and reached 4½ per cent premium in the following February. Between that time and February 1843 their quotations dropped bit by bit until they reached par once more.

It is a distressing fact that during 1841, in particular, the bank note tables did not agree with each other or with editorial information in some essential details. The premium on Trust Company demand notes, for instance, was an active variable throughout the year in the tables in the *Gazette* sponsored by Rowland Ellis, but the notes were, except in January, uniformly at par according to the *Western Christian Advocate*. The latter printed its own tables, and both sets were apparently on the same standard: Kentucky, Indiana, and three other Cincinnati banks. Again, when Kentucky and Louisiana notes went to a sizable premium in December, the *Advocate* carried the news but failed to alter its table. The *Gazette* figures are favored in Table 30.

premium along with specie; in the case of New York city the quotation customarily lay between the price of silver and that of eastern exchange. New Orleans bank notes varied on both sides of par. In 1840 they were at a nominal discount of 1-2 per cent, but this changed to a premium of like amount early in 1841; towards the end of the latter year the premium continued to mount and reached  $4\frac{1}{2}$ -5 at the beginning of 1842. Thereafter, New Orleans was slightly discounted or "uncertain" until it slumped to discounts as high as 25-30. Other southern paper fluctuated rather more widely, although it was consistently in the discount column. Tennessee was evidently calculated to be of a quality better than average; it opened the year 1840 at 10 discount, and gradually appreciated to 3 at the end of 1841; then it fell to 15 in the next four months, only to recover once more to 4 by February 1843. Alabama currency started out in similar fashion but went from  $\frac{1}{2}$  to 45 discount between December 1841 and September 1842; it failed to rise beyond 30 per cent five months later. Mississippi paper was not bought at all. Michigan notes began the year 1841 at 10 discount, fell to 50 by August, and finally reached the "no sale" stage in March 1842. As for the paper of the State Bank of Illinois and its branches, which circulated at only a nominal discount up to the end of 1841, it also began to take a downward path, reaching 60 discount within the first two months of 1842 and remaining close to that figure for a long period thereafter.

*Specie and Exchange Rates, 1839-1842.* The manner in which specie, eastern exchange, and some out-of-state notes fluctuated together proves that Cincinnati par currency itself was appreciating and depreciating from time to time. Monthly selling rates of silver, American gold, and New York sight exchange (Chart XXXVI) indicate that the circulating medium of Cincinnati — or rather that part of it accepted by the banks at face value — declined about 8 per cent in relation to silver within five months after the suspension of 1839. Steady appreciation took place, however, during the last eight months of 1840, and silver was sold at an advance of only 3 per cent at the end of the year. Furthermore, New Orleans exchange was depreciating to a greater extent at the same time; so that the West as a whole enjoyed a less unfavorable balance of trade and added to its stock of specie. Ohio banks, however, reported losses of coin.



In the first quarter of 1841 the Cincinnati par medium suddenly depreciated to an extent not realized since 1820; New York exchange jumped from 5 to 11 per cent between January and March. A reaction occurred immediately thereafter, but hard money remained at a substantial premium at home or abroad throughout the year — indeed, it grew in value in the last quarter. New York exchange reached a peak (15 per cent) in December 1841, and silver and gold climbed to their highest values two months later.

It is probable that emissions of paper by the "rotten concerns" contributed to this state of affairs, although these were rarely if ever bankable in Cincinnati. In other words, the abundance of paper at a slight discount, rather than that strictly at par, tended to drag the whole currency structure down. From the currency angle, the darkest days were those between January 1841 and March 1842.

The air was cleared during the first half of 1842 by the throwing out of many different types of paper of dubious value, including that of weak local concerns as well as the notes of broken Ohio country banks, Michigan, Illinois, and some southern states. At the same time, the principal remaining par currency (Indiana notes) appreciated, owing to the expectation and final realization of a resumption of specie payments.<sup>78</sup> Specie and eastern exchange, which declined in agio some 75 per cent between February and June, returned to nominal figures by the end of the year.<sup>79</sup>

Prior to 1840 exchange on New York, Boston, Philadelphia, and Baltimore was sold in Cincinnati at approximately the same rate; a common quotation was for "eastern exchange." But the period of dislocated exchanges witnessed rather wide spreads among the rates on different centers because of the fact that each section of the nation was proceeding upon its own arrangements in respect to payment of specie. In general New York exchange carried a considerably higher premium than Philadelphia and Baltimore, either because funds in the first-named center signified

<sup>78</sup> Indiana resumed June 15, 1842. Kentucky had paid specie for several days. It was expected that the Bank of Illinois at Shawneetown would also take part, but according to the bank-note quotations this hope was not realized. (*Chronicle*, June 14, 1842.)

<sup>79</sup> Silver's premium fell from 11½ per cent in February to 1½ per cent four months later, whereas American gold went from 13 per cent to 3½ per cent, and New York exchange from 14½ per cent to 4½ per cent.

a command over specie or because the demand in Cincinnati was more insistent for transference to New York. In 1841 and 1842 Boston was at a premium as high as that of New York, but Baltimore and Philadelphia did not climb to a parity until April 1842.<sup>80</sup> As for New Orleans, regular quotations were not given by brokers during this interval. According to the figures on bank notes, southern funds were at a sizable and increasing discount towards the end of 1840 but appreciated so much during the following year that they were at 5 premium by January 1842. This premium was turned into a discount of 3 per cent by April, and the problem was complicated in later months by the fact that some New Orleans banks suspended payments. Notes of specie-paying banks recovered to par by the end of 1842, only to fall to 10 discount in the succeeding March; they returned to a nominal discount of 1 per cent in May 1843.

The domestic exchange of the United States was out of joint even during the period of specie payments in 1839, and it was forecast that, without the intervention of a national institution such as the Bank of the United States, the disjointedness would continue.<sup>81</sup> Indeed, conservative thinkers longed for the days when the Bank stabilized internal exchange at rates as low as  $\frac{1}{2}$  per cent, and handled the round of debt between the East, the South, and the West with a minimum of specie movement.<sup>82</sup> It would appear that transactions among regions, like those among

<sup>80</sup> In June 1840 New York was at  $8\frac{1}{2}$  per cent, Philadelphia at  $3\frac{1}{2}$  per cent, and Baltimore at  $3\frac{1}{2}$ -4 per cent. A year later, the respective quotations were  $8\frac{1}{2}$  per cent,  $5\frac{1}{2}$  per cent, and  $5\frac{1}{2}$  per cent. In March 1842 exchanges were at 11 per cent, 7 per cent, and 9 per cent respectively, but in the following month all were sold at  $8\frac{1}{2}$  per cent premium. (CDG, June 19, 1840; June 17, 1841; Mar. 15-Apr. 16, 1842.)

<sup>81</sup> In May 1839 southern merchants were sending specie to Cincinnati instead of buying drafts on the East at  $1\frac{1}{2}$  per cent premium. Cincinnati banks were drawing considerable specie from New Orleans on matured bills, while local brokers were shipping the precious metal to the East at a charge of 2 per cent.

In September it was remarked that "exchanges have become the plaything of the Banks, and of individuals, to rise and fall as interest and circumstance shall dictate" (*News*, May 16, 1839; CDG, Sept. 4, 1839).

<sup>82</sup> In its heyday, the Cincinnati cashier of the Bank of the United States settled interregional balances by drawing checks upon the New Orleans branch in favor of the East. Furthermore, short-time advances could easily be made by allowing the Cincinnati branch to overdraw the mother bank or the eastern branches, the

individuals, were strictly upon a cash basis in 1840-1842. This development was ensured by the retirement of many leading banks from the purchase and sale of exchange, in favor of brokers. The latter charged an especially high price for New York exchange, and, in the months of heaviest depreciation of Ohio currency, New York funds were sold at a rate which exceeded the price of silver by a margin as great as 6½ per cent in December 1841. In the last quarter of 1842 the exchanges of Cincinnati, New York, and New Orleans were extremely out of adjustment. As in the preceding two years, specie continued to move in a clockwise direction to settle the net balance of indebtedness.<sup>83</sup> For some unexplained reason the exchange brokers of Cincinnati failed to procure a sufficient supply of eastern exchange in New Orleans — where it could be bought at a substantial discount — to be sold in Cincinnati.<sup>84</sup>

*Exchange Rates and Commodity Prices.* Commodity prices, currency quotations, and exchange rates do not appear to have harmonized satisfactorily between 1838 and 1843. For example, when western currency was depreciating to the greatest extent in respect to specie and the currency of the East and South (1841), it might well have been expected that the Cincinnati price level would rise, or at least remain at a higher level than other regions. But, according to Chart VI, the downward rush of western prices was delayed to only a minor degree; in truth, the general Cincinnati price level fell below that of New York and New Orleans for the first time in half a decade. In the second place, the behavior of import prices as compared with those of exports does not fit in too well with the currency situation. The prices of imported goods in Cincinnati (Index B) did tend to stiffen in 1841 in relation to the falling values of export staples (Index A), as

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overdraft to be repaid by the maturity of New Orleans bills in favor of the West. (CDG, Oct. 21, 1839.)

<sup>83</sup> New York exchange was at a 2 to 4 per cent discount in New Orleans, causing specie to flow to the south in large quantities (*Chronicle*, Oct. 27, Nov. 5, 1842).

<sup>84</sup> In November 1842, when the exchanges had already gone far towards realignment, one Cincinnati merchant's factor sold his cargo in New Orleans, bought a New York bill at 3 per cent discount and forwarded it to his principal in Cincinnati. The latter disposed of the bill at 2 per cent premium. (*Chronicle*, Nov. 1, 1842.)

might be expected with a *depreciating* paper currency, but the shrinkage in the relative purchasing power of the latter products continued during 1842 — a year when western money was steadily *appreciating* in value compared to other parts of the nation. It must be remembered, however, first, that Index A and Index B do not measure regional export and import prices precisely; and, second, that Index B is more inflexible than Index A if only by reason of the character of the commodity-price series entering into the computations.

Nevertheless, the admission of an important dynamic factor into the analysis — the ebb and flow of capital investment (and immigration) to and from the West — may serve to clear up the apparent disharmony between eastern exchange rates and commodity prices between 1838 and 1843. Various evidence points to the fact that net new British investment in the United States, which was admittedly large in the years prior to 1837, continued in sizable volume through 1839; it was not until the collapse of the latter year that the tide turned and capital commenced to flow back.<sup>85</sup> A good deal of these funds were lent to the West directly, and much of the capital lent in New York and other eastern centers from abroad was reinvested in western lands and public works. It has been found that (1) New York commodity prices exceeded London figures in the middle thirties but fell below them in the early forties, and (2) a similar turnover occurred between 1839 and 1840 in the values of domestic and foreign commodities in the New York market.<sup>86</sup> In other words, the inflowing capital itself, which must be associated with lower rates on foreign exchange, tended to raise prices in the receiving region as compared with those in the paying region; conversely, the withdrawal of capital (1840 and later) tended to raise exchange rates but to depress prices in the United States, especially those of domestic goods.

The same general reasoning may profitably be applied to the western state of affairs, particularly between 1838 and 1843. Western prices remained above eastern, taken as a whole, and Index A stayed higher than Index B so long as the net flow of capital was from East to West (1838 and 1839). This flow of capital *per se* prevented eastern exchange rates from rising above

<sup>85</sup> L. H. Jenks, *The Migration of British Capital to 1875* (1927), pp. 87, 95-98.

<sup>86</sup> Smith and Cole, *op. cit.*, pp. 66-69.

par to any extent. However, the period of severe liquidation witnessed not only a large decline of general prices in the interior as compared with New York and England but also a tendency of western export values (Index A) to fall in relation to import values (Index B). At the same time, exchange rates on the points whither capital was heading were sent higher and higher according to the demand for the transfer of funds.<sup>87</sup> As the demand for funds became more acute in the West, efforts were made to offset the effects of withdrawing capital from the region by issuing various kinds of more or less convertible currency; the pressure upon commodity prices does not appear to have been greatly relieved, according to the behavior of Cincinnati index numbers, whereas the ceiling on the eastern exchange market was removed.

Indeed, the thesis elaborated above may be applied to the whole period before 1861. In times of expansion the high values of western crops and the shipment of funds from the East for investment and speculation operated temporarily to reduce the rate of exchange. Western bankers felt free to issue a larger volume of currency, so that western prices advanced relative to eastern — this appears to have happened in 1816-1817, in 1834-1835, and again in the mid-fifties. In each case, a delayed crisis finally brought liquidation and a call of funds back to the East, and the exchange situation was rendered more acute by a drastic shrinkage in the mass value of agricultural exports.<sup>88</sup> As eastern exchange rose to a higher premium and western paper currency depreciated bit by bit, the strain grew heavier upon the note-issuing banks. The latter proved least able to withstand it in 1820-1822, when a final solution was found only in wholesale deflation and reestablishment of a specie currency. In the great crises of 1819 and 1839, deflation occurred first in the East, and the shrinkage in export profits was only partly compensated by a temporarily high exchange premium — western prices were even-

<sup>87</sup> Short-term debts had to be liquidated in large part at least; as for long-term investments, payments on interest and capital accounts were bound to require a net purchase of eastern exchange as long as they did not go in default, and new lending and immigrant importations were suspended. On defaults and repudiations see Ratchford, *op. cit.*, pp. 98 ff.

<sup>88</sup> Michaux noted this combination of events as early as 1802 (*op. cit.*, pp. 139-40).

tually forced to realign themselves with the East. As the depression wore on, old stocks of commodities and old currencies were cleared away, and debts were either paid or written off. This continual pressure, which seemed especially severe to the West, was not relieved until eastern exchange subsided and western products began to improve in price. The terms of trade were about as unfavorable to the interior as they had been favorable in time of prosperity.<sup>89</sup> Here again, matters were probably worse in 1821 than in 1842; the western price structure of the former year was stretched beyond recognition.

From 1825 to 1834 and for the greater part of the interval between 1844 and 1860, the exchange situation was in equilibrium, relatively speaking. This is reflected both in the regional charts of individual export commodity-price series and in the relative behavior of Cincinnati and New York index numbers of general prices, all of which record a comparative stability in the spread between the East and the West for these particular years.

As has already been indicated, it is probable that Cincinnati was not so near the storm center during the depression of 1840-1843 as it had been in 1821-1822; yet it is difficult to draw an exact conclusion in view of the unquenchable optimism of local observers. The situation in November 1842, not far from the lowest point of the depression, is well summarized here:

The scarcity of money has crippled all business. Little is doing, either in trade or manufactures, and all transactions are for cash. Had not the banks and the business men of Cincinnati been sound, the ruin would have been great, and the distress deplorable. But there has been less of wild speculation here, and far less of bloated credit, than at most other places, and our city maintains a healthy existence though reduced in wealth and activity.

Building goes on, because those who have money can command labor and materials at very reduced prices, and the wealthy profit by a state of things which is ruinous to the majority. Much building is also done by exchange of labor. Very little money is used in any of the building operations now going on.

The fall produce will probably find purchasers, but it will be at very reduced prices. Little of it can be purchased here, with our own capital;

<sup>89</sup> The annual ratios of Index A to Index B in Chart X declined from 62 to 42 per cent between 1819 and 1821 and from 130 to 92 between 1839 and 1842 (Table 19, Appendix B).

but it is supposed that the low prices will tempt Eastern purchasers to bring funds here for investment in Western produce. — Thus the direct effects of destroying our banks and currency, have been, to give to the banks of other States the benefit of supplying us with a bank note circulation, and to give to capitalists abroad the profits upon the exportation of our produce.<sup>90</sup>

Conventional treatments of the boom and depression between 1835 and 1843 are generally characterized by a tendency to emphasize the financial angles of the situation and to condemn the unsafe banking and monetary practices of the era. One recent and prominent authority has called attention to the fact that, although sound money doctrine was prevalent (as shown, for instance, by the issue of the specie circular), the "reckless banking" of that age was most important, since it placed a premium upon the speed of the development of America's inland empire.<sup>91</sup> Sound money advocates would reply that the acceleration of the boom was offset, at the least, by delay arising from the inevitable disruption of the flow of capital accompanying the failure of banks, disorganization of the currency, price levels, and exchange rates, and the default on private and public debt. Granting that, on balance, "reckless banking" accelerated investment and production, it was in this respect not dissimilar to the institution of slavery. As for the nonfinancial angles of the general situation, sight must not be lost of the fact that thousands of individuals did attain better opportunities than ever before in spite of the collapse of the financial structure. Production surged ahead. The index of receipts of northern farm products at New Orleans, for example, increased more than twofold between 1840 (62) and 1844 (137). Such a trend was bound to create a vast new source of purchasing power which could be brought into full bloom as soon as stability returned to the financial world.

<sup>90</sup> *Chronicle*, Nov. 5, 1842. Note the resemblance to comments in early 1823.

<sup>91</sup> Schumpeter, *op. cit.*, I, 292-95.

## CHAPTER XV

### CYCLICAL DISTURBANCES AND PRICE BEHAVIOR

1843-1861

#### THE FOURTH TIDE — GENERAL OUTLINES

THE INTERVAL between 1843 and 1861 witnessed the resumption of remarkable growth in the population and resources of the West. This fourth tide of western expansion was characterized by a flood phase of unusual strength and continuity, lasting a full fourteen years or more.<sup>1</sup> It was not, however, free from financial crises at intervals of three or four years; investment and trade appear to have outdone themselves repeatedly, recoiled, and prepared for a fresh leap. The present chapter is concerned more directly with the general statistical background of the generation taken as a whole; treatment of the year-to-year "rollers" is reserved for Chapter XVI.

*The Western Economic Pattern, 1843-1861.* Annual figures representing the western economic pattern (Chart VI, p. 98) are as follows:

1842 . . . 119	1847 . . . 132	1852 . . . 142	1857 . . . 160
1843 . . . 108	1848 . . . 136	1853 . . . 154	1858 . . . 144
1844 . . . 124	1849 . . . 133	1854 . . . 168	1859 . . . 153
1845 . . . 123	1850 . . . 139	1855 . . . 157	1860 . . . 150
1846 . . . 136	1851 . . . 142	1856 . . . 162	1861 . . . 140

These data, which depend on the "conversion constant" (9) employed with earlier years, indicate that (1) the recovery during the forties and early fifties was as steady as that twenty years before; (2) the climax was reached in 1854, though other high peaks occurred in 1856-1857 and 1859; and (3) no point was reached as high as 1837 or 1839. Marked differences in the behavior of regions, departments of the economy, and individual industries undoubtedly tended to cancel each other out. In addi-

<sup>1</sup> The "tide" figure is subject to the same criticism as the "cycle" or "wave" in that all suggest a symmetrical pattern.



tion, the statistical method abstracts from "long-range drift," and, if no allowance had been made for this factor, figures applying to the fifties would probably have been slightly higher than the thirties.

One way to describe the recovery which occurred after 1842 is to note the number of years it took various economic series to

TABLE 31  
PEAKS AND TROUGHS OF LEADING SERIES OF ANNUAL ECONOMIC DATA, 1835-1861,  
TOGETHER WITH DATES MEASURING RECOVERY AFTER 1840

Series	Peak	Trough	Peak	Recovery to Earlier Peak
Cincinnati general weighted index (per cent) . . . . .	145 (1837)	72 (1842-43)	128 (1857)	....
Index A (per cent)	159 (1836)	70 (1842)	154 (1857)	....
Index B (per cent)	121 (1836)	65 (1848-49)	94 (1857)	....
Steamboats reg'd western waters (thous. tons) ...	21.5 (1837)	9.4 (1843)	37.1 (1857)	1844
U. S. imports, mdse. (\$ millions) . . . . .	176.6 (1836)	42.4 (1843)	353.6 (1860)	1851
U. S. exports, mdse. (\$ millions) . . . . .	124.3 (1836)	82.8 (1843)	333.6 (1860)	1847
Public land sales, (thous. acres) ..	20,074 (1836)	1,129 (1842)	12,823 (1855)	....
U. S. immigration (thousands) . . . . .	79.3 (1837)	38.9 (1838)	427.8 (1854)	1840
Loans and discounts western banks (millions) . . . . .	43.8 (1839)	19.5 (1844)	69.2 (1860)	1854
Circulation and deposits, western banks (millions).	37.6 (1837)	12.4 (1843)	68.5 (1860)	1853

reach the level of 1836-1837 (or 1839). This is done in Table 31. The sale of public lands, it will be seen, never rose again to the height of 1836, but the turnover in 1854 and 1855 was somewhat more than ten times as large as that of 1842 and approximately equal to that of 1835. Commodity prices reached their highest point in 1857, but, taking a year as a unit, they were at approximately the same level in 1855. Although Index A rose to the greatest extent, it did not quite reach the 1836 level. Index B

went from 65 to 94 between 1849 and 1857 but utterly failed to approach the 1836 figure. Immigration and construction of new steamboats recovered most rapidly, whereas it was well in the fifties before western banks enjoyed a volume of loans or demand liabilities as great as the maxima of the thirties. Immigration is generally the most independent series of all, and it is unfortunate that figures are not available to indicate the number of migrants to the interior of the nation rather than those landing from abroad. The other evidence available shows that westward migration did not taper off in the early fifties; on the contrary, it probably increased in extent throughout most of the decade. By this time Ohio had become a source, as well as a destination for migrants, and there are indications that the movement from the Buckeye State to the prairies further west came to a head about 1857. In that year Ohio officials expressed alarm at this "depopulation" of the state, but only one year later they issued more reassuring reports.<sup>2</sup> This is also reflected of course, in the public lands data, the descriptive accounts of Illinois, Minnesota, and other prairie states, railroad construction, and the enlargement of crop production and interior commerce at Chicago and other points.

The directions and channels of capital flow to the West were somewhat different from those of the twenties and thirties. In general the capital frontier moved further westward; railways were favored rather than canals, roads, or steamboats; and the Bank of the United States was no longer in existence. The resumption of activity in borrowing on the part of western and southwestern states created a situation which tended to duplicate the third tide. Defaults, adjustments, and repudiations took place in several issues during the forties, and some states took steps to dispose of their public works. But this did not discourage other southern and western states from borrowing in the East and in Europe for railways, even though they were comparatively cautious. The declining figures on the outstanding debt of Indiana and Illinois in 1841 and 1860 must be considered in the light of the "de-socialization" of their canals, and the trend of the times is reflected in Ohio's persistent refusal to create a sinking fund by taxation.<sup>3</sup> Kentucky, Missouri, Tennessee, Iowa, and Minnesota

<sup>2</sup> Ohio Board of Agriculture, *Annual Report* (1857), p. 45; (1858), pp. xvii-xviii.

<sup>3</sup> Ratchford, *op. cit.*, pp. 105-34; Bogart, *Internal Improvements*, pp. 179 ff.

were among the states floating the largest loans during this epoch, and the total debt of the western states (counting Missouri and Tennessee) expanded from \$50,300,000 in 1841 to \$52,600,000 in 1853 and \$92,800,000 in 1860.<sup>4</sup>

The diversity of timing between various types of economic data has claimed the attention of one authority on affairs in the East, who finds that railroad stocks, commodities, interest rates and the volume of trade reached peaks during the fifties on definitely distinct occasions. Stock prices were on the downgrade after the end of 1852, but commodity prices continued to rise until the end of 1857. The volume of domestic trade was at its highest point in 1855, and banking transactions in the East continued to grow, in the aggregate, during the entire decade.<sup>5</sup> Sectional differences are more evident in the sales of public lands. Illinois had a boom in the mid-fifties along with Minnesota, Wisconsin, Iowa, and other states in that general region. The same was true of Missouri, Florida, Mississippi, and Alabama, but Ohio, Indiana, Louisiana, and Arkansas either developed more gradually or dropped entirely out of the picture.<sup>6</sup>

*The Price Indices, 1843-1861.* As in the case of earlier years, a great deal more information is to be gathered from Index A and Index B than from the Cincinnati general index alone. These data were all originally compiled by intervals joined at 1846 in consideration of the published quotations available. However, the segment 1843-1846 is more conveniently treated together with the years which followed rather than those which preceded. It is evident that Index A underwent a complete major cycle between 1843 and 1861, measuring from trough to trough. The continuity and scope of the upward movement prior to 1855 or 1857 are outstanding characteristics of Chart IX (p. 123). The peak in May 1857 (176) represents a level almost exactly two and one-half times as high as the figure for September 1846 (70) and is at even greater distance from the low point of 1843. Agricultural prices recovered more rapidly than in the early twenties, judging

<sup>4</sup> The aggregate debt of states to the North of the Ohio actually decreased to some extent — about one-half of the 1860 figure represents loans contracted in Missouri and Tennessee between 1853 and 1860 (Ratchford, *op. cit.*, p. 127).

<sup>5</sup> Smith and Cole, *op. cit.*, pp. 93 ff.

<sup>6</sup> Smith and Cole, pp. 55 ff.

from the heights reached in 1845 and 1847 and the positive slope of a line connecting 1843, 1846, and 1848. It must not be overlooked, however, that 1846 and 1848-1849 were not a great deal higher than 1842-1843; as has already been said in another connection, flour was at rock bottom for a short time in the former year (Chart XVI). Furthermore, the decline between 1857 and 1861 was of a magnitude comparable with the "long pull." Index A descended to 96 at the end of 1861 and was falling at that time.<sup>7</sup> There is no doubt that the unsettlement of the southern market contributed to this situation<sup>8</sup> (whisky remained at 12½ cents a gallon that summer), but, as has been pointed out in Chapter VII, tremendous receipts of wheat in 1862 and 1863 would certainly have depressed prices further in the absence of war. The hog pack also expanded in an extraordinary manner in 1863, thus bringing a conjuncture of heavy production in the two principal money crops. And it may be added that it was the behavior of agricultural quotations which accounted for the depression of Cincinnati prices shortly after the beginning of the war compared with New York and New Orleans.

As for manufactured and imported goods (Index B), prices continued to settle until about the middle of the century before taking part in the upward surge. These values were, however, engulfed in the collapse of 1857 and recovered only partially in the three years to follow. They did not fall so greatly as agricultural products in 1861,<sup>9</sup> but it would appear that almost all the gain realized during the fifties was canceled at that time. Manufactured and imported goods, however, began a smart rise in August 1861. This is quite to be expected in view of the behavior of prices at seaboard points at that time.

Index B was steadily falling in relation to Index A up to 1861, according to the ratios of annual averages in Chart X. Almost without exception, each "high" was higher than the preceding and each "low" of a more shallow depth. This occurred even though Index B rose substantially. The ratio for 1860 (167) may fairly

<sup>7</sup> The data for 1861 may be found in Appendix B, Table 55.

<sup>8</sup> Charles Wilson, "Cincinnati a Southern Outpost in 1860-61?" *Mississippi Valley Historical Review*, XXIV, 481 (March 1938).

<sup>9</sup> Index B was at 73 in December 1860 and reached 71 in the January and July following.

be compared to 1841 (105), and the corresponding figure for 1861 (162) is not low enough to shatter this continuity.<sup>10</sup>

This fundamental diversity, which may be ascribed primarily to differences in regional and industrial background, is no statistical "accident." Analysis of individual commodity-price series shows that eighteen of the twenty-one series starting from a low point in 1842 and 1843 belong to Index A, and that of the thirty-one reaching a peak in 1855-1857 all but nine are northern agricultural exports.<sup>11</sup> Furthermore, thirty-nine of the fifty series entering into the calculations are characterized by upward trends of varying degree; and of these at least twenty-eight are in the agricultural group. On the other side of the picture: the series in Index B are not so uniform in behavior; eight of the twenty-one reached bottom between 1842 and 1845, whereas nine others did not turn upward until some time between 1848 and 1852. Eight came to a peak in 1853 or 1854, but a similar number did not reach their pinnacle until 1857. There are eleven series in this group, the trend of which is horizontal, negatively inclined, or at most doubtful.

One other aspect of the behavior of the group indices after 1843 calls for a brief comment: their variation from year to year. It has already been noted that, generally speaking, Index A is characterized by a rather larger amplitude of swing from one year to the next. This is particularly evident, for instance, as concerns the period between 1823 and 1835. It is also true that agricultural prices were subject to wider fluctuations between 1843 and 1848, but during the fifties Index B develops in sensitivity in spite of the fact that the number of constituent series is larger than in earlier periods, and, although it may be partly due to the substitution of pig iron for bar iron, it is perhaps more accurately regarded as the natural reflection of a growth in flexibility of all price quotations. Owing to this change in Index B after 1846, a somewhat closer correlation developed between monthly changes in business or the money market and variations in the prices of manufactured and imported goods. General Cincinnati prices and

<sup>10</sup> Table 19 (Appendix B). The peak of 189 reached in 1855 was not approached again until a mark of 179 was attained in 1859.

<sup>11</sup> Flour, wheat, and linseed oil were low in 1846 and high in 1855, unlike the large majority of agricultural products. Whisky also reached its peak in 1855.

Index A, on the other hand, conformed to a lesser degree to the pattern of short-time cyclical variation. A second observation, prompted only by visual inspection of Charts VI and IX, is that Index B shows signs of closer relationship with the New Orleans general index than with Index A,<sup>12</sup> whereas the latter is more akin to the New York general index than to Index B.

*Volume and Value of Trade.* Although considerable improvement took place in the collection of western trade statistics after 1840, the figures at hand are sufficiently crude to warrant cautious interpretation. Variations from year to year were generally of small magnitude compared with the rate of expansion over the long run, and this is a fortunate circumstance because the chance of error should be smaller in gauging the latter. In the present case the problem is not so much to find turning points as to discover limits within which trade increased at the most vigorous rate. Measuring from 1822 to 1841, two troughs which tend to approximate the third tide, the index of receipts at New Orleans from the interior increased from 8 to 62 per cent, on the base 1810-1862. In 1861 (the year 1862 is rejected for obvious reasons) the index stood at 197 (Chart I, p. 33). In other words, the absolute increase of trade at the Louisiana port was some two and one-half times as great during the fourth tide, comparing it with the third, in spite of the fact that a progressively larger proportion of western trade was diverted to the East. That the fourth tide was the logical outcome of the third is indicated by the fact that the total production was so great during the early forties. So far as the big movements in trade were concerned, they appear to have been a function of acreage (and immigration) which followed sales of land. The latter were closely geared to agricultural prices and profits, which were tied to immigration, the expansion of seaboard and foreign markets, and expenditures at home for canals and other works of internal improvements.

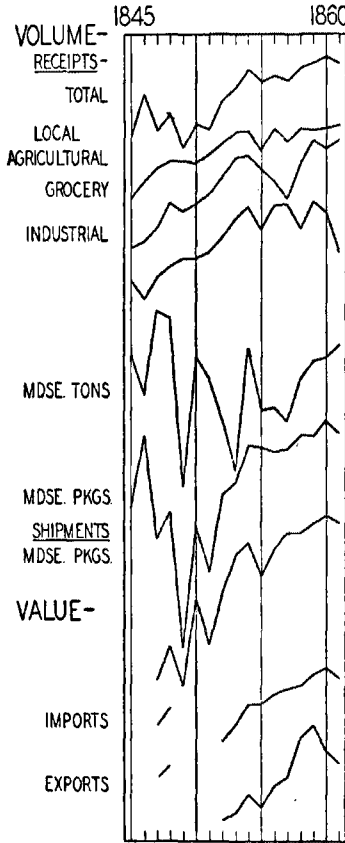
As a guide to Ohio Valley commerce, the figures on Cincinnati trade are not vastly superior to those of New Orleans on account of the fact that they do not cover other western points which were opened up by railways during the interval under direct examina-

<sup>12</sup>This is hardly wonderful in view of the fact that cotton, sugar, and molasses jointly contributed slightly over one-third of the total weights of commodity series constituting Index B.

## CHART XXXVII

ANNUAL TRADE OF CINCINNATI FOR THE COMMERCIAL YEARS 1845-1861. VOLUME RECEIPTS OF AGRICULTURAL COMMODITIES, GROCERIES, MANUFACTURED GOODS, MISCELLANEOUS MERCHANDISE IN TONS, AND PACKAGES. EXPORTS OF MERCHANDISE IN PACKAGES. TOTAL DOLLAR IMPORTS AND EXPORTS

(Vertical logarithmic scale at different levels)



tion. Hog production data suggest that Cincinnati, like the city of the Mardi Gras, was enjoying a healthy increase between 1843 and 1861 but was not maintaining its percentage of the trade of the interior taken as a whole. However, in absence of any reliable data referring to the latter, we can only concentrate upon Cincinnati. Chart XXXVII presents the relative annual receipts of dif-

ferent classes of merchandise by volume so far as these are available (commercial years 1845-1861), corresponding figures on the exports of miscellaneous packages, and total values of imports and exports.<sup>13</sup> These fragmentary data suggest that the expansion of trade in agricultural and specific manufactured goods proceeded at a somewhat more rapid rate before 1850 and that the opposite was true of general merchandise and groceries. As a matter of fact, the miscellaneous merchandise, whether in packages or tons receded during the latter forties and rose most sharply between 1849 and 1854.

The dollar figures in Chart XXXVII are perhaps the most untrustworthy because they include more items in some years (particularly 1858 and 1859) than in others. It is safe to conclude, however, that (1) agricultural commodities formed only a small part of the aggregate values; (2) the development was remarkably steady during the fifties, judging from the fact that every single year between 1852 and 1859 represented an increase over the preceding;<sup>14</sup> (3) the dollar balance was slightly favorable in 1847 and 1848 and again in 1858 and 1859. Otherwise, it was heavily unfavorable. The latter might well be interpreted as the normal situation in view of the heavy investment known to have been under way in Cincinnati at that time.

Estimates on the total dollar exports are grouped together here for what they are worth. In 1826 the figure was \$1,000,000; in 1832 it was \$4,000,000; and in 1839 it amounted to \$9,000,000. The difference between the first and the third estimates — \$8,000,000, or 800 per cent — may be taken as a crude measure of expansion between the trough and the peak of the third tide. The figures for 1847 and 1859 — \$56,000,000 and \$107,000,000, respectively — yield a difference of \$51,000,000, or 91 per cent. It is apparent that the fourth tide proceeded upon an altogether larger scale than those of earlier generations, speaking in absolute terms, although the rate of development necessarily declined.

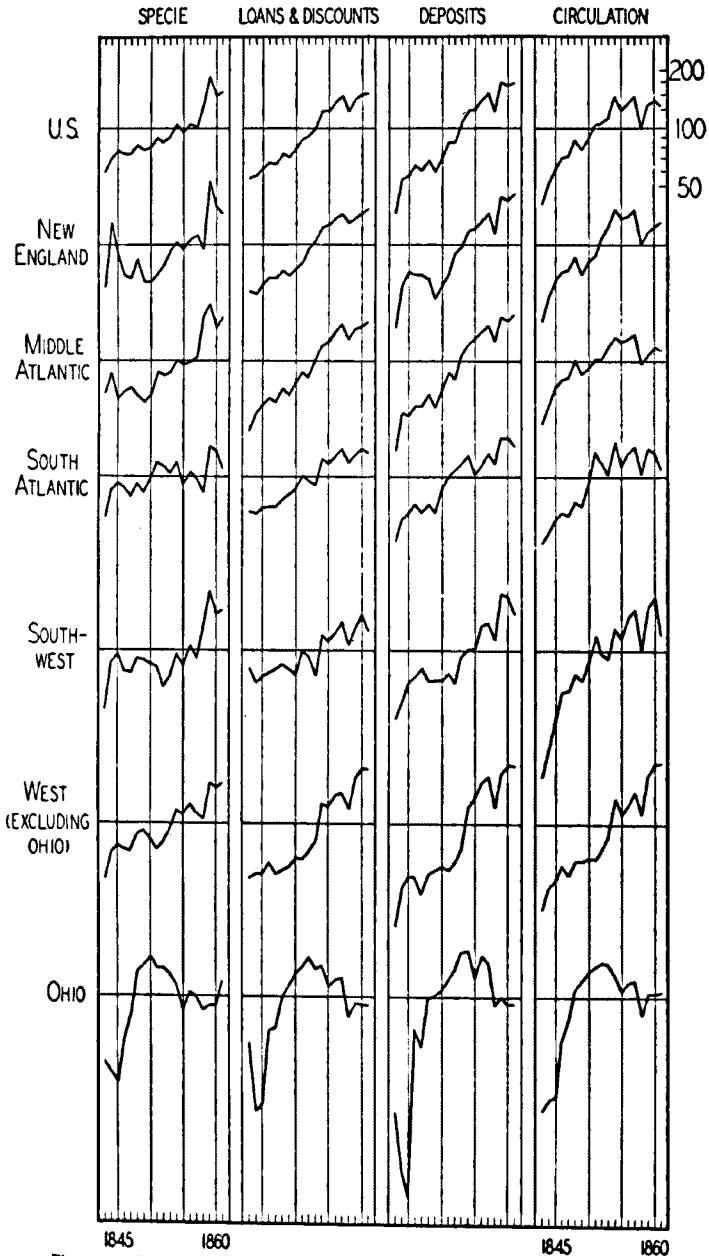
<sup>13</sup> Receipts are emphasized because, with a few exceptions, they uniformly exceeded exports of the various commodities. The figures include receipts via canals, rivers, and railways for the most part — allowance for imports of a few leading items by wagon was made during the fifties.

<sup>14</sup> A rather conservative comparison (1852 and 1861) gives the average annual rate of increase in imports as 9.1 per cent; exports, 8.4 per cent.



### CHART XXXVIII

RELATIVE ANNUAL CIRCULATION, DEPOSITS, LOANS AND DISCOUNTS, AND SPECIE IN  
STATE BANKS ACCORDING TO REGIONS, 1843-1861  
(1843-1861 = 100)



Figures pertain to the first of the year, approximately. For data, see Table 50, Appendix B (absolute figures only).

*Regional Banking Data, 1843-1861.* The diversity among various geographical areas is an important feature of the figures on the condition of banks (near the first of each year) plotted in Chart XXXVIII. In the nation at large the growth of discounts and deposits was smooth throughout, the only sizable break occurring in 1858. A secondary decline in circulation also took place in 1855, and specie reserves underwent a special movement after 1857. New England and the Middle Atlantic regions are substantially the same because the banks in these two sections fairly dominated the nation. Affairs in the South Atlantic states were comparatively rocky during the fifties, and a steady drain of specie took place between 1851 and 1858. In the West<sup>15</sup> and Southwest, on the other hand, the expansion of banks was unusually slow for practically a full decade; once the development got under way, around 1851 or 1852, it progressed rapidly except in 1858. The West, it is noted, suffered no decline during 1860 similar to that in the Southwest and South Atlantic. As for Ohio, no recovery really began until 1845, and the expansion was great from that time until the early fifties. In contrast with other states, Ohio banking (at least, authorized banking) was on the decline during the fifties. Specie turned downward in 1850, loans and circulation in 1852, and deposits in 1854. There is some resemblance, therefore, between this situation and the one obtaining in the years 1839-1841. That is, the banks in other western and southwestern states commenced to expand credit largely after Ohio had begun to contract. In the earlier case, to be sure, the lag was shorter by several years.

Unfortunately, data are not available in sufficient variety to ascertain to what extent the regional differences just noted were reflected in commodity prices. One thing is certain: the Cincinnati commodity market was "tuned" not to Ohio circulation (or other banking data) but to the other western states or, for that matter, to the East! Perhaps the closest general "fit" under these statistical conditions is between Cincinnati prices and the combined circulation of Ohio, Kentucky, and Indiana; and even here the year-to-year agreement is rather poor between 1850 and 1854. It is accurate to say that the regional data at hand, considered in broader outlines, are not in great disagreement as between circu-

<sup>15</sup> As above, the West includes Kentucky and Missouri but not Ohio.

lation (and deposits) and prices. However, the correlation is far from perfect, especially in the short run. In Chart VI (p. 98), for instance, the most obvious deviations among the monthly index numbers for Cincinnati, New York, and New Orleans appear to be those of 1850, 1854, 1857, and 1861. In each of these cases New Orleans prices departed substantially from those in the other two markets. At first sight the deviations of 1850 and 1857 correspond with increases in Louisiana circulation compared with the West and the East (conversely, declines took place in the South in 1851-1852 and 1858, relatively speaking). However, the circulation of Louisiana banks was even larger, relatively speaking, at the beginning of 1854, and in this instance New Orleans prices were considerably *lower* than elsewhere! The 1861 affair may not be explored for lack of Louisiana data. It hardly needs to be added that the finding of these discrepancies may be due entirely to imperfections in the statistics, particularly those relating to banking.<sup>16</sup>

*Cincinnati Currency, 1843-1861.* The year 1845 inaugurated an important alteration in the system of issuing western currency. Since the days of the first bank these notes had been "secured" by general assets. We need not rehearse here the train of events which led to serious over-issue on two occasions. The clamor for "sound" money was stronger than ever. Beginning with a general law of 1845 Ohio authorized both the safety fund (State Bank and branches) and the security-deposit (Independent Banks) methods of issue for new banks. The latter method also spread into other states, but, as will appear presently, the results were not conspicuously more successful than before. The bank-note table accordingly continued as a fixture in western newspapers until after the end of our period — as a matter of fact, it became larger and more complicated than ever before.

Although the growth in population and trade called for the emergence of a vigorous capital market and greater volume of currency, both in the form of notes and deposits, Ohio legislation operated to hinder such a development.<sup>17</sup> This topic is considered

<sup>16</sup> It is worth mentioning that the index numbers of prices for the different regions are in considerably closer general agreement with each other than the respective banking data.

<sup>17</sup> "The reverses of 1837 resulted so disastrously and exploded so many banks,

below in connection with interest rates. It is true that the general laws of 1845 and 1851 encouraged the formation of a host of new banks,<sup>18</sup> but a new state constitution, adopted in the latter year, discouraged further organization; moreover, less stringent free-banking legislation induced capitalists to erect concerns in Kentucky, Illinois, or Indiana and flood Cincinnati with paper without fear of redemption.<sup>19</sup> Since this was the leading market for domestic exchange, it was among the first to feel a drain of funds, and local banks found they could not keep notes in the hands of the people for any length of time. The net result was that the Cincinnati circulation continued to be heterogeneous and uncertain; it was liable at any time to contraction owing to depreciation of the notes of a leading bank, or, indeed, a whole group of banks.<sup>20</sup> The community refused, for instance, to accept notes of the Ohio State Stock Banks in August 1853,<sup>21</sup> and Indiana stock or free bank notes were steadily quoted under the heading of "uncurrent money" after a similar rejection in 1854 (these developments receive further treatment below).

The depreciation of Cincinnati "par" currency between 1843 and 1861 was only minor in extent compared with that characteristic of 1840-1841 (Chart XXXVI). Indeed, the local circulating

that the people have ever since looked with great distrust upon anything bearing the name or semblance of 'Bank' and in consequence, in many instances, have refused to charter any institutions with the privileges of banking, choosing rather to tolerate a shin-plaster currency, without the least security being given to the bill holders. But the rapid increase of population and agricultural productions have so multiplied the wants of the business community that it is impossible for them longer to endure the ruinous rates of interest demanded by individual bankers and foreign capitalists . . ." (LH, Dec. 12, 1850).

<sup>18</sup> In 1844 there were only eight banks in Ohio authorized to issue notes; towards the end of 1851 the number had increased to seventy (Huntington, *op. cit.*, pp. 416-19, 437-39).

<sup>19</sup> Indiana passed a free banking law in 1853, Illinois in 1851, and Wisconsin in 1855. Indiana's experience with "stock notes" was particularly bad, compared with the State Bank and its branches. The latter, which had been snuffed out for political reasons, were succeeded in 1857 by a Bank of the State of Indiana. Kentucky banking was conservative during this epoch. (Henry F. Baker, "Banking in the United States, An Historical Sketch of Banking in the State of Indiana," *Bankers' Magazine*, XII, 161-79 [Sept. 1857]; Harding, *op. cit.*, pp. 22 ff.; Dowrie, *op. cit.*, pp. 134 ff.; Knox, *op. cit.*, pp. 323, 698 ff., 721 ff.)

<sup>20</sup> H. F. Baker, in *Bankers' Magazine*, XI, 171-72 (Sept. 1856).

<sup>21</sup> LH, Aug. 18, 1853.

medium steadily appreciated towards specie and eastern currency. Cincinnati all but achieved a "real" specie standard. Her bank accounts were generally kept in "currency" rather than in strictly "par funds," and, although the law required the Ohio State Bank and its branches to pay specie upon demand, their notes were only theoretically equivalent to specie. Those of even the nearest branches commonly bore a small discount from coin in Cincinnati. This condition of affairs was lamented by one banking authority in 1856, who called attention to the fact that eastern exchange alone was costing \$400,000 annually.<sup>22</sup>

Experiments prove that it is impossible to give an accurate impression of the developments among individual issues between 1843 and 1861 within the confines of even a long and complicated table. The brokers, who included George Milne & Company, Ellis & Vallette, T. S. Goodman & Company, Dunlevy, Drake & Company, and J. F. Larkin & Company, were rather more discriminating than their predecessors of earlier years. Their quotations, commonly given in two columns of very fine print, frequently differentiated among forty or fifty banks in a single state. However, a few summary statements may be in order. The notes of solvent Cincinnati banks fluctuated between par and 1 premium unless the table was on the "specie standard" (in that case they became par). All these but one, however, were retired (voluntarily or otherwise) by the end of 1858. As late as 1850 brokers bought Miami Exporting Company notes at a discount which rose from 20 to 50, and Exchange Bank paper at 75 off. In tables using the "currency standard," almost all the branches of the Ohio State Bank and specie-paying country or "independent" banks in the state were received at par. The others, comparatively few in number, varied from 10 per cent discount to "no sale." Currencies of the State Bank of Indiana, Kentucky, Missouri, Virginia, and "good" banks in the East were also generally at par, and the same was true of Indiana "stock notes" except in the middle fifties, as has been related elsewhere. Many individual banks in the East, however, bore a heavy discount. The notes of New Orleans banks were held in high regard except during a fright in 1848, but the Municipality Notes of that center were taken only at 15-25 per cent discount or, as in 1852, not at all.

<sup>22</sup> Baker, in *Bankers' Magazine*, XI, 171-72.

Illinois paper was consistently "shaved." Between 1843 and 1852 the State Bank and the Bank of Illinois at Shawneetown depreciated to 45 and 80 discount, respectively, whereas the newer stock notes went from 1-2 to 10-25 between 1856 and 1860. Tennessee, Georgia, and the Carolinas were ordinarily subjected to a nominal discount (1-3) except in 1860, when they sank to 5 or 10 discount. As for Alabama, a steady appreciation of dependable currency took place between 1843 and 1854 and was followed by an equally gradual depreciation; the same was true of the good banks in Michigan. Iowa, Wisconsin, Mississippi, Florida, and Arkansas were held in such general contempt throughout the period that they were either omitted or entered at "no sale," 40-75 discount, or "fraud!" The Wisconsin Fire & Marine Insurance Company and one or two others, however, were occasionally bought at a discount as little as 1 per cent. This account, it must be emphasized, tends to gloss over the irregularities which cropped up from time to time in almost all issues.

*New York Sight Exchange.* Prior to 1843 a rather fixed relationship obtained among the selling rates on New York exchange (bank deposits rather than notes) and the prices of gold and silver coins. Because New York funds implied command over specie (after the New York resumption in 1838), and since the net movement of precious metal was commonly towards the East, exchange was sold by Cincinnati brokers roughly at the local price of specie plus a charge for shipping it.<sup>23</sup> The behavior of exchange between 1843 and 1861 (Chart XXXVI) may be summarily described as follows: (1) it pursued a downward trend from a norm of 1½-2 in the forties to 1 per cent in 1850-1856 and ½ per cent in the latter half of the fifties; (2) it rose sharply in times of monetary stress (1846, 1848, 1854, and 1857) and tended to settle whenever any "easy" situation developed (1847, 1850, 1852, 1855, 1858); (3) the premium was subject to a certain amount of seasonal variation, reaching its lowest point in December (opening of the provisions market) and rebounding in the early spring (import season); (4) sight exchange was rarely sold by Cincinnati bankers

<sup>23</sup> The quotations of February 1842 illustrate the normal relationship between 1839 and 1843: New York sight exchange, 14½; American gold, 13; English gold, 12½; and silver, 11-12 (per cent premium). In later years selling rates on sight bills tended to exceed buying rates by ¼-½ per cent.

or brokers at par and went to a discount upon only two occasions (according to monthly data). As for the relationship to gold and silver prices, it appears that several complications developed after "resumption" in 1842. Between 1843 and 1853 exchange sought parity with American gold rather than silver, and, as might be expected, exchange was cheaper than gold in times of credit expansion and dearer in times of contraction. After 1856, however, gold and exchange differed by only the finest of margins. Silver prices, on the other hand, began to pursue an independent course as early as 1850.

Of the factors explaining the downward trend in eastern exchange these may be singled out (1) the flow of investment towards the West; (2) reductions in costs of transporting specie to the East; and (3) improvements in facilities for converting the local currency. It was remarked in 1849 that

the most notable feature, during the past year (1848/49), has been a greater steadiness in the price of exchange, which — chiefly on account of our banks not doing business on a currency redeemable here — varies more frequently at this, than at any other point in the United States. The change is, in some degree, attributable to the improved facilities of converting our currency, and transporting specie.<sup>24</sup>

No less than four successive organizations were formed during the fifties in an effort to keep Cincinnati currency from depreciating. In 1850 an "agency" set out to prevent New York sight exchange from rising above  $\frac{3}{4}$  per cent.<sup>25</sup> Its procedure was to present country-bank notes for redemption in specie or eastern exchange. This compelled all institutions to share in supplying the latter and relieved Cincinnati banks from the demands of brokers wishing to cover sales. The arrangement was successful at first but expired when the State Bank of Ohio discovered it prejudicial to some of its branches.<sup>26</sup> A second "agency" was established in May 1854, only to be closed the following November.<sup>27</sup> A third was formed in May 1857, which agreed to furnish New York Exchange at  $\frac{3}{8}$  per cent premium in terms of Ken-

<sup>24</sup> LH, Sept. 13, 1849.

<sup>25</sup> LH, Feb. 14-Mar. 14, 1850; *Cincinnati Price Current*, Feb. 13, 1850.

<sup>26</sup> Huntington, *op. cit.*, pp. 472-74.

<sup>27</sup> The seat of operations, the Mechanics' & Traders' Bank, closed its doors (Huntington, *loc. cit.*).

tucky, Indiana, and Virginia notes; this lasted one year and gave way to the Bank of the Ohio Valley. The latter, designed along the lines of the Suffolk Bank of Boston, began business in September 1858.<sup>28</sup> It was estimated at that time that sixty to seventy million dollars worth of New York exchange was annually sold in the Cincinnati market.<sup>29</sup>

*New York Exchange and the Price Level.* The rate on eastern exchange tended to fluctuate inversely to commodity prices. This is quite evident in Charts VI and XXXVI. Price troughs of 1846, 1848-1849, 1851-1852, 1854, and 1857 were all marked by advances of the exchange rate. On the other hand, the price recoveries or booms of 1847, late 1849 and 1850, 1853, 1855-1856, and 1858-1859 correspond to a low or falling exchange rate. It would appear that, if the latter reflected changes in the rate of capital flow to the West, and hence furnished an index to variations in the short-term interest-rate, there was a fairly close but inverse correlation between interest and prices, regarded from the short run. As is frequently the case, this may be interpreted as a positive relationship with a lag.

*New Orleans Sight Exchange.* The market for sight exchange on the South did not develop in Cincinnati until some years after trade in eastern bills was well established. Prior to 1843 brokers sold New Orleans funds only occasionally; in 1840 they were at a discount even in terms of the depreciated western currency, but two years later, when the latter had reached its lowest value in relation to specie, sight exchange sold at 5 per cent premium.<sup>30</sup> Steady quotations commenced in 1846 and continued through April 1861. The leading characteristics of the market were as follows: (1) the price tended to vary between par and 1 per cent premium, rarely was in the form of a discount, and apparently pursued no definite trend up or down; (2) readily discernible features of seasonal variation were a tendency to rise in the first quarter (the grocery season) and to fall in May, June, or July; (3) year-to-year fluctuations corresponded only imperfectly with specie prices or rates on New York exchange—in particular,

<sup>28</sup> Huntington, *loc. cit.*

<sup>29</sup> Time bills drawn upon New York and other points in the East are considered below in connection with rates of interest.

<sup>30</sup> Table 54 (Appendix B).



New Orleans funds failed to rise to a comparable degree in 1854 and 1857, although they participated in general movements upon several other occasions.<sup>31</sup>

*The Specie Market.* Virtually no data have been unearthed to indicate the volume of the specie trade in Cincinnati before the Civil War, but market reports and quotations show that a thriving trade was carried on in gold and silver coins between 1837 and 1861, with the exception of a brief interval in the middle fifties (no bullion quotations whatever have come to light). Between 1837 and the end of 1850 American gold coins were generally more expensive than silver (Mexican dollars and American half-dollars). During the era of high specie prices — 1840-1842 — the difference between the two metals varied from 1 to 2 per cent (Chart XXXVI), but it amounted to only a fraction of 1 per cent between 1843 and 1850. Some data are also available for English or foreign gold, which show that these types of coin were worth slightly more than silver but less than American gold. In 1843 and later years the premium of foreign coins over silver was either extremely small or nonexistent; however, practically no Cincinnati figures can be cited to show that silver was worth more than gold prior to 1851.

The conventional view of currency historians that the overvaluation of gold by Congress in 1834 and 1837 was tantamount to the establishment of a gold standard in the United States is most probably based upon figures relating to coinage at the American mint and to payments at the customs houses. In 1876 Knox, then comptroller of the currency, reported that

the act of 1834 overvalued the gold coinage, driving from the country the full-weight silver coins previously in circulation; and it may be confidently stated that from 1834 to 1873 no silver dollar-pieces have been presented at any custom-house in payment of duties. The entire customs-duties of the country during this period were, with the exception of silver used in *change*, paid in gold coin, and from this fund the interest paid upon the public debt has been chiefly derived. It is not probable that in the last forty years one of these silver dollar pieces has been used in this

<sup>31</sup> Southern exchange dropped out of market during the dark days of 1854 and 1857. However, it was at par in October 1854 and at ½ premium in December (the panic occurred in the interim). Similarly, exchange sold at par in August 1857 and at only 1 premium the following December.

country in the payment of debt, except in certain cases of special contract, while thousands of millions in gold coin have been used to liquidate debts, both public and private. The average amount in silver dollar pieces annually coined during these forty years has been about \$160,000. The coin did not pass into circulation. . . .<sup>32</sup>

Aside from the fact that the United States was rarely, if ever, upon a full metallic standard, owing to the practical inconvertibility of a large part of the paper money in circulation, it is notable that this statement places much emphasis upon the American silver dollar and fails to allow for the fact that fractional coins were also "full-weight" until 1853.

A few later writers have called attention to the fact that silver coins remained in common use in the United States until some time after the discovery of gold in California,<sup>33</sup> and this newer interpretation is reconcilable with contemporaneous information on the prices and trade in coin. McCulloch, who was a bank executive in Indiana at that time, stated flatly:

Although the double standard existed in the United States, the metallic currency of the country chiefly, and throughout the West exclusively, from the time the bank [State Bank of Indiana] was organized in 1834 to the discovery of gold in California in 1848, was silver. The capital of the bank was paid up in Spanish and Mexican dollars, and its reserve continued to be in this coin until it was sold for gold at a premium of about 3 per cent on Mexican dollars and 6 per cent on Spanish. I had been a banker for fourteen years before I handled or saw a dollar in gold, except the ten-thaler pieces which were brought into this country by German immigrants.<sup>34</sup>

Several factors were in operation to delay for over fifteen years the replacement of silver coins by gold. The substitution of gold for silver in bank reserves, the flow of the latter into the United States from Mexico and other nations, and improvements in mint-

<sup>32</sup> U. S. Comptroller of the Currency, *Annual Report* (1876), pp. liii-liv. Italics are in the original.

<sup>33</sup> Neil Carothers, *Fractional Money* (1930), pp. 97 ff.; Frank D. Graham, "The Silver Question Once More," *Explorations in Economics* (1936), pp. 57-67; L. D. Edie, *Money, Bank Credit, and Prices* (1928), p. 222, n. 2.

<sup>34</sup> *Men and Measures* (1900), p. 119. As late as the end of 1847, over 80 per cent of the coin in the Indiana bank was silver; it was replaced by gold during the six years to follow. For annual figures see Harding, *op. cit.*, pp. 31, 113.

ing technique all operated after 1834 to *increase* the number of silver coins available. The light weight of many coins and expenses of collection were other circumstances counterbalancing the theoretical appreciation of silver fractional coins in terms of gold.<sup>35</sup>

The tide of international silver movements is reported to have finally turned against the United States beginning in 1844, and an influx of gold from California is said to have added a new force to alter the structure of our coinage.<sup>36</sup> In Cincinnati (and New York), however, little or no attention appears to have been paid to the increased demand for silver in India and Central Europe until the end of 1850.<sup>37</sup> The western premium on silver continued to climb thereafter in response to quotations at the seaboard until it was dropped from reports in July 1853. As in the case of farm commodities, improvements in transportation facilities provided additional impetus to eastern shipment by raising western silver prices relative to the East.<sup>38</sup> Shortly before the Subsidiary Coinage Law was passed (February 21, 1853), Cincinnati brokers were advertising silver coins at 4 per cent; small change brought 5 on occasion.<sup>39</sup>

A redundancy of silver coins, caused by the maladministration of the 1853 law on the part of Director of the Mint Snowden, is

<sup>35</sup> Carothers, *op. cit.*, pp. 105, 323. One finds no immediate connection between average annual ratios of bullion prices and Cincinnati coin quotations between 1837 and 1853. For instance, the bullion in fractional coins was worth \$1.024 in gold in 1840; yet American gold bore a premium of 1 per cent higher than silver in the market.

<sup>36</sup> Carothers, pp. 108-9.

<sup>37</sup> New Yorkers reported that exporting silver to India did not become profitable until 1850. Net exports rose from \$2,000,000 to \$23,000,000 between 1850 and 1851. (*Journal of Commerce*, cited in LH, Dec. 19, 1850.)

<sup>38</sup> In the spring of 1849 specie was worth 1-1/2% premium in Cincinnati; "the charge for shipping silver hence to New York being now 40¢ per \$100." There is a clear implication of a reduction in the latter and a resultant rise in the premium. This "charge" evidently referred to express only. Two months later, the total cost of shipping \$10,000 in silver to New York was reckoned at \$130, with no allowance for interest, short count, bad or light coin. This sum included \$50 for purchase at 1/2 per cent premium, \$5 for boxes, etc., and \$25 for insurance. (LH, April 19, June 20, 1849.) "Silver has declined in New York to 2%, which leaves little margin for operators here." "Silver prices in the East have advanced to 2 1/2% and even 3%. Activity here is prevented by scarcity." (*Ibid.* Mar. 4, 27, 1851.)

<sup>39</sup> "Gold is 1/4 @ 1/2 premium. Silver is scarce and ranges from 2 to 5 per cent

perhaps the major factor to explain the almost complete absence of Cincinnati silver quotations during the remainder of the decade. Snowden's interpretation of the law resulted in the free coinage of fractional coins at approximately the market ratio whenever the mint price of silver ( $\$1.21\frac{1}{2}$  per ounce after July 1854) exceeded the market price of bullion in terms of gold. The redundancy prevailed from 1854 to the Civil War. Retail stores, banks, and creditors were known to refuse silver in amounts exceeding the recently established legal-tender limit of five dollars.<sup>40</sup> Nevertheless, silver coins could not go to a large discount on account of their metal content, which was only slightly less in value than current bullion quotations (in terms of gold). On the contrary, J. F. Larkin advertised "gold and silver" coins at a slight premium for the first four months of 1857.<sup>41</sup>

The reasons for the disappearance of the gold market are more obscure.<sup>42</sup> It is possible that the reported plethora of silver fractional coins operated in some measure to relieve the demand for gold dollars and thus alleviated the scarcity of gold coins in general; moreover, it is stated on good authority that the gold dollars authorized by Congress in 1849 (to help replace silver half-dollars

premium. Brokers are selling small change at the latter" (LH, Oct. 21, 1852). Cf. Table 52, Appendix B.

The following advertisement was published for over a year:

Specie Wanted!	
We are paying for Spanish Dollars (perfect)	\$1.04
Mexican "	1.03
American " and Halves	1.03½
American and Spanish Quarters	1.03½
Dimes	1.04½
Half Dimes	1.04
Long Bitts	11¼
Five Francs	96½

All kinds of foreign Gold and Silver wanted, for which we pay the highest rates. GEO. S. WRIGHT & Co.

Cincinnati, Sept. 6, 1852.

<sup>40</sup> Carothers, *op. cit.*, pp. 128 *et seq.*

<sup>41</sup> The premium was  $\frac{1}{2}$ -1 or  $\frac{1}{2}$ -¾. Beginning in May, silver was omitted.

<sup>42</sup> See Table 51, Appendix B. H. E. White located data in the *Cincinnati Price Current* which are not included in this table, but they include only six scattered quotations between November 1851 and January 1856, none of which is more than ¾ per cent premium (*Wholesale Prices*, p. 33).

and quarters drained from circulation) became superfluous after 1853. Their diminutive size made them unsatisfactory for large transactions as well as small, and people are said to have preferred one dollar and five dollar bank notes.<sup>43</sup>

Other evidence suggests that Cincinnati "par currency" was not so valuable as gold between 1853 and 1856. In the first place, New York sight exchange was above the specie export point (and rising) throughout 1854, and local gold sales were recorded at high prices during the November panic.<sup>44</sup> Secondly, the notes of Cincinnati banks, which had long carried a premium over Indiana and other "par" currency, steadily rose in value over the first half of 1854 and reached 1 premium in July of that year.<sup>45</sup> Thirdly, opposition to the enforcement of a new Ohio small-note law, designed to rid the state of foreign fives, threes, twos, and ones after October 1, 1854, was based upon a fear that Cincinnati would have no convenient circulating medium at all.<sup>46</sup> Finally, there is the specific report by a local observer that Cincinnati's currency was depreciated in 1856.<sup>47</sup>

Whatever may have happened to the gold market between 1853 and 1856, it operated with increasing efficiency during the remainder of the decade. Quotations became more precise and, as already related, gold prices differed from New York sight exchange by a very narrow margin. It is perfectly true that a com-

<sup>43</sup> Carothers, *op. cit.*, pp. 105, 135.

<sup>44</sup> "Specie houses" advanced gold to 5, 8, and 10 premium during the darkest days of the panic of 1854. Speculators quickly ordered out gold, buying eastern exchange at 2½ per cent; as soon as the metal arrived in Cincinnati it was dull at 1-1½ premium. However, exchange remained high at 2½-3 until pork operations began and the country banks came into the market. (LH, Nov. 23, 1854.)

<sup>45</sup> The premium on Cincinnati bank-notes disappeared by October 1854. Other "par" currency consisted at that time of notes of the State Bank and branches, the Ohio independent banks (with ten named exceptions), the State Bank of Indiana and branches, and solvent banks of Kentucky, Louisiana, Virginia, and the East.

<sup>46</sup> "Put half a million of gold and silver in circulation in Cincinnati today, and how long will it remain while exchange is 1½ premium? Seventy-five per cent of it would be in New-York in less than a week. It would be bought up with foreign bank paper" (*Bankers' Magazine*, IX, 342 [Nov. 1854], citing CDG). Small notes of Ohio banks had been "exterminated"; they were manifestly incapable of issuing sufficient currency since they were allowed by charter to issue no more than five millions in small notes, taken altogether.

<sup>47</sup> Baker, in *Bankers' Magazine*, XI, 171-72.

paratively wide spread (1 per cent) developed during the "gold rush" of 1857, but prices were all but identical during the following year, in the final quarter of which they settled to  $\frac{1}{4}$  premium. In 1859 and 1860 gold and exchange hovered close to  $\frac{1}{2}$  premium until the very last month, when a sharp and sudden rise went into effect, and the year 1861 witnessed a gradual resumption of this same level (Chart XXXVI).

*Business Paper.* After 1851 trade in commercial paper (60-90 days) claimed a major share of attention in the money market, the affairs of which tended more and more to be carried on in the streets. Monthly rates on "good paper" have been arranged in Table 32 so as to permit comparison with simultaneous quotations on "first class" notes in Boston and New York. The data may be interpreted as follows: (1) no marked trend was apparent in interest rates over this brief interval; (2) as a general rule, Cincinnati rates were 50 to 100 per cent higher than Boston and New York; (3) open-market rates in Cincinnati tended to fluctuate in sympathy with eastern centers but were relatively inflexible; (4) although western rates bounded sharply upward when money was tight in the East, the former failed to drop to a comparable extent in periods characterized by a plentiful supply of funds. The active role in interregional investment was played mainly by the East.

Cincinnati was evidently a rather more stable (or less unstable) money market than New York during this period. As has already been said, local businessmen grew to rely more upon their own funds for working capital; furthermore, Cincinnati was not so large a reservoir as New York, into which funds flowed when opportunities for investment were lacking and out of which a drain took place at untimely intervals. The comparative stability of the home market was familiar to contemporary observers, since they closely watched eastern interest rates. It was remarked in 1853 that Cincinnati was "not liable to suffer materially from the evils of sudden contractions, such as are now the immediate cause, at least, of the present troubles in New York; and this is because we are not troubled with sudden expansions."<sup>48</sup> Naturally, the generally higher rates of the West did not pass unnoticed: "The discount lines here are always kept pretty tight, and the comparison

<sup>48</sup> LH, Aug. 18, 1853.

TABLE 32

MONTHLY DISCOUNT RATES ON "GOOD" COMMERCIAL PAPER IN THE "OUTSIDE" CINCINNATI MONEY MARKET; "STREET RATES" ON "FIRST CLASS" COMMERCIAL PAPER IN BOSTON AND NEW YORK AT THE BEGINNING, MIDDLE, AND END OF EACH MONTH, 1852-1861

	1852		1854		1856		1858		1860	
	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.
Jan.	12	9, 8½	15-18	9, 8	12	10, 12	..	9, 8, 7½	18-24	8, 9, 8½
Feb.	..	8½, 7½	10-12	7, 9	8-12	10, 9	..	6, 6, 5½	..	8, 7, 6½
Mar.	..	7, 6	..	9, 8, 10	9-12	10	..	5½, 5½, 5	..	6, 6, 5
Apr.	..	6	..	10, 12	10-12	9, 8	8-12	5, 5, 4½	..	5, 4½, 4½
May	..	6	12-18	10, 12	10-12	7, 8	8-12	4½, 4½, 4½	..	4½, 4½, 4½
June	8-12	5½, 6	12-18	9, 11	10-12	7, 8	8-12	4½, 4½, 4½	..	4½, 5, 5½
July	..	5½, 6	10-18	10, 9	9-10	7, 8	8-12	4½, 4½, 4½	8-10	5½, 5½, 6
Aug.	..	5½, 6	12	10, 9	10-12	7, 8	8-12	4, 4, 4	8-10	6, 6, 6
Sept.	..	6, 7	12-18	10, 12	..	8, 9	10-12	4, 4, 4	8-10	6, 5½, 5½
Oct.	..	6	12-24	12, 10	8-12	9, 10	10-12	4½, 4½, 4½	8-10	5½, 5½, 6
Nov.	..	6	12-24	10, 12	10-12	9, 10	10-12	4½, 4½, 5	8-10	6, 9, 12
Dec.	..	6	12-24	12, 18	10-18	10, 11	10-12	5, 5, 5	..	15, 15, 12
	1853		1855		1857		1859		1861	
	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.	Cin.	N. Y.
Jan.	10-12	6, 7, 8	12-18	15, 10	12-24	9, 10	10-12	5, 5, 5½	10-12	15, 8
Feb.	10-12	9, 10	10-15	10	10-12	8½, 9	10-12	5½, 6, 6	10-12	9, 8
Mar.	12	10, 12	12-18	7, 9	12-18	9, 10	10-12	6, 5½, 5½	10-12	8, 6
Apr.	12	10½, 10	..	8, 10	9-12	8, 9	10-12	5½, 5½, 5½	10-12	6, 5
May	10-12	7, 8, 9	6-18	6½, 8	10-12	8, 7	10-12	6, 6½, 6½	..	5, 6
June	9-12	8, 9	12-15	7, 6	10-12	7, 8	10-12	7, 8, 7	..	5, 6
July	9-10	9	10-12	6, 7	..	9, 10	10-12	7, 6½, 7	10-12	5, 6
Aug.	12	9, 10	..	7, 8	..	9, 10	10-12	7½, 7, 7	10	5, 6
Sept.	12	10, 12	6-12	7, 8	12-18	12, 24, 36	..	6½, 7, 7½	10-12	5, 6
Oct.	18	12, 15	10-12	7½, 9	24-60	36, 24, 24	..	7½, 7½, 7½	10-12	5, 6
Nov.	15-24	15, 18, 12	10-12	10, 12	..	24, 18, 15	..	7½, 7, 7	10	5, 6
Dec.	12-18	12, 10, 9	12	12, 15	..	15, 12, 9	18-24	7, 8, 8	10-12	5, 6

Sources: LH (1852-1860); WCA (1861); E. B. Bigelow, *The Tariff Question*, pp. 204-5; Smith and Cole, *Fluctuations in American Business*, p. 194.

is generally tight, tighter, tightest; the condition of affairs seldom getting into the easy scale, and even then what we could term easy might elsewhere be regarded as stringent."<sup>49</sup> Indeed, private bankers who discounted paper at 12 per cent "and over" for several years prior to 1853 ordinarily paid 6 per cent on deposits.<sup>50</sup>

The rates in Table 32, however, undoubtedly fail to reflect fully the instability of the credit situation because the definition of "good paper" was susceptible to wide and rapid change.<sup>51</sup> "Corporation paper" (short-term collateral loans to railroads) was acceptable in ordinary times, but was classified as third- or fourth-rate in 1854 and charged accordingly. Conversely, when the market suddenly eased in early 1855 (the supply of capital exceeded the offerings of "first-class" paper by a wide margin), the standard was lowered so that names theretofore considered second-class were looked upon as "No. 1."<sup>52</sup> Furthermore, the regular banks, lending at the legal rate, extended discount lines when the market was easy so as to absorb a greater share of the paper available. In short, interest rates give only a partial indication of changes in conditions; they may be used in quantitative analyses only as they apply to the more perfect money markets, and their limitations are especially great in connection with a market such as Cincinnati of the middle nineteenth century.

*Time Bills of Exchange.* As has already been indicated, usury laws had prompted legitimate or authorized banks to favor the bill of exchange for many years as an instrument of short-time credit because the market rate of interest was ordinarily higher than the legal limit; this had been the common practice, for instance, of the Second Bank of the United States.<sup>53</sup> The rapid growth of trade, which was accompanied after 1843 by a rising

<sup>49</sup> LH, *loc. cit.* The attitude was different in 1847: "money is probably plentier here than in any city in the Union at present, at least we hear but little complaint of its scarcity among the merchants." "In the East and South money is very scarce, and stocks are much depressed. . . ." (*Ibid.*, Dec. 9-16, 1847.)

<sup>50</sup> LH, Nov. 18, 1852.

<sup>51</sup> Similarly, the fact that the bank accommodation rate was uniformly 6 per cent does not mean that the market was perfectly stable.

<sup>52</sup> LH, Feb. 15, 1855. On the New York market see Myers, *op. cit.*, pp. 53-55.

<sup>53</sup> Usury legislation was also held responsible for overlending on the part of bankers.



price level, insured the development of trade acceptances.<sup>54</sup> Time bills had been drawn upon New Orleans for many years, but it was not until late in 1846 that the market was large enough to warrant steady quotations.<sup>55</sup> Eastern bills, the majority of which were drawn upon New York, became "current" only a very short while later, and they became leading fixtures in the Cincinnati money market by the early fifties.<sup>56</sup>

The buying rates of discount on time bills differed not only as to the time of quotation and place upon which they were drawn but also as to whether the funds were advanced by regular banks or individuals in the "outside" market. Between 1843 and 1853 the general practice was to separate the rate of exchange from the interest charge; however, the former varied quite directly with the length of time to run. Thus, sixty-day bills on New Orleans were bought by brokers at "interest and  $\frac{1}{2}\%$  off" in March 1847; ninety-day acceptances brought "interest and  $\frac{3}{4}\%$  off" and paper of four months' maturity, "interest and 1% off."<sup>57</sup> Hence these rates were equivalent to an annual rate of 9 per cent on bills freshly drawn. In the summer of 1848 eastern time bills could be sold to the banks at "simple interest," but during the following winter and spring both interest and exchange were charged, at 1-2 and 3 per cent, according to maturity.<sup>58</sup> After 1853 the banks absorbed such a minor share of the total that attention centered upon "outside rates," which were expressed in

<sup>54</sup> The promissory note was, however, the favored financial instrument in American commerce, as a whole, especially after 1836. For a valuable discussion see Margaret G. Myers, *The New York Money Market*, I (1931), 46 *et seq.*

<sup>55</sup> In earlier days the life of acceptances was generally four to six months, but in 1849 it was noted that "of late years" the time had been shortened to sixty to ninety days (LH, Sept. 13, 1849; cf. Myers, *op. cit.*, I, 54-55; Hammond, *op. cit.*, p. 79).

<sup>56</sup> "The operations of provision dealers and the business of banks immense as it is, is done chiefly in paper; by bills drawn East and South. European operators come West, not with money but letters of credit on which to draw bills" (LH, Dec. 19, 1850). However, it was noted two years later that a very large amount of eastern currency was in circulation in the West and tended to remain there so long as exchange was low. The American Express Company alone imported \$975,000 in currency and \$1,200,000 in coin to be paid out to the country for hogs (*ibid.*, Nov. 18, Dec. 16, 1852).

<sup>57</sup> CDG, Mar. 17, 1848; Bank-note Table of Geo. Milne & Co.

<sup>58</sup> LH, Sept. 13, 1849.

simple terms.<sup>59</sup> Furthermore, bank rates were generally somewhat lower than those in the street on account of the fact that chartered institutions for the most part handled only the better risks.

Between 1846 and 1853 New Orleans sixty-day bills were bought at "interest and 1% off" for a good share of the time. However, the exchange rate was down to  $\frac{1}{2}$  per cent between November 1846 and May 1847, and  $\frac{3}{4}$  per cent between April and August 1848. Rates went even lower during the commercial year 1852-1853—in some cases bills of this maturity were bought "at just one-half per cent off their face."<sup>60</sup> At the beginning of 1854, when rates "outdoors" supplanted bank rates in the market reports, the outside rate was high—equivalent to 12-24—and it held at 12-18 during the second quarter of the year. Very few bills were bought in the summer and fall, and no first class paper could be sold in December for less than 3-5 discount (18-30 on an annual basis). No sales could be made in January 1855, but the market loosened up a great deal during the following six months and paper of this character was bought at "interest off" in September and again in November. Only scattered quotations are available for 1856 and 1857, all of which point to a normal outside rate of 12-18 per cent.

Rates on eastern time bills tended to equal those on New Orleans except that the former were more frequently sold to the banks without an extra charge for exchange. Eastern sixty-day bills went at "interest off" in November, 1849, although those on the South were priced at "interest and 1%."<sup>61</sup> Again, New York acceptances were bought by banks on equally easy terms between September 1851 and December 1853, whereas those on New Orleans were subject to interest plus a rate for exchange. In 1854, however, the outside rates on eastern bills rose as high as those on New Orleans paper, and complete relaxation of the strain did not occur until February 1855. For some months thereafter the rate was resumed at 6-9 per cent; and there our record ends.

<sup>59</sup> Capital was sufficiently abundant in Cincinnati, although the institutions known as the regular banks were reduced to two or three in number. "We do not go much by their rates, either for money or bills, the former being restricted to 6% by law, and operations in streets and by private Bankers giving more reliable data for quotations indicative of market conditions" (LH, Feb. 23, 1854).

<sup>60</sup> CCC (1853), p. 13.

<sup>61</sup> LH, Nov. 29, 1849.

*Usury Laws and Interest Rates.* As far back as 1799 and 1804 the Territory and State of Ohio, respectively, had enacted usury legislation sufficiently drastic to discourage the growth of a free and open money market.<sup>62</sup> An act of January 12, 1824, did much to remove the shackles on the borrowing and lending of funds by repealing the provision calling for the forfeiture of a debt by a lender demanding or receiving more than 6 per cent.<sup>63</sup> Thus, Drake and Mansfield found the going rate in 1827 to be 10 to 15 per cent, conservatively speaking. The safest investments in real estate brought 10 to 12 per cent, and 18 was not uncommon. Large commercial loans frequently carried 20 per cent and small sums 36 per cent.<sup>64</sup> Almost all bank charters, however, provided a maximum rate of 6 per cent upon loans and discounts; moreover, both the general banking law of 1845 and the free banking law of 1851 forbade banks chartered thereunder to charge more than 6 per cent in advance.<sup>65</sup> Authorized banks were forced to charge exchange discounts to circumvent this legislation. As for unauthorized bankers, an effort to control them materialized as the famous "Ten per cent Law" of March 14, 1850.<sup>66</sup> This statute, which was honored in the breach, prohibited makers of credit instruments, other than chartered banks, from stipulating a rate higher than 10 per cent and limited recovery to that figure. It was repealed in 1859.<sup>67</sup> Some light on its effectiveness is furnished by the information summarized above — that the commonly "established value" of money between 1845 and 1860 was from 10 to 12 per cent.<sup>68</sup> On time bills of exchange, which absorbed a good proportion of available funds, net returns varied from 13 to 30 per cent, depending upon maturity and rate of discount. On some

<sup>62</sup> Territory laws, c. 90; Chase, I, 484.

<sup>63</sup> Chase, II, 1297.

<sup>64</sup> Drake and Mansfield, *op. cit.*, pp. 82-83. It was judged that the repeal of penalties upon usury had already had the desired effect of encouraging loans and investments by "foreigners."

<sup>65</sup> Huntington, *op. cit.*, pp. 426, 437. On the Illinois situation at that time, see Dowrie, *op. cit.*, p. 149. In 1857 the legal rate was raised from 7 to 10 per cent to protect the authorized banks.

<sup>66</sup> *Ohio Laws*, XLVIII, 87. This act amended that of 1824.

<sup>67</sup> *Ohio Laws*, LVI, 27. The 1824 law was repealed by act of May 4, 1869, in which a general limit of 8 per cent was fixed for credit instruments, with recovery of not more than 6 per cent upon debts overdue (*Ohio Laws*, LXVI, 91-92).

<sup>68</sup> LH, Jan. 17, 1856; June 25, 1857; Jan. 26, 1860.

occasions, as in 1854, when the railroads went into the short-term market in order to complete construction, the "outdoors" rate on inferior paper went as high as 3 or 5 per cent per month.

*State Taxes on Banks, 1850-1860.* The practically continual premium on eastern exchange and the legal restrictions on specie payment and usury furnished reasons why Cincinnati banking capital went into unincorporated local firms or to Indiana and Kentucky. A third factor of similar effect was the tax policy of the state towards financial institutions. Capital stock and surplus were rendered subject to tax in the laws of 1850 and 1851, and the law of April 13, 1852 (passed following a mandate of the Constitution of June 1851) went further to tax loans, discounts, and other bank property at the same rate as the property of individuals.<sup>69</sup> It was supplemented by the Crowbar Law of 1853 empowering collectors to enter bank vaults and seize valuables to satisfy assessments. Although this program was softened in 1856, the banks continued to be at loggerheads with the legislature for the remainder of the decade, and there is no question but that the legislation was responsible for an unsettling of the banking affairs of the state and of Cincinnati, the financial center, in particular.<sup>70</sup> Several banks chose to litigate the issue; others changed to private discount houses.<sup>71</sup>

*Chaos in the Money Market, 1850-1860.* The Cincinnati money market was strangely disorganized after 1850. In the first place, the customer's loan in authorized banks dwindled to small proportions.<sup>72</sup> It became a principal source of profit for brokers and discount houses, many of which were "regular" bankers in disguise. Secondly, since this was happening at a time when merchants' needs for short-term funds were increasing sharply (with a general growth in turnover of goods), local businessmen began lending idle funds to each other, and the tendency was for them

<sup>69</sup> Huntington, *op. cit.*, pp. 458 ff.

<sup>70</sup> For contemporary comment on the situation see H. F. Baker, "History of Banking in the United States: Ohio," *Bankers' Magazine*, IX, 3-8, and XI, 161-76 (July 1854-Sept. 1856); CCC (1853), pp. 12-13.

<sup>71</sup> The *Bankers' Magazine* listed twenty-three private banking firms in Cincinnati in July 1854 (IX, 19 [July, 1854]).

<sup>72</sup> CCC (1852), p. 10; (1858), p. 7. It was considered remarkable in the spring and summer of 1855 that the market was so easy and the resources of the regular banks sufficiently large to accommodate all the best borrowers at the legal rate (*ibid.* [1855], p. 25).

to become independent of the banks.<sup>73</sup> Third, the few authorized banks continued to do most of their business in the discounting of time bills of exchange. However, this phase of credit receded in importance, mainly because the authorized commercial banking capital in Cincinnati had shrunk to a mere \$50,000 by the fall of 1858.<sup>74</sup> The situation in August 1860 was well summarized as follows:

About the 1st of December [1859] the pressure became very severe, and the regular banking houses were wholly unable to take half the good business paper offering, so that during all that month first class paper was to be had outside in abundance at  $1\frac{1}{2}$  @ 2 per cent. per month, and various shifts had to be made by merchants not having large capital, to obtain loans. This stringency continued until about the middle of January, when matters began to work easier, and from the 1st of February up to the close of the year, the demand for money fluctuated from fair to moderate, and the market might be called easy during the summer months, though the demand is fair. The maximum rate with the regular banking houses is 12 per cent., and the minimum rate 6 per cent. During the time in which the Money market was easiest the past year, the range was 8 to 10 per cent. Properly speaking, however, the true indicator of the Money market in this city, if we base our theory upon what it will bring, which is the correct basis, is the rate outside the regular banking houses; this being admitted, then the whole range for the year, for acceptable business paper, has been 10 to 24 per cent. per annum. To those residing in other countries, who may know that a statute of our State prohibits any money lender from charging more than six per cent. per annum, the above statement may appear singular, for the obvious conclusion is that all who charge over this rate are law breakers, and such is the fact; . . .<sup>75</sup>

<sup>73</sup> "Our business men have been very very cautious in seeking for, and much more so in depending upon Bank accommodation; they have not looked for it, and have learned to do without it, and there are now scores of our heaviest business houses who have not offered any local paper for discount during the last nine months, and do not make any calculation upon such in the future. . . ." CCC (1855), p. 15. See also CCC (1856), pp. 22-23; (1858), p. 7.

<sup>74</sup> It was expected that an additional fifty thousand dollars would be subscribed by October 1, 1858; but even with this augmentation the amount was ridiculously small for a commercial and financial center as large as Cincinnati (*ibid.* [1858], p. 7).

<sup>75</sup> CCC (1860), pp. 8-9. Strictly, this statement is a misinterpretation of the law of 1824 because the latter placed no limit to the interest which could be charged *in advance*; i.e., it applied only to "all money, after the same shall become due."

## CHAPTER XVI

### CYCLICAL DISTURBANCES AND PRICE BEHAVIOR 1843-1861 (CONCLUDED)

#### THE FOURTH TIDE — THE SIX WAVES

THE COMPARATIVE abundance of reports on the economic situation makes it possible to construct an account of the fourth tide viewed from a shorter range than in the preceding chapter. Lack of space forbids placing the information entirely in proper perspective, and it is hoped that the reader will draw his own conclusions as to the bearing of these facts, more broadly considered, upon the general developments of the day. According to the price curves, the tide may be divided into six waves ending in 1846, 1849, 1852, 1854, 1857-1858, and 1861, measuring from trough to trough.<sup>1</sup> Commodity prices, especially when taken as a whole, are not always dependable indicators of changes in the commercial and financial sphere; but they are by far the most satisfactory data from a statistical point of view.

*The Wave 1843-1846.* Great strides in recovery — or rather reconstruction — were taken between 1843 and the end of 1845. The market for iron products and other commodities in this group failed to rise to any extent, but farm prices rebounded some 40 points. Two attempts were made in Ohio to establish a banking system to take the place of banks whose charters expired in 1843 and 1844.<sup>2</sup> Yet it was not until after the passage of the Kelley bill on February 24, 1845, that a way was cleared for establishment of such a system.<sup>3</sup> In the meantime the few chartered insti-

<sup>1</sup>Theoretical considerations favor the employment of dates or zones representing the more normal situations following recovery. Cf. Schumpeter, *op. cit.*, I, 69-71.

<sup>2</sup>A general banking law was passed March 7, 1842, and amended February 21, 1843. Both acts were so severe in their regulation of circulation and other phases of bank management that not a single charter was granted. (Huntington, *op. cit.*, pp. 405, 419-20.)

<sup>3</sup>This law also provided for creation of "independent" banks and regulation of the "old" banks. The branches of the State Bank of Ohio were to be somewhat more independent than those of the Indiana institution; branch notes were secured

tutions had contracted their loans and discounts, circulation, and deposits to only a small fraction of even the 1840 figures.<sup>4</sup>

Banking in Ohio, it appears, lagged behind other western states. The State Bank of Indiana increased its loans and discounts from \$2,800,000 to \$4,500,000 between May 1843 and December 1845. Circulation grew from \$2,000,000 to \$3,900,000 — almost 100 per cent. Specie holdings increased 28 per cent. In its loans and circulation the bank began to experience a pronounced seasonal variation. Both discounts and circulation reached a peak in the first quarter, declined during the summer, and recovered sharply in November and December.<sup>5</sup> The banks of Kentucky increased their circulation from \$2,800,000 to \$6,100,000 between 1843 and 1846 (first of the year). Missouri and Michigan joined in the movement, but a decline took place in Illinois. Taking the West as a whole, the circulation went from \$9,100,000 to \$16,700,000 during this three-year interval, and deposits expanded from \$3,300,000 to \$7,000,000. Loans and discounts increased *pari passu*, but, since specie failed to increase at an equivalent rate (\$4,600,000 to \$6,500,000), the ratio of reserves to demand liabilities fell from 37 to 27 per cent.

Between February 1843 and July 1846 most bank-note tables in Cincinnati journals employed a "specie standard" instead of the "currency standard" which had been used in the past. In other words, silver became par rather than funds received by the banks in payment and deposit. As a result, the truly par currency appeared at a nominal discount, usually not more than 1 per cent. Ohio country banks, Kentucky, and Indiana ordinarily supplied this paper; and the scarcer notes of local banks were at "par." As for other currencies, the tendency was towards appreciation. Tennessee, which was bought at 4 discount in the spring of 1843,

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by a safety fund equivalent to 10 per cent of the circulation, which was limited by capital subscribed. For notes of independent banks, a deposit of collateral in Ohio or United States stock with the state treasurer was to be required. (Huntington, pp. 424-25, 481-84.)

<sup>4</sup> See Table 51, Appendix B. In 1844 only eight banks were authorized to issue notes, including the Lafayette Bank of Cincinnati. The total circulation at the end of the year was \$2,260,403, compared with \$7,473,483 in unauthorized and foreign paper. (Ohio Exec. Doc. 55 [1844], cited in Huntington, *op. cit.*, pp. 416-19.)

<sup>5</sup> Harding, *op. cit.*, pp. 109-11. This represents an advance of two to three months over the situation under the Second Bank of the United States.

rose to 2 in the following year and held to that figure; Alabama came up from 35 in March 1843 to  $7\frac{1}{2}$  at the end of 1844 and was not far from that figure two years later (Mobile banks were as high as 2 off). Illinois State Bank paper rose from 60 to 30 per cent. Louisiana banks varied between par and 2 discount, but New Orleans Municipality Notes were accepted only at 10-25 per cent, depending upon the particular issue. Practically all eastern paper circulated at a discount from specie roughly equivalent to that on Ohio (country), Kentucky, and Indiana currency.

The factors explaining the behavior of different currency quotations are neither few nor simple. As in the months from the end of 1834 to February 1837, the appreciation of bank notes took place in spite of the fact that the quantity in circulation was increasing rather more rapidly than the volume of trade (according to the sharp rise in commodity prices) or the amount of specie in the vaults of the respective banks. The circulation of southwestern banks, for instance, expanded from \$2,900,000 to \$8,000,000 between 1843 and 1846, and the ratio of specie to circulation (plus deposits) declined from 56 to 46 per cent. The decrease in the ratio was even sharper between 1844 and 1846.

This is not the place to attempt to solve the great and general problem of the market value of paper currencies, but the hypothesis may again be advanced, admittedly subject to further verification, that there was an inverse relationship between the size of the discount on the notes of a bank or group of banks and the prospects of convertibility, popularly measured by the quantity of specie reported on hand. A preliminary study of the data indicates that there is a much higher probability of verifying this hypothesis than of finding a dependable relationship between the quantity in circulation (or the purchasing power over commodities in the home market) and the discount borne by respective issues in other markets. The ratio of specie to circulation (or total demand liabilities) also appears to have been irrelevant. Owing to the fact that each bank, with a few exceptions, issued only a small part of the total circulation, there is a closer analogy between the problem in hand and that of discovering the value of bank checks today than between the former and the value of national currencies in the home or the world market.<sup>6</sup> The satisfaction of

<sup>6</sup> The difference between the United States currency situation before the Civil



reaching ultimate causes is commonly denied the social scientist, but it is suggested that the specie holdings of the early state banks were in turn the reflection of several important elements in the situation, such as the amount and direction of the flow of capital, the confidence of the people in particular institutions and banks in general, and the degree of prosperity in enterprise.

Specie, it may be confidently stated, formed only a minor part of the circulation in Cincinnati during this epoch, though the pressure from New York and New Orleans was light in comparison with earlier years, especially during the winter export season. According to Chart XXXVI, coin rose considerably above the export point in the middle of 1843, but New York exchange was sold at par at the year-end for the first time on record. Owing to the alteration of facilities for transportation, the old triangle of specie shipment was outdated. Whenever New York exchange went to a sufficient discount in *New Orleans*, specie was forwarded to the southern port from Cincinnati (rather than New York). Thus specie was scarce in Cincinnati in October 1843 because of eastward shipments during the summer, but it was anticipated that shipments would soon be made South, should sight exchange undergo a further trifling decline from the latest quotation (1¼ discount). It was reported a month later that specie had been in demand for this purpose for some time, and that much of it had been obtained by redeeming country notes (the city banks were almost exhausted). A large stock of eastern exchange was therefore accumulating. A reduction of interest rates in New York, coupled with the opening of the provision season, forced sight exchange as low as ½ discount on one large sale.<sup>7</sup> During 1844 and 1845, however, sight bills on the eastern center could usually be bought only at a fair premium (around 1½ in currency and ½-1 in specie). They dropped sharply at the end of the latter year but did not quite reach par.

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War and a uniform circulation sponsored by the government or a central bank is similar in some respects to the difference between atomistic competition and a monopolistic competition or outright monopoly. Further, one notes that a national currency is, on the one hand, legal tender in its own district and, on the other, rarely scattered around among other nations. Another point of interest is that variations in the value of greenbacks after 1862 may have resulted from the carryover of a popular attitude into a different situation.

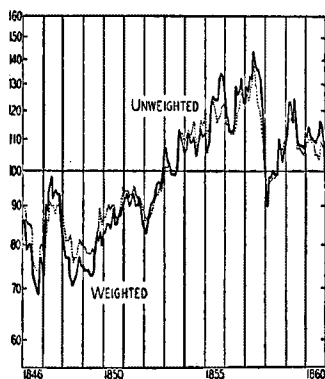
<sup>7</sup> LH, Oct. 18, 1843; *Atlas*, Nov. 18, 1843.

The year 1846 saw a minor panic in Cincinnati. American gold rose from par to  $2\frac{1}{2}$  premium between January and April; New York exchange climbed to  $3\frac{1}{4}$  in May — a higher price than that attained even in the dark days of 1854. The money market was reported as “extremely tight,” since local banks had not been dis-

CHART XXXIX

GENERAL WEIGHTED AND UNWEIGHTED INDICES OF WHOLESALE COMMODITY PRICES  
IN CINCINNATI, 1846-1860

(Base: Monthly average, 1846-1860)



For weighted figures, see Cole, *Wholesale Commodity Prices*, I, 183.

counting for some time and there was no resumption of lending in sight.<sup>8</sup> The pressure was communicated to Cincinnati directly from New Orleans, where it was attributed to the purchase of supplies by government agents with bills on the government.<sup>9</sup> Charts XXXIX and XL both reflect the great decline in the prices of produce which took place. Index A fell from 107 in December 1845 to 70 in the succeeding September, thus landing almost in the abyss of 1842-1843.<sup>10</sup> Flour and wheat were leaders in this movement. The money market tended to ease in July but grew tighter

<sup>8</sup> *Commercial*, May 20, 1846.

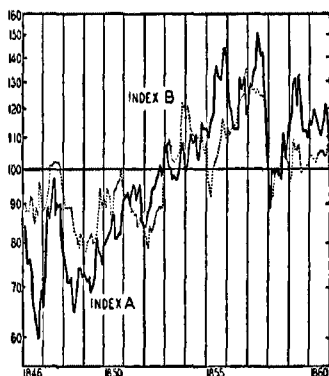
<sup>9</sup> There was a delay in the receipt of money from the East to cover these bills (*Commercial*, May 27, 1846; see also Myers, *op. cit.*, pp. 184-85).

<sup>10</sup> Base, 1824-1846. It was also explained that stocks of grain had been accumulating for three years and that the 1846 harvest was unprecedentedly abundant. Besides, there was great uncertainty as to the crops in Europe. (LH, Sept. 23, 1847.)

towards the end of the year.<sup>11</sup> Fortunately, the English situation prompted speculators to raise prices sharply at that time.<sup>12</sup> The recession was sharp rather than prolonged, and recovery was so rapid that neither movement was reflected in the banking data pertaining to the beginning and end of the year 1846.

## CHART XL

SPECIAL WEIGHTED INDICES OF WHOLESALE COMMODITY PRICES AT CINCINNATI, 1846-1860. INDEX A: COMMODITIES IDENTIFIED WITH NORTHERN AGRICULTURE. INDEX B: OTHER COMMODITIES  
(Base: Monthly average, 1846-1860)



For data, see Cole, *Wholesale Commodity Prices*, I, 184.

*The Wave 1846-1848/49.* The extent of the rebound of agricultural prices between 1846 and 1847 is suggested by the rise of flour from \$2.12½ at its lowest point (September) to \$6.00 in June. Mess pork and cotton also increased at the end of 1846 (indeed, cotton was rising most of the year). Such a huge appreciation was of material benefit to the West, as was the large inflow of speculative funds. Specie and exchange sank to low figures in the spring of 1847, and large amounts of sight and time bills were offered for sale. It was even reported that coin was difficult to dispose of — a most unusual situation in the West.<sup>13</sup>

<sup>11</sup> *Commercial*, July 1-22, 1846; CDG, Nov. 12, 1846, and Jan. 14, 1847.

<sup>12</sup> News of the English crop shortage reached Cincinnati in September (*Commercial*, Sept. 16, 1846).

<sup>13</sup> Note that prices had advanced considerably before easiness was detected in the money market (CDG, Feb. 18, 1847).

However, loans shortly proved to be in such great demand that they were obtainable only at higher rates; not until December was it admitted that the local money market was easier than had been the case (at the same season) for three years. Even then the forecast was gloomy by reason of stringency in the East and South.<sup>14</sup>

The forecast of late 1847 was correct; high prices, speculation, and profits soon turned into low prices, inactivity, and losses. General index numbers for New York, New Orleans, and Cincinnati fell about 30 points during the six months ended in May, 1848. It is also worthy of remark that the decline of flour and wheat prices, which are commonly regarded as "leaders" in the boom of 1847, was no more intense than the collapse of cotton, sugar and molasses, hogs and all pork products.<sup>15</sup> A measure of recovery took place during the summer of 1848, but it was not until a year later that American prices were definitely upon an upward path. As for volume of trade, the data at hand reflect the recession only poorly for two reasons: (1) they are on an annual basis; (2) the growth factor obscured year-to-year variations. It is obvious, however, that the flour trade suffered the greatest reverse of all: Cincinnati exports fell from 582,000 barrels in 1846-1847 to 201,000 in the following year. Exports of bulk pork also declined to a great extent, but lard and whisky shipments continued to increase during 1847-1848 before declining in 1848-

<sup>14</sup> LH, Dec. 9-16, 1847. The "crisis" of 1847 was chiefly an eastern affair, judging from the fact that New York quotations on Cincinnati exchange deviated to only a minor extent from the short-time norm. In contrast, western exchange sold at 2-3 discount between May and December 1846. (Smith and Cole, *op. cit.*, pp. 119, 125.)

<sup>15</sup> The Cincinnati price-relatives for the peak and trough are as follows (base, 1846-1860):

	1847	1848	Per cent Change
Flour .....	124 (June)	78 (Aug.)	-37
Wheat .....	116 (June)	68 (Aug.)	-41
Cotton .....	125 (May)	50 (July)	-60
Sugar .....	118 (Aug.)	62 (May)	-47
Molasses .....	102 (Aug.)	68 (Jan.)	-33
Bacon .....	111 (July)	43 (May)	-61
Lard .....	110 (Aug.)	59 (May)	-46
Mess pork .....	109 (June)	54 (May)	-50

1849, and barreled pork, lard oil, and candles fell off little or none at all. As for imports, almost all the leading articles reached a definite peak in the year 1847-1848 rather than in 1846-1847.<sup>16</sup>

The tidal trend was sufficiently strong to counteract cyclical declines in western loans and discounts, deposits, and circulation. However, there was considerable contraction in the East, the Southeast, and the Southwest during the year 1849 (Chart XXXVIII). Bank-note tables indicate no change of importance between 1846 and 1848 aside from the excitement in several western cities in April 1848 over the notes of a few Ohio country banks. The issues of four small institutions became uncurrent shortly thereafter, but the currency structure as a whole fared very well.<sup>17</sup> In short, Cincinnati failed to experience the summer crisis of 1848 to an extent comparable with Europe and the eastern seaboard, and confidence was entirely restored by the autumn of the year.<sup>18</sup>

*The Wave 1849-1852.* Revival in the spring of 1849 was obstructed by a continued scarcity of capital because of conditions in the East. A "truly remarkable" increase in Cincinnati business did take place in March and April, but steady exportations of specie to New York tended to exert a drag upon operations. Cincinnati brokers returned Ohio country notes for specie or exchange as soon as they came to town; as a result, the city found itself dealing nearly altogether with Indiana notes (State Bank and its branches).<sup>19</sup> Money continued "very tight" all over the country, and the summer epidemic of cholera all but put a stop to commercial operations.<sup>20</sup> Not until the close of 1849 did eastern exchange fall away from the export point.

The years 1850 and 1851 witnessed a great recovery of prices, especially in New Orleans. Cotton staged a conspicuous recovery in the last quarter of 1849 and approached a peak in the follow-

<sup>16</sup> American domestic trade fell continuously in volume from 1847 to 1850. Foreign shipments declined, to a less extent, between 1847 and 1849. (Smith and Cole, *op. cit.*, p. 104.)

<sup>17</sup> Rumors of widespread failures in Cincinnati were without foundation. In July 1848 two failures did occur, one of which was a large dry-goods house (LH, Apr. 12, June 29, July 13, 1848).

<sup>18</sup> LH, Sept. 13, 1849.

<sup>19</sup> *Cist's Advertiser*, Apr. 18, 1849; LH, Apr. 19, 1849.

<sup>20</sup> LH, July 19, 1849.

ing year even higher than 1847 (sugar and molasses did not share in the movement). Of the Cincinnati exports, mess pork and other hog products were low in 1850, but flour, wheat, corn, and whisky enjoyed more or less of a boom. Cereal crops were reported to be unprecedentedly large but failed to depress prices in proportion. Consequently, the balance of trade was greatly improved at the end of 1850, from the point of view of the West. This happened again in 1860.

Partly on account of the fact that interest rates remained moderately firm in the East throughout 1850, western exporters were faced with a difficult financial problem when the season came to a head at the end of the year. In December banknotes were momentarily at a higher premium in Cincinnati than ever before, and the Ohio Life Insurance and Trust Company petitioned the Ohio legislature for a restoration of privilege to issue circulating notes.<sup>21</sup> Exchange went to a discount varying with the size of the bill. Eastern exchange in large amounts was particularly difficult of negotiation and sold from par to 1 discount. Southern "short sight" was offered at 2 discount, with no buyers. Specie finally commenced to arrive, and it was so dull at one time that large lots could scarcely find purchasers. A short time later it was noted that the "pressure" had been unusually long and heavy, owing to (1) large local crops; (2) equally heavy interior crops, made available for the first time by railroads which were opening the hinterland; (3) relatively high prices.<sup>22</sup> The demand for short-term capital simply outran the supply.

Although the money market eased considerably during the spring of 1851, with the passing of the peak demand for export finance, it was subject to spasmodic contractions during the summer and finally reached such a stage in the autumn that many apprehended another commercial crisis.<sup>23</sup> Outdoor rates were up to 1½-3 per cent a month in October, and eastern exchange was scarce at 1 premium.<sup>24</sup> Tightness prevailed for the remainder of the year — street paper was discounted at 1-3 per cent per month in December.<sup>25</sup> At the same time commodity prices were declin-

<sup>21</sup> LH, Dec. 19, 1850.

<sup>22</sup> LH, Jan. 2, 1851.

<sup>23</sup> LH, Jan. 9-Sept. 18, 1851; CCC (1852), p. 10.

<sup>24</sup> LH, Oct. 23, 1851.

<sup>25</sup> LH, Nov. 13-Dec. 18, 1851.

ing. The movement appears to have begun first in New Orleans and to have gathered much more momentum in that center than in New York or Cincinnati (Chart VI). Here, again, cotton was a prime agent; flour, wheat, corn, and whisky behaved sympathetically; provisions, however, simultaneously embarked upon a stiffly upward course (Charts XVI-XVII).<sup>26</sup> Manufactured and imported goods began to show a definitely closer kinship with seaboard prices than had been the case theretofore. That is, Index B declined all during 1851 to a low point in the beginning of the succeeding year. The continuous pressure of rising interest rates and falling commodity values finally resulted in the suspension of four houses within the last week of 1851.<sup>27</sup>

As in 1848, the currency and banking of the country held up rather well in late 1851. As a matter of fact, New England and the West (excluding Ohio) witnessed an expansion during that year. It is probable that the growth of trade operated to bolster even the weaker issues against depreciation; moreover, imports of fresh gold from California undoubtedly helped to solve the redemption problem. At any rate, few changes took place in Cincinnati bank-note tables during this wave. The notes of Cincinnati banks continued to carry a premium which fell short of the price of gold by a small fraction. Par currency continued to consist largely of the notes of the State Bank of Indiana and its branches, the State Bank of Ohio and its branches, the few remaining Ohio independents (with some exceptions), and the solvent banks of Kentucky and Virginia. Notes of solvent Louisiana banks, which had been sold at a slight premium before 1848, passed at 1 discount after the beginning of 1849. Furthermore, eastern notes (generally regarded "as good as gold") varied between par and 2 discount.<sup>28</sup> Tennessee was quoted at 2-2½ discount and Michigan at 5, but notes of the State Bank of Illinois

<sup>26</sup> The diversity between cereals and provisions is undoubtedly a first factor to explain the comparative inactivity of the Cincinnati general index numbers in 1850-1851.

<sup>27</sup> LH. Jan. 1, 1852. Early resumption was expected, although the banks "were perhaps never in a more crippled condition, and accommodations were seldom more needed by the city trade."

<sup>28</sup> Eastern notes of \$5.00 denomination and upwards were commonly at par but went to 1 discount in the winter of 1850-1851. Small notes went from par to 2 discount in July 1850 and did not recover until one year later.

and the Shawneetown Bank were badly depreciated throughout this interval.

*The Wave 1852-1854.* The years 1852 and 1853 witnessed a first-magnitude expansion of credit and trade in the West, for which the stage was set by an unparalleled easiness in the New York money market during the former year. Loans were freely made in the East at  $3\frac{1}{2}$ -4 per cent *per annum*, and funds were equally abundant in Europe. This was quickly reflected in western money markets. As early as February 1852 money was reported to be easy (an unusual comment for Cincinnati), and during the greater part of the year the regular banks were accepting all good paper, presumably at the legal rate of 6 per cent. Railroad projectors grasped the opportunity to dispose of their securities at high prices and so carry on their works "with unexampled rapidity." It is not inaccurate to say that capital was more abundant than at any time on record.<sup>29</sup> The situation in August 1852 is well described as follows: "The actual capital of our city has largely increased, business generally has been remunerative, many have made large fortunes, and from borrowers have become lenders of money; and upon the whole, we cannot but congratulate our readers, both at home and abroad, upon the unusually healthy state of things which now prevails in our midst."<sup>30</sup>

Banking data for the West (including Ohio) show that despite this unprecedented abundance of capital at the beginning of 1853, loans and discounts amounted to \$41,000,000 or about the same as a year before. Deposits and circulation on the other hand, had both increased to some extent.<sup>31</sup> Cincinnati private bankers agreed to reduce the rate of interest paid on deposits from 6 to 4 per cent, beginning the first day of 1853, and it was remarked that "nothing else than a plethora of capital could induce this change."<sup>32</sup> Few changes were made in bank-note quotations and these were towards appreciation.<sup>33</sup> Commodity prices were rising sharply,

<sup>29</sup> CCC (1852), p. 10; LH, Feb. 19-Dec. 16, 1852.

<sup>30</sup> CCC (1852), p. 10.

<sup>31</sup> Deposits jumped from \$11,000,000 to \$13,000,000, whereas circulation increased but from \$26,000,000 to \$29,000,000. The ratio of specie to demand liabilities decreased during the year. (Table 50, Appendix B.)

<sup>32</sup> LH, Nov. 18, 1852.

<sup>33</sup> Tennessee notes gradually went from  $2-2\frac{1}{2}$  to  $1\frac{1}{2}$  discount; they finally



especially those of manufactured and imported goods (Charts XXXIX-XL). Since breadstuffs tended to remain low and the provisions market was generally quiet in appearance, it was interpreted that supply and the "regular consumptive demand" were regulating their values — hence a healthy condition of trade.<sup>34</sup>

The packing season which began in the autumn of 1852 witnessed higher prices for hogs and pork products than had been experienced since 1840. Since the volume of exports was holding up rather well, the West was again in a favorable (or less unfavorable) trade position. Eastern exchange went to a discount (selling rates) for the second time on record, and both gold and eastern banknotes were received in payment.<sup>35</sup> Some of the specie immediately found its way to New Orleans, since southern exchange was unusually scarce during the grocery season.<sup>36</sup> The frequent sale of railroad bonds, however, prevented exchange on New York from rising above  $\frac{3}{4}$  premium later in 1853. The presence of a large stock of eastern currency contributed to the same result.

The extraordinary spurt of railway construction in the early fifties affected prices and trade directly through increased demands for construction materials and indirectly through the operations of the capital markets. A leading feature of the markets of 1853 was the behavior of iron and iron products. As has already been related,<sup>37</sup> iron prices partook of the upward spirit of the times to a greater extent than they had since 1836. Furthermore, the Cincinnati imports of pig metal, and iron and steel in various degrees of fabrication, underwent astonishing growth.

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reached par in October 1853. Michigan notes jumped from 5 discount (and "no sale") to 1 per cent during the summer of 1853.

<sup>34</sup> CCC (1852), p. 10.

<sup>35</sup> CCC (1853), pp. 12-13. The bank notes, which came in large amounts, were freely used in payments for produce and enabled Cincinnati provision dealers to make and meet engagements. Although local banks did not receive them, they were accepted by farmers and country banks.

<sup>36</sup> CCC (1853), pp. 12-13. The scarcity of New Orleans exchange was a factor in the appreciation of time bills to as high as  $\frac{1}{2}$  per cent discount for sixty-day maturity. Incidentally, specie and currency were now flowing in directions opposite to those of former years, due to the re-routing of the export trade and the development of the commerce in groceries, and the transfer of capital.

<sup>37</sup> Page 262.

By August 1853 it was evident that bullish price movements of the preceding months had not been regulated entirely by supply and the "regular consumptive demand." In particular, it was discovered that oversanguine speculation in agricultural products was leading to severe reverses. The whole provisions line reached its price peak with the pack of 1852-1853 and then headed downward. The heaviest losses therefore fell upon eastern dealers who had bought during the season. Few failures were caused in Cincinnati or other points in the West, but the inexplicable and temporary "pressures" in certain branches of trade boded ill for the future.<sup>38</sup> The money market was becoming firmer; currency was more restricted in supply, and "regular discounts" were being curtailed by the banks for the first time in eighteen months.<sup>39</sup> Leading factors were: (1) pressure in New York, which had just suffered a stringency; and (2) refusal of the Cincinnati banks to accept notes of Ohio State Stock Banks, which had grown to constitute "a very considerable share" of the local currency.<sup>40</sup>

Four or five months later it was evident that many banks of the South and West had shot their bolt. Loans and discounts in the latter region mounted from \$41,000,000 to \$56,000,000 in the single year 1853 — an increase of roughly 37 per cent — whereas deposits increased from \$13,000,000 to \$17,000,000 and circulation from \$29,000,000 to \$37,000,000. Nevertheless, the ratio of specie to liabilities declined to a comparatively small extent (from 22 to 20 per cent). In October the Cincinnati banks declined to purchase time bills of exchange, and "best names" could be negotiated only at a discount equivalent to 18 per cent per annum.<sup>41</sup>

<sup>38</sup> CCC (1853), p. 3.

<sup>39</sup> LH, Aug. 18, 1853.

<sup>40</sup> LH, Aug. 18, 1853. At the end of June 1853 the money market was very quiet. Banks were discounting at 6 per cent all the first-class paper offered by customers; outdoor rates ranged from 9 to 10 per cent. Money could also be borrowed on good real estate securities at the latter rate. That confidence was "not too good" is shown by the fact that "summer paper" could be negotiated outside on good security for only 7-8 per cent, whereas paper of longer maturity was difficult to sell at 10 discount. (LH, June 29, 1853.)

<sup>41</sup> LH, Oct. 13, 1853. "Good paper" had advanced to 12 per cent in August, and more careful discrimination — always sign of a tighter situation — was evident in September. "Names not first class" began to pay higher rates. (*Ibid.*, July 20-Sept. 14, 1853.)

After a tight squeeze in November, when rates climbed to 15-24 per cent, the rate on good business paper settled to 12-18 at the end of the year.

The fever of 1853 did not abate in 1854; on the contrary, it tended to mount higher and higher. A leading manifestation of overtrading and overextension of credit was the financing of railway construction, which turned into a mania. Several corporations, which had experienced a pressing want of construction capital during 1853, failed to get loans in foreign markets or in the East, and were consequently forced to enter into a system of borrowing in the West on the collateral of their own stocks.<sup>42</sup> Cincinnati proved to be a leading place of resort for these loans, since private bankers were then in control of the deposits of the city, consisting largely of merchants' balances. In February confident renewals of older loans took place at rates not higher than 1¼-1½ per cent per month.<sup>43</sup> But by May "railroad paper" rates rose to 2-3 per cent, and, despite the fact that some borrowers decided to suspend construction rather than pay such rates, it was reported that some loans were placed at as high as 50 per cent per annum during that year.<sup>44</sup> The discount houses apparently yielded to the temptation furnished by these rates — when the merchants began to draw their balances in the autumn, they were not to be had.

The entrance of railroads into the credit market was bound to affect rates on mercantile loans. In February it was reported that the authorized banks were doing an average business at the legal rate, and good paper was traded freely outdoors at 12 per cent.<sup>45</sup> The latter rate was retained during the spring and summer for "strictly prime" paper, but only a few names were admitted to this category and the bulk of the business was done at 18-24.<sup>46</sup> Conditions grew steadily worse as autumn approached. Business was reported as generally and extremely dull, with poor prospects because of the extraordinary stringency of the money market.

The western banking situation was rendered more precarious by repeated runs for coin, which were partly attributed to the

<sup>42</sup> CCC (1855), pp. 14-15.

<sup>43</sup> LH, Feb. 23, 1854.

<sup>44</sup> LH, May 18, 1854; CCC (1855), pp. 14-15.

<sup>45</sup> LH, Feb. 15, 1854.

<sup>46</sup> LH, Apr. 12, July 13-20, 1854.

course of New York exchange. Rates on the latter had begun to rise at the end of 1853 and did not come to a turning point until November 1854 (Chart XXXVI). The run on Ohio State Stock Banks appears to have commenced in May; it was soon transferred to the institutions of Illinois and Indiana.<sup>47</sup> At the same time, the West was denuded of the eastern banknotes which had constituted a fair share of the circulation in the preceding year. Cincinnati was left to rely upon Kentucky and Indiana notes, and, of these, the Indiana free banks came to be the most common.<sup>48</sup>

One recent authority has called attention to the fact that New York City, the South, and the West underwent a financial crisis in 1854 which was comparable in severity to the panic of 1857.<sup>49</sup> The events may be recounted briefly. In August, following the discredit of two of the Indiana free banks, the notes of all were "thrown out" by the banks of Cincinnati.<sup>50</sup> Confidence in many other banks was shattered, and rates of discount on various issues appeared all through the fall. Navigation of the rivers was tied up by low water. Many merchants despaired of meeting engagements. Conviction of a widespread crop failure prompted sudden contraction of circulation on the part of the more conservative banks of issue, so that Cincinnati was left with little hand-to-hand circulation. Finally, in the middle of November, the three principal private banking houses were forced to suspend payments.<sup>51</sup> On the first of December the merchants and manufacturers found no bank accommodations whatsoever, and fully \$3,000,000 of their active cash capital was tied up indefinitely.<sup>52</sup> Confidence was restored, however, with surprising rapidity shortly after the beginning of 1855, the rate on first-class business paper subsided to 12-15, and navigation was resumed once more.

Despite the restricting effects of the credit situation, the total

<sup>47</sup> Sumner, *op. cit.*, p. 444.

<sup>48</sup> LH, July 20, 1854.

<sup>49</sup> Smith and Cole, *op. cit.*, pp. 119, 121, 128.

<sup>50</sup> Three or four banks were excepted (LH, Aug. 17, 1854; CCC [1855], p. 25).

<sup>51</sup> Other failures also took place, notably the Mechanics' & Traders' branch of the State Bank of Ohio. Ten authorized Ohio banks disappeared from the State Auditor's Report in 1854. (LH, Sept. 14, Oct. 19, Nov. 16, 1854; Huntington, *op. cit.*, p. 454.)

<sup>52</sup> CCC (1855), p. 15.

volume of Cincinnati trade for the year ended August 31, 1854, compared favorably with the previous year. Molasses is the only important commodity for which local shipments declined noticeably,<sup>53</sup> and in many instances there was a healthy increase in trade. In other words, the decrease which took place in Cincinnati commerce during the summer of 1854 was not large enough to cause a slump in the annual data. On the other hand, the panic, the suspension of navigation, and the crop failure brought it about that the general trade of the city fell off "amazingly" during the year 1854-1855. The heaviest decline took place in manufactured goods and "merchandise, tons" (Chart XXXVII). The condition of shipping is also probably responsible for a parallel decline in receipts of produce at New Orleans.<sup>54</sup>

Although interest and exchange rates behaved much as would be expected during these critical months, the same is not true of commodity prices. Index B, to be sure, wavered all during 1854 and dropped 17 points at the end of the year; yet the recovery during 1855, it will be noticed, was not long delayed (Chart XL). Index A bears no earmarks of a crisis, nor do the general indices. It is possible, therefore, that the suspension of trade in the autumn may have left quotations at nominally high figures, in view of actual limitations on supply due to the condition of the rivers and the prospective shortages caused by the crop failures. On the other hand, it is worthy of remark that New York prices also continued at a high (if moderately declining) level in spite of the fact that a crisis was precipitated in speculative and financial circles,<sup>55</sup> but New Orleans fell in 1854 to the lowest point since 1852.

<sup>53</sup> Imports were 115,100 barrels in 1852-1853 and 86,400 in 1853-1854.

<sup>54</sup> CCC (1855), p. 14. Note the following sample comparisons for Cincinnati applying to 1853-1854 and 1854-1855: flour exports, 332,800 and 199,300 barrels; whisky exports 249,600 and 243,600 barrels; pork and bacon, 51,800 and 40,500 barrels; lard, 84,300 and 62,800 kegs; coffee imports, 91,400 and 114,100 sacks; sugar, 64,500 and 47,000 hogsheads; pig metal, 41,800 and 26,600 tons; cotton, 22,500 and 15,100 bales. Figures on the volume of the nation's domestic trade show increases in both 1854 and 1855 (calendar years); yet foreign trade did fall off in 1854. (Smith and Cole, *op. cit.*, p. 104.)

<sup>55</sup> "In 1854 the Ohio Valley was the scene of a bank crisis at the time of the crisis in the stock market at New York" (Sumner, p. 444; see also Smith and Cole, *op. cit.*, p. 121).

It is reasonable to conclude that the panic of 1854 was confined largely to the financial sphere. The crisis was probably more severe in Cincinnati than in New York, New Orleans, or any point in the West, although no large failures took place in local commerce or manufacturing at the height of the panic.<sup>56</sup> As for geographical scope, Ohio banking data show a much more severe contraction than six other western states. Corresponding figures for New England and the Middle Atlantic States indicate hardly any restriction at the end of 1854,<sup>57</sup> compared with that which took place in the South Atlantic states. Baltimore, St. Louis, and San Francisco exchange rates pursued an even course in the New York market in 1854, and bills on New Orleans were only moderately affected. The contrastingly sharp decline in Cincinnati exchange has led to an interpretation that the disturbance was localized and short-lived.<sup>58</sup> Chicago suffered greatly during the summer from the effects of speculation in real estate, with July money rates ranging from 2 to 5 per cent per month; the same market had a panic in October on the occasion of the "throwing-out" of Indiana free bank notes; and confidence was reported destroyed in New Orleans at the end of the year by frauds and failures. Northern time drafts were difficult to sell at 2½ discount.<sup>59</sup> Trouble appears, therefore, to have shot back and forth between New York and the interior during the latter half of the year: the eastern stock market was in difficulties during the summer; this was certainly harmful to western finances, which finally crashed in the autumn; and there occurred a reflex action upon New York, where little paper could be sold at less than 12 discount in November and much was negotiated at 18 the following

<sup>56</sup> LH, Nov. 16, 1854. Some mercantile failures were reported in July 1854; they were confined chiefly to houses which had experienced their losses one or two years before but had managed to carry on in a crippled condition (*ibid.*, July 20, 1854).

<sup>57</sup> In the South Atlantic region the circulation decreased from \$41,000,000 to \$31,000,000 during 1854, while deposits shrank from \$15,000,000 to \$12,000,000. The picture for the Northeast is markedly different, especially since loans and discounts increased from \$397,000,000 to \$411,000,000.

<sup>58</sup> The rate on Cincinnati fell to 2¼-2½ in the autumn and 3½-3¾ in December; yet it was back to normal within three months (Smith and Cole, *op. cit.*, p. 128).

<sup>59</sup> This is on the authority of Cincinnati reports. (LH, July 20, Oct. 26, Dec. 21, 1854.)

month.<sup>60</sup> Some went so far as to say that, financially at least, the year 1854 saw more acute distress than had been experienced since 1837.<sup>61</sup>

*The Wave 1854-1857.* Sumner, a leading student of the earlier history of banking in the United States, developed the following views from a study of data for New York City:

In the United States the money market and share market were feverish and unsettled from the panic of 1854 until that of 1857. There is no real interval between the two.

It does not appear that there was any bank inflation on the new gold. . . . The New York City banks generally had more specie than circulation, while there were on all sides the greatest evidences of prosperity. The justest view of the case is that there had been an expansion of prosperity and enterprise, stimulated by the new gold, which had gone on with such rapidity that a crisis was produced in its development. . . . The leading features of this crisis were that it was world-wide, very sharp and sudden, and quickly over. The crisis was a very severe one, but it was only a halt in a course of rapidly advancing prosperity. It may be added that it was also especially a banking crisis.<sup>62</sup>

Space does not permit a discussion of Sumner's views regarding New York city affairs. But it is in order to point out that, so far as the western part of the United States was concerned, the judgments expressed in the quotation above are applicable only to a limited extent. In the first place, while it is true that the continued presence of a list of uncurrent bank notes (such as those of the discredited Indiana free banks) did tend to disorganize the money markets in Cincinnati and other western centers to some extent, exchange and interest rates as well as nonstatistical comments suggest that there was a "real interval" of restored confidence, easier terms of borrowing, and a fresh extension of loans during the years 1855-1857. Second, bank inflation did take place in the West, as in the country at large. Third, although the crisis of late 1857 was world-wide, sharp, and severe, it is far from certain that it was sudden, quickly over, or "only a halt in

<sup>60</sup> LH, Nov. 23, 1854; Bigelow, *op. cit.*, pp. 204-5 (appendix); Smith and Cole, *op. cit.*, pp. 108 ff.; Sumner, *op. cit.*, p. 424.

<sup>61</sup> LH, Nov. 19, 1854. The "difficulty" of 1842 was alluded to as "somewhat different" in character (Sumner, p. 424, citing *Bankers' Magazine*, IX, 158).

<sup>62</sup> *Op. cit.*, pp. 424-25.

the course of rapidly advancing prosperity."<sup>63</sup> And, finally, it should not be overlooked that, although the panic was probably more burdensome upon western banking than the events of 1854, the former was not nearly so confined to the world of finance. In other words, it shook the foundations of commerce and real estate to a far greater degree than the crisis of 1854.

All the information at hand indicates that 1855 was a boom year in the West.<sup>64</sup> Within these twelve months the loans, deposits, circulation, and specie of banks in seven states, including Ohio, recovered the ground lost during the preceding year. In Cincinnati, as has already been related, the money market was rapidly thawed with the restoration of confidence and reopening of navigation. At first, the best business paper was taken at 12-15 per cent, but capital accumulated in the banks during the spring and summer, with the result that the market "became decidedly easy, and all the good paper offered was taken by the Banks from their customers, at 6 per cent." The year closed on August 31 with capital plentiful and good local business paper in demand.<sup>65</sup> Another important factor in the situation was a relaxation of the pressure from the East: exchange fell off sharply after panic subsided late in 1854. Indeed, it was sold only a small fraction above par as the 1855 packing season got under way.

General prices advanced in the East, West, and South at the beginning of 1855 (Chart VI). Cincinnati and New Orleans shot upward about 30 points, but the increase in New York was limited to about 15. Furthermore, the group indices and individual commodity-price series show that the financial position of the western states was greatly improved. In spite of an enormous surge of sugar and molasses to higher levels, Index A far outstripped Index B. This is amply demonstrated by Charts X and XL, the second of which indicates that in the spring of the year prices of farm products were a full third higher than manufactured and imported goods as a group. The terms of trade were more favor-

<sup>63</sup> Cf. C. F. Dunbar, "The Crisis of 1857," *Economic Essays* (New York, 1904), pp. 266-93.

<sup>64</sup> Schumpeter has chosen 1855 as the culmination of the prosperity of the "Kondratieff" or long wave dated 1843-1897 (*op. cit.*, I, 323).

<sup>65</sup> CCC (1855), p. 25. To be sure, authorized banks formed only a small share of the lending market in Cincinnati at that time.



able to the farmer than in any other year prior to the Civil War. The prices of breadstuffs made new high records. Insistent European demand, joined with the crop failures of 1854 and the revival of business and credit, forced flour, wheat, and corn to figures even higher than the late thirties or the period after the War of 1812. Whisky responded sympathetically.<sup>66</sup> As for provisions, mess pork recovered all the ground lost during 1853 and 1854, and bacon and hogs surpassed the peaks of 1851 and 1852.

During the whole commercial year 1856 the Cincinnati market was easy; acceptable paper could be negotiated without trouble at 10-12 per cent in the street except on infrequent occasions when slight pressure advanced the rates to 12-15 per cent.<sup>67</sup> Eastern exchange remained at a nominal level. As in the East, railroad securities were on the decline not because of any failure in earning power but rather on account of mistrust of management.<sup>68</sup> Mercantile credit was reported to be upon an unusually steady basis in the West by reason of the fact that the merchants, bereft of adequate corporate banks, accommodated each other with idle balances. There were no expansions nor contractions to be feared from banks; no breaking-off of lines of discount; all was reportedly actuated upon conservative principles.<sup>69</sup> Perhaps a leading reason why things went so smoothly under this arrangement was that it was an extremely prosperous year on all sides. Annual figures on the foreign and domestic trade of the United States, by calendar years, show that the volume of domestic trade was at 108 per cent of the line of secular trend in 1855 and 104 in 1856 — the former figure also applied to the boom year 1847. As for foreign trade, the figures are 102 and 114, respectively, and the combined data are 106 and 107. According to these latter, 1856

<sup>66</sup> For an interesting view of the "High Prices" of 1855 in Philadelphia see Bezanson, *op. cit.*, I, 244-45.

<sup>67</sup> CCC (1856), p. 22. According to Table 32, above, the New York money market was also easy—6 to 8 per cent was a common rate of interest on commercial paper except during the winter months.

<sup>68</sup> CCC (1856), p. 22. Stocks of the western roads and the east-west trunk lines, as a group, recovered in 1855 and rose till 1857; the securities of local lines in the East, however, declined steadily between 1853 and 1857 (Smith and Cole, *op. cit.*, p. 110).

<sup>69</sup> CCC (1856), p. 23.

was the most prosperous year from 1843 to 1862, and 1855 was a close second.<sup>70</sup>

Banks in the seven western states for which data are available continued to expand loans and discounts in 1855 and 1856 to a new high record. The increase in credit was, however, much greater in the former year, perhaps owing to a drain of specie during 1856.<sup>71</sup> The ratio of specie to demand liabilities, which had been falling since 1849, declined from 21 to 18 per cent as a result.

The course of the Cincinnati prices of provisions and southern staples fits in admirably with nonstatistical accounts of the times. That is, all continued to increase during 1856 and most of 1857. In 1856, however, flour, wheat, and corn prices underwent such a drop that it can only be termed a collapse, and whisky joined in the movement. Flour declined from \$9.85 in April 1855 to \$4.97½ in June 1856; wheat went from \$2.10 to 95 cents, and corn fell from 74 to 34 cents. Index A dropped from 143 in November 1855 to 113 in the following March.<sup>72</sup> Since Index B was rising sharply and continuously all during 1855 and 1856, the gap between the two was rather tightly closed.

It is a cause for wonder that the collapse of the cereal markets in late 1855 did not exert immediate effect upon trade and finance. The movement was apparently regarded as only a natural consequence of the excellent crops of 1856. It was offset at least in part by gains in other commodities. It was written in August 1856 that

the agriculturists have obtained enormous prices for the productions of the soil; and have generally become wealthy, and as a necessary consequence, the merchant, the manufacturer, the mechanic, and the laborer have all participated in this prosperity. The wealth of the country has accumulated in an extraordinary ratio; and, in these respects, our country is especially blessed above all other Nations.<sup>73</sup>

<sup>70</sup> Railway earnings were considerably higher in 1856 than in the preceding year; hence it would seem that the peak was actually reached in 1856 (Smith and Cole, *op. cit.*, p. 104).

<sup>71</sup> During 1855 and 1856 loans and discounts increased from \$50,000,000 to \$59,000,000, while circulation increased from \$30,000,000 to \$38,000,000. Deposits expanded from \$16,000,000 to \$20,000,000, but specie failed to grow in proportion (\$9,800,000 to \$10,200,000).

<sup>72</sup> Base, monthly average, 1846-1860.

<sup>73</sup> CCC (1856), p. 3.

Indeed, westerners worried about the suspension of navigation more than any other aspect of the outlook.<sup>74</sup>

It is apparent from Chart VI that western commodity prices rebounded sharply in the early part of 1857 in company with those of New York and New Orleans. Cincinnati and New York rose neither so high nor so long as the southern market. As for the group indices, Index B reached its peak actually before the year 1857 was ushered in, and pursued a rather uncertain course for some nine months before it was caught in the landslide accompanying the panic. Index A, on the other hand, staged one last frenzied bolt before beginning upon its downward path in the summertime.

The panic of 1857 did not come totally without warning. On the contrary, the suspension of navigation in the winter of 1856-1857 (so it seemed) cut off the supply of eastern exchange, and the rate began to rise. In February there was a fresh outbreak of excitement over the depreciation of the notes of Indiana free banks — even those of specie-paying institutions went to a general discount of 2 per cent.<sup>75</sup> The money market developed signs of stringency which failed to disappear in the spring and summer as would be expected with ordinary seasonal behavior; towards the end of June regular customers could secure accommodations from the discount houses at 10-12 per cent, but loans in the street were quoted at 15-24.<sup>76</sup> Heavy shipments of specie began to flow to the East in a continuous stream, and the banks of Ohio, Kentucky, western Virginia, and Indiana felt compelled to keep circulation within very circumscribed bounds.<sup>77</sup> In early June it was reported

<sup>74</sup> This was especially important in the late autumn, since it prevented the West from drawing the customary drafts on the East, and reacted upon the ability of western banks to issue more currency (LH, Nov. 26, 1856).

<sup>75</sup> The immediate cause was the placing of free bank paper at a discount by the Indiana State Bank and its branches (LH, Feb. 5, 1857). Prior to and shortly after this flurry, the notes of two Indiana independent banks were quoted at par; those of some thirty others were traded at a nominal discount ( $\frac{3}{4}$ -1 per cent), while the third class consisted of about fifty suspended and broken institutions, on which the discount ranged from 5 to 85 depending upon the particular bank (*ibid.*, Jan. 22, Apr. 23, 1857). Just before the precipitation of the panic, there were extremely few third-class Indiana notes left in circulation. Many had been redeemed by the state (*ibid.*, Aug. 20, 1857).

<sup>76</sup> LH, June 25, 1857.

<sup>77</sup> CCC (1857), 5; LH, July 16, 1857. It was thought that the drain of specie

that the "country is in a remarkably tight place." Trade was inflated, and commercial men, who had been apprehensive for some time, were getting into good trim by contracting operations and strengthening their position.<sup>78</sup> In particular, merchants were withdrawing from land speculation, which had been diverting them (and their creditors' funds) from "legitimate" fields. There was no doubt that the current of capital towards the West was checked, and considerable amounts were being returned. At least some of these funds were withdrawn from land speculation.<sup>79</sup>

An immediate and depressing factor in the trade situation was the tendency which has been mentioned of western prices of agricultural articles to press up so closely to eastern quotations as to squeeze margins of shipping profit out of existence. This was noticed in May, when it was lamented that the exchange problem could not be solved by sending goods to the East.<sup>80</sup> In July it was evident that the speculative mania which had prevailed throughout the West for about a year was abating rapidly. A reaction had taken place which would cause future investments to shrink rather than expand.<sup>81</sup> Attention was called to the fact that in 1853 speculators had seen nothing but solidity in the movement of stock prices at the very time the roof was falling; and yet it was predicted that, although many interests would probably suffer, no general disaster would ensue because so much business was done by "chips and whetstones" and an expansion or contraction of this currency could not seriously derange the banks of the United States.<sup>82</sup>

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was due to an unfavorable balance of trade caused by the scarcity and high prices of produce.

During the year 1857 the banks of seven western states contracted circulation from \$38,000,000 to \$29,000,000, whereas deposits shrank from \$20,000,000 to \$13,000,000 and loans and discounts from \$59,000,000 to \$45,000,000. The ratio of specie to liabilities rose from 18 to 22 per cent.

<sup>78</sup> LH, June 4, 1857.

<sup>79</sup> LH, May 21, 1857. On the real estate boom in Cincinnati and Chicago see CCC (1857), p. 3, and Dowrie, *op. cit.*, p. 150.

<sup>80</sup> It was hoped that Chicago, St. Louis, and other western points would ship sufficiently large quantities of breadstuffs to the East to create their own eastern exchange and thus relieve Cincinnati of their customary demands (LH, May 21, 1857).

<sup>81</sup> LH, July 9, 1857.

<sup>82</sup> LH, June 25, July 9, 1857.

The landslide of the autumn of 1857 occurred when a minor prop, the solvency of the New York office of the Ohio Life Insurance and Trust Company, was removed. The people of Cincinnati were shocked by news of the suspension, and the first reaction was general excitement; confidence in railroad securities was shaken to the core, and indiscriminating distrust spread to other stocks. Nevertheless, the money markets of the nation, outside New York, appeared "quiet and healthy"; and "great confidence" was present in the banks of the Ohio Valley states, which were strengthening their weaker lines of defense.<sup>83</sup> The business community was kept in suspense for a week during which nothing extraordinary happened, partly because it was a dull season. There were no other immediate failures of consequence.<sup>84</sup>

The storm gathered strength, it will be remembered, during the months of September and October, and before long the banking and trading communities of the entire United States, as well as England and the Continent, were engulfed. However, the banks of Ohio, Kentucky, and Indiana did not formally suspend payments, as did those in the East, Missouri, Illinois, New Orleans, and Pittsburgh.<sup>85</sup> To be sure, the discounting of business paper in Cincinnati ceased for all practical purposes; loans were obtained with great difficulty at rates ranging from 3 to 5 per cent *per month*. In addition to the Trust Company, one authorized and two important private banking houses closed their doors. All these failures proved "bad," and the concerns were forced to wind up their affairs.<sup>86</sup>

For about sixty days New York exchange sold in Cincinnati at 3 to 6 premium; in October it brought as high as 8 on occasion. Even at such exorbitant rates the supply was hardly sufficient to meet the demand; and since gold advanced *pari passu*, merchants

<sup>83</sup> LH, Aug. 27, Sept. 3, 1857.

<sup>84</sup> CCC (1857), p. 6.

<sup>85</sup> The nonsuspending western banks "could not have redeemed their paper, had it been sent home to them; however, the people made allowances, and our private bankers, concessions, and, in this way, they were enabled to pass through the fiery ordeal, and though not 'burned', yet considerably 'singd', and did not recover the effects of it until pretty well on in the Spring." Three New Orleans banks suspended and the rest curtailed their business "to such an extent that they ceased to do any" (CCC [1858], p. 3).

<sup>86</sup> CCC (1858), p. 7.

were forced to purchase flour and grain to ship East for the express purpose of making exchange.<sup>87</sup> This procedure was successfully carried out during the month of November, and exchange and gold were ruling at only  $1\frac{1}{2}$  premium by the end of the year.

One factor in the explanation of the behavior of eastern exchange at this juncture was the tie-up of Cincinnati balances in the New York office of the Trust Company (as well as in the main office). This institution had long been a leading supplier of New York funds to the West, so that its sudden withdrawal was bound to cause a pinch in the market. The action of New York in calling loans *en outrance*, however, was the prime agent in the situation.<sup>88</sup>

A rather unusual currency situation prevailed in Cincinnati between September and December. On the first day of October par currency consisted of Ohio, Indiana (state banks only), Kentucky, and Louisiana paper. Rates on all other paper were 5-15 discount for solvent banks, including those which had suspended specie payment.<sup>89</sup> Eastern exchange was pressing at 3-6 premium with few drafts to be had; and gold was being sold at retail at 5-10 per cent. When the climax of the panic arrived some three weeks later, with suspension and failures of banks in New York City, it was expected that specie would rise to 10-15, and that eastern exchange would fall approximately to par on account of future shipments of eastern currency to the West. Indeed, all currency bankable in New York and other points on the seaboard was listed at par in Cincinnati.<sup>90</sup> A month later gold and eastern exchange

<sup>87</sup> Reported quotations on New York exchange did not rise above 6 per cent premium because the "regular houses" did not pretend to ask over this rate, though none of them had any to sell (CCC [1858], p. 7).

<sup>88</sup> Earlier writers were disposed to place the lion's share of the blame for the panic of 1857 upon the bankers of New York City. This interpretation undoubtedly fails to give a complete picture. It has been established that the panic was preceded by an *extension* of New York credit and large withdrawals of balances from New York to the interior; these factors aided to precipitate wholesale liquidation on the part of New York banks. However, this does not gainsay that a steady withdrawal of capital during 1857 from the interior to the East and to Europe was at the bottom of the difficulties. On this point, see Smith and Cole, *op. cit.*, pp. 310 ff.; J. S. Gibbons, *The Banks of New York* (1858); Sumner, *op. cit.*, p. 426 (citing *Bankers' Magazine*, XII, 430, 780); Dunbar, *op. cit.*, p. 278; and Myers, *op. cit.*, pp. 91-92, 97-99, 141-44 *et passim*.

<sup>89</sup> LH, Oct. 1, 1857. Trust Company checks were offered at 25 cents on the dollar.

<sup>90</sup> LH, Oct. 22, 1857.

were both declining noticeably, but it was found that eastern currency had not come West to any extent. Eastern banks contracted their circulation after the suspension instead of issuing notes freely, the motive being protection rather than profit.<sup>91</sup> The West therefore found its currency "light" because interior banks were supporting no more than eighteen millions, which was nine to ten millions less than normal. The New York bank policy is reflected in the eastern gold flow: Cincinnati alone shipped over \$2,500,000 in metal within ten weeks after the Trust Company closed, besides \$500,000 in bank notes and outside drafts. These sums represented in large part a liquidation of local merchants' debts to the East.<sup>92</sup>

The cataclysm at the end of 1857 is a striking feature of all commodity-price data available. General prices in Cincinnati, New Orleans, and New York fell in about equal degree; the same is true of Index A and Index B. The extent of the decline appears to have been greatest in the case of provisions, sugar, and molasses, since the prices of these articles did not reach their peaks until very shortly before the crash, whereas flour, wheat, corn, and whisky had been disposed to decline ever since 1855. Although a partial recovery set in without delay, it was only partial; the year 1858 saw comparatively low prices. As might well be expected, the volume of trade in the nation at large also fell sharply; between 1856 and 1858 domestic declined from 104 to 91 per cent of the line of trend, whereas foreign slumped from 114 to 96. In Cincinnati it was reported that the dry goods, iron, and manufacturing interests suffered most seriously.<sup>93</sup> According to the figures on local receipts portrayed in Chart XXXVII, the index for manufactured goods receded to such an extent in 1858 that the expansion of 1856 and 1857 (commercial years) was all cancelled. The decline measured 41 points, or about 30 per cent. Receipts of Ohio Valley farm products and groceries, it will be noted, had decreased before September 1857 and staged a considerable recovery in 1857-1858. Despite these unfortunate events, the western emporium "escaped the effects of the crisis in a manner which caused

<sup>91</sup> LH, Nov. 19, 1857.

<sup>92</sup> LH, Nov. 12, 1857. The data were compiled in a special survey by the *Cincinnati Price Current*.

<sup>93</sup> CCC (1858), p. 4. See also Cist, *Cincinnati in 1859*, p. 345.

general surprise among strangers, and universal congratulation among her citizens. . . ." <sup>94</sup> This was due, it was felt, to the fact that her merchants were so independently secure and solvent as to free them to a moderate extent from banking difficulties.

*The Wave 1858-1861.* It appears that another short business cycle took place between 1858 and 1861, but it was no ordinary cycle, because prices and many other economic data not only failed to approach the highs of the middle fifties but sank considerably lower in 1861 than in 1857-1858. <sup>95</sup> Our interpretation is that the fourth tide had passed its high-water mark and was continuing in a leisurely downward and interrupted fashion. According to one authority "this recession (1858-1861) underlay the shorter ups and downs of those years and shaded off into the Civil War, the approach of which intensified, although it did not altogether create, the troubles of 1860." <sup>96</sup> The general economic pattern recovered from 144 to 153 between 1857 and 1858, then tapered off to 150 and 140 in 1860 and 1861, respectively. The decline in 1860 and 1861 was of smaller dimension than that of 1839-1843. It is worth observing, however, that every one of the nine series making up the pattern registered at least a degree of decline in 1861. Such unanimity is not encountered in any other year under survey, though it was practically achieved in 1838, 1842, 1855, and 1858.

There is no doubt that speculation in its wilder forms tended to be absent after 1857. The sales of public lands dwindled as sharply as they had twenty years before. As has already been suggested, there was a sharp regional diversity in the field of banking which is not dissimilar to the situation after the crisis of 1839. Data for New York city, adjusted for secular trend, indicate a decline between 1857 and 1861. <sup>97</sup> Unadjusted figures for the various regions of the country show no decline of any magnitude — as a matter of fact, they give the impression that credit was expanding slightly. This is not entirely due to the fact that

<sup>94</sup> CCC (1858), pp. 4, 7. The banking capital proper of Cincinnati had shrunk to \$50,000. The metropolitan population was estimated at 250,000 and the annual trade at nearly \$200,000,000 annually.

<sup>95</sup> Cf. Dunbar, *op. cit.*, pp. 292-95.

<sup>96</sup> Schumpeter, *op. cit.*, I, 334.

<sup>97</sup> Smith and Cole, *op. cit.*, pp. 121-22, 185.



they pertain to the first of each year. The specie reserves of New England, the Middle Atlantic, and the West all increased during 1861 (no data for the South or Southwest are available), and, although loans and discounts declined in the East, the same was not true of the circulation. In the West, one sees a comparatively sharp contraction of loans except in Michigan and Ohio. Circulation and deposits expanded to some extent in Ohio and Indiana but were greatly reduced in Kentucky, Illinois, and Missouri.<sup>98</sup>

The figures on volume of trade also give conflicting impressions. Foreign trade of the United States was small in volume after 1857, although it did increase in 1859. Domestic trade contended to contract, generally speaking, but there was an extraordinary spurt in 1860. Railway earnings were extremely low after 1856 but tended to increase after 1859.<sup>99</sup> The great decline of New Orleans receipts did not begin until 1862 and was obviously due to military considerations. As for Cincinnati, one finds that the receipts of farm produce and groceries continued to increase, probably on account of a wartime shift in trade channels, but the volume of manufactured goods and packaged merchandise sharply decreased. It is stated that "the Western record crop of 1860 and other favorable circumstances might have availed to prevent trouble, but for the political situation."<sup>100</sup> And information is not lacking to confirm this general position. In Illinois, for instance, it was reported that the year 1860 was the most prosperous from an agricultural point of view that the state had ever known. An extremely large yield of good grain brought high prices due to the heavy European demand.<sup>101</sup> Furthermore, the price of flour in Cincinnati did not decline during 1861 to anywhere near the same extent as whisky, hogs, pork products, and other leading articles still marketed to a comparatively large degree directly in the South.

Since prices were falling, the aggregate value of Cincinnati trade decreased rather more than the volume (Chart XXXVII). Because of the rise in both prices and quantities, both exports and

<sup>98</sup> The Missouri situation precipitated a severe currency crisis in Illinois in the spring of 1861. In June the circulation, which was largely secured by Missouri bonds, was cut from \$12,000,000 to \$1,000,000 (Dowrie, *op. cit.*, p. 168).

<sup>99</sup> Smith and Cole, *op. cit.*, p. 104.

<sup>100</sup> Schumpeter, *op. cit.*, I, 334, n. 1.

<sup>101</sup> Dowrie, *op. cit.*, p. 155.

imports had increased almost without interruption since figures were first compiled. Imports expanded from \$41,000,000 to \$103,000,000 between 1852 and 1860 and dropped back to \$90,000,000 in 1861, whereas exports grew from \$33,000,000 to \$107,000,000 in 1859 before declining to \$67,000,000. In other words, imports reached their peak a year later and did not fall off to the same extent in 1861. The Cincinnati balance of trade was about the same, in the relative sense, for most of the decade. Imports tended to exceed exports by the ratio of 3 to 2.

As for price quotations, one finds that economic disorganization went hand in hand with political. The general index numbers first showed tendencies of divergence late in 1859. All were at a moderate level but New York persisted in remaining about 8 per cent below Cincinnati and New Orleans. By July 1861 it was clear that Cincinnati was falling and New Orleans was rising in comparison with New York. The end of the year found the three markets at 92, 167, and 135, respectively. The Cincinnati group indices reflect the same trends. Index A underwent a respectable boom in 1858-1859 which may be traced to a rise in the flour-wheat-corn-whisky combination, whereas provisions accompanied the leading groceries and manufactured goods (Index B) on a fairly even course representing a much more moderate recovery from the trough of 1858. During the year 1861 hogs declined from \$6.25 to \$3.35 per hundred, lard from 10½ to 7¼ cents, mess pork from \$16.00 to \$9.75 per barrel.<sup>102</sup> Flour, whisky, corn, wheat, and other grains fell less than 20 per cent — in fact, some of these products did not decline perceptibly during 1861, perhaps because they had already depreciated in late 1859 and 1860. Index B rose about 20 per cent, owing to the fact that war materials were in demand and that the trade in such items as sugar, molasses, coffee, and salt was dislocated from its normal channels. A full decade passed before agricultural prices recovered sufficiently to exceed other prices, relatively speaking.<sup>103</sup>

The backbone of speculation was broken in 1857, judging from the fact that prices of commodities and securities failed to respond fully to the prevailing easiness of money and credit. There was an

<sup>102</sup> The index numbers and commodity prices for 1861 are given in Appendix B, Tables 55 and 56, respectively.

<sup>103</sup> Mitchell, *Gold, Prices, and Wages*, pp. 25, 48.

"unusual sameness" in the Cincinnati money market during the entire year 1858-1859, with capital abundant most of the time at 10-12 per cent. Eastern exchange was held to  $\frac{1}{2}$ - $\frac{3}{4}$  premium, although the market was disturbed at times by defections in western bank paper.<sup>104</sup> A very tight market developed during the packing season of 1859-1860, but the stringency was soon dissolved.<sup>105</sup> And aside from a temporary tightness in September 1860, caused by a scarcity of currency, confidence was general, and financial prospects were good until the very announcement of the secession movement.<sup>106</sup> Rates of interest were even more noticeably low in the New York market between 1858 and 1861. Loans were scarce, however, late in 1860. Specie accumulated in that center to an unprecedented degree, owing to the fact that the banks could find few eligible borrowers. A crisis occurred following Lincoln's election which was surmounted only by joint action. The banks then began to restrict loans and collect all southern debts they could. Of the \$300,000,000 outstanding, taking the North and the South as a whole, only one-third were finally secured. The New York banks reduced loans by \$23,000,000 during eight months beginning in December 1860. Clearings dropped about 40 per cent between March and August 1861. The banks were described as unusually strong, largely because of the stagnation of trade and absence of opportunities. All in all, the general outlook was a most gloomy one.<sup>107</sup>

<sup>104</sup> CCC (1859), p. 7.

<sup>105</sup> CCC (1860), pp. 8-9.

<sup>106</sup> CCC (1861), p. 10.

<sup>107</sup> Dunbar, "The Crisis of 1860," *Economic Essays*, pp. 294-313; Mitchell, *op. cit.*, pp. 20-22; E. D. Fite, *Social and Industrial Conditions in the North during the Civil War* (1910), p. 105.

## CHAPTER XVII

### GENERAL SUMMARY AND CONCLUSIONS<sup>1</sup>

DEEPLY underlying western economic life before 1861 there was a growth trend or long-range drift which is most clearly evident in such cumulative data as population, acreage under cultivation, taxable wealth, or aggregate production in the field, mine, forest, and factory.<sup>2</sup> The settlement of the West did not, however, proceed at a rate which was even approximately constant. On the contrary, it tended to surge and recede in tides of fairly equal length (eighteen to twenty-two years). Roughly speaking, the interval between 1785 and 1861 witnessed four of these tides, the timing of which is most sharply defined by agricultural prices (Index A) and the sales of public lands but is also characterized by the organization and dissolution of banks, the loans, deposits, and circulation thereof, the expansion and contraction of debts at home and abroad by states and individuals, the immigration and trade of the nation, and several other important series of economic data. Unlike ocean tides, these movements possessed phases very unequal in duration. The high-water marks occurred in 1795-1798, 1816-1819, 1835-1839, and 1854-1857; the low-water marks came in 1802-1805, 1821-1824, 1841-1843, and 1860-1861 (when the Civil War intervened). In other words, the flood phase averaged about sixteen years, the ebb only three or four years.

The familiar stage analysis of western evolution is not irreconcilable with the interpretation advanced here — as a matter of fact, the latter helps to date the stages in some respects.<sup>3</sup> Each successive tide was marked by a different set of conditions pertaining to an assumed geographical location. In the area around

<sup>1</sup> The reader is cautioned that the present chapter does not pretend to be a synopsis or abstract of the entire book.

<sup>2</sup> With some exceptions, this type of variation is absent from the price data.

<sup>3</sup> The principal defect in the stage analysis is that one tends to forget that stages commonly overlap to such an extent that they are cumulative rather than mutually exclusive.

Cincinnati, for instance, the first tide was largely one of trail-blazing and ground-breaking, both literally and figuratively. During the second the lumber industry tended to dominate, but agriculture reached early adolescence. The third saw agriculture approaching its prime and manufacturing, particularly processing of the hog and other farm products, undergoing a vigorous growth. Metals and minerals also emerged at that time, but manufacturing as a whole forged ahead much more rapidly during the fourth tide. As for transportation, one sees first the river flatboat, pirogue, and barge, as well as the saddlehorse and wagon, as the leading facilities. It is familiar to all how the steamboat and canalboat came into prominence during the third tide and the railway blossomed during the fourth.

New means of transportation, as everybody knows, had important effects on the channels of trade, but it is easily overlooked that the development of traffic determined the character of the facilities to a significant extent. The flatboat and the river steamboat provided the solution to the problem of conveying bulky foodstuffs and manufactured goods to the South and to Latin America and returning with passengers and a few equally bulky items such as sugar, salt, and coffee, while the wagon long remained a principal vehicle for the transportation of lighter goods from the Northeast. The railway was the solution to the problem of conveying heavy perishables to the new markets which developed on the eastern seaboard and in the British Isles and returning with lighter manufactured articles. Although its advantages over canals and turnpikes were manifest, and it cut thousands of miles from the all-water route via New Orleans, it failed to supersede the barge-train in the transportation of coal on the Ohio (or, even today, iron ore on the Great Lakes).

The general statement that the export trade of the West turned from the South to the East during the first half of the nineteenth century is, therefore, an oversimplification. The Great Lakes area, it is true, was wedded to the East from the beginning, and the bond was cemented by the completion of the Erie Canal, but the central western area exported most of its produce down the river until around the middle of the century. The turnabout was not altogether sudden, and it affected different commodities at different times. The origin and destination, as well as the char-

acter of the commodities concerned, were important factors in determining the volume of traffic over various routes and means of conveyance. For instance, bulk pork and whisky were sent up to Pittsburgh by river and over the Pennsylvania Canal in goodly volume during the early forties. Sugar and salt, however, were brought up the Mississippi from New Orleans during the fifties in increasing amounts. Partly because of the development of the upper Mississippi at that time, the steamboat trade flourished during the fourth tide in spite of the fact that through canal routes to the East were greatly improved and rail lines were connected between Cincinnati and the seaboard as early as the end of 1852.

As for trade within its own region, the prime function of Cincinnati was originally to concentrate farm produce of the immediate vicinity for shipment down the river. The radius of the region gradually expanded, though not to an equal extent in all directions. Processing of hogs and corn (in the form of whisky) tended to center in the market more and more, but flour-milling never became of coördinate importance. Nevertheless, Cincinnati was easily the leading market for foodstuffs in the entire Ohio Valley area. It handled much more whisky and flour than it manufactured and quoted prices on a proportionately larger quantity of all northern produce than it handled. Local manufacturing in other lines consumed the heavy raw materials of the Valley, particularly coal and iron, and sent the finished product to the South and to other points in the West. Cincinnati's prominence as a pork-packing center also gave her an ascendancy in the manufacture and trade of such items as soap and lard oil, and made her the western headquarters for salt. The trade in sugar and other groceries did not develop to a sufficient extent to rival that of Louisville until after the third tide. During the fourth Cincinnati also managed to divert much of the wholesale trade in dry goods and finished hardware from Baltimore, Philadelphia, and New York. These wares ranked very high in respect to aggregate value.

No banks whatsoever operated across the Alleghenies during the first tide. The incentive among merchants to organize these institutions is found to have been especially strong when economic life was at its ebb, and the number of new charters granted there-

after was a function of the tide. Hence it is no historical accident that the first banks west of the mountains appeared around 1802-1804. Though several flourished in succeeding years, the end of the tide found Cincinnati without any in operation. Even the Second Bank of the United States retired from the West. The change of the general policy of the "monster" towards the interior was a leading characteristic of the third tide. Although banking reached a new level of prosperity, many western districts found themselves at the end of this tide in exactly the position, financially speaking, which Cincinnati had occupied a generation before. The fourth tide was marked by the widespread adoption of new methods of securing bank notes in circulation, the development of closer financial ties with the East, and the retirement of corporate banking from the local scene. In other fields of finance, such as state debts and mercantile credit, the development was closely parallel to that in transportation, banking, and public lands.

Three questions relating to the tide concept present themselves: (1) to what extent it extends beyond the economic horizon; (2) to what degree the tides survived after 1861; and (3) how to account for them. The treatment here goes no further than to indicate a few of the possible answers.

Almost all authorities now agree that the course of American history was intimately connected with western settlement. We may indicate here some important milestones of political as well as social and economic significance which were timed at the high-water mark of each tide or the ebb which followed. As might be expected, the principal pieces of legislation relating to the public domain closely fit the pattern: the years midway between the high-water mark of each tide and the next succeeding low-water mark are 1800, 1820, 1841, and 1859. In spite of their connection with wars, the Louisiana Purchase and the Homestead Act both occurred during a lull immediately following a climax in the march to the West. One adds, of course, that these measures also prepared the ground for succeeding tides. The same is true of the admissions of territories to statehood, which came together in clusters spaced at fairly regular intervals of time. Of the twenty-one states taken into the Union between 1787 and 1861, sixteen were admitted within a range of five years from the dates of refer-

ence cited above (the average deviation for all states is four years, whereas a random grouping would yield about ten years).<sup>4</sup> Furthermore, it can be shown that out of fifty-five years — 1803 to 1858 — there were three intervals totaling thirty-seven years (1804–1815, 1822–1835, and 1847–1856) during which only two states were admitted altogether. Congressional politics undoubtedly favored the grouping of admissions to some extent, but this factor cannot be adduced to explain the timing and rhythm of the legislation.

In general it appears that the state legislatures were considerably more responsive to the tides than the federal government. However, the Webster Resolution and the Specie Circular may be interpreted as almost identical reactions to the monetary situation arising out of investment in the West. As another example, the tariffs of 1824–1833 were intimately connected with the fall of cotton prices, which in turn was largely caused by the extension of acreage at that time. Finally, it is left to others to discuss the extent and nature of the connection between the wars of this era and the movement towards territorial expansion.

There is reason to believe that the tidal rhythm was not broken in 1861. Wardwell, Warren and Pearson, and others have noted a "major cycle" since around 1875 which they have associated with variations in the building or other important industries.<sup>5</sup> The prices of foodstuffs and other leading farm products have, however, behaved in a manner perhaps more "regular" than most economic data. The dates of maximum depression, for example, conform very closely to the projected pattern: 1879, 1896, 1914, 1932. Mitchell found that the prices of agricultural items rose less rapidly than other goods during the Civil War but fell less rapidly thereafter.<sup>6</sup> This is exactly what one would expect. Researches in wheat prices have uncovered a degree of similarity between the price behavior of the 1900's and that of the 1940's. The general situation in 1914, furthermore, was similar to 1861

<sup>4</sup>The exceptions are Vermont (1791), Kentucky (1792), Louisiana (1812), Wisconsin (1848), and California (1850).

<sup>5</sup>Charles A. R. Wardwell, *An Investigation of Economic Data for Major Cycles* (1927); G. F. Warren and F. A. Pearson, *World Prices and the Building Industry* (1937).

<sup>6</sup>*Gold, Prices, and Wages*, p. 48.



in that a greater decline in prices was lost in war inflation or in changes in cultivation connected with military events.

Study of the material in this survey does not, in the opinion of the writer, entitle one to adopt any single theory to explain the regularity and recurrence of the tides. It is possible, however, to point out impressions gathered in the light of recent "explanations" of the business cycle. In some ways a combination of the innovation and a reasonable version of the money-credit-investment theories fits the facts rather better than either one does by itself.<sup>7</sup> The efficiency of natural forces in furnishing the motivating impulse cannot be ascertained, owing to lack of data. One can only say that contemporaries noted disturbances in navigation in 1819-1820, 1838-1839, and 1854-1856, and that the latter may have had some connection with yield and rainfall. The aggregate receipts of all agricultural products show no dependable correlation with their prices, taken as a group, partly because of the diversification of crops. Nonetheless, if they are taken one by one, there is an undeniably inverse relationship between annual variations in receipts and average prices. Perhaps the most plausible explanation for this is that the demand for foodstuffs was less susceptible to variation than the supply. Furthermore, although the production of different commodities followed different courses in many of the years under consideration, there were conjunctures when heavy (or light) production of the leading money crops — flour and pork — occurred at the same time. These conjunctures tended to coincide with major alterations in the direction of price movements.

One is also disposed to consider the factor of the immigrant demand as of importance. Reports recurred during boom years that newcomers were furnishing sufficient demand to detract from the surplus to be sold elsewhere, and the converse was true in years of depression. One of the principal differences between the "tide" interpretation given here and the "long wave" hypothesis

<sup>7</sup> One may note a resemblance between the controversy of innovations versus supply of capital and that which long raged between schools of thought over the general theory of value. If "invention" is construed broadly enough to include new areas and industries, the statement that "if science is the mother of invention, finance is its father" (T. H. Marshall, *James Watt* [1925], p. 84) may indicate the general direction in which cycle theory is moving.

concerns the era of the 1820's. During most of this decade the prices of northwestern foodstuffs were rising — in company with general expansion of population and acreage — whereas cotton prices were falling. It is suggested that the expansion of the Southwest and the Northwest at the same time necessarily produced this result. Newcomers to both sections provided a lively market for foodstuffs but almost none at all for textile fiber. The market for the latter in New England and old England could not expand *pari passu* for financial and technological reasons.<sup>8</sup> The fact that the immigrant (or slave) consumed little more food on the frontier than in his former home is, of course, irrelevant because the prevailing costs of transportation forced him to depend upon the nearest supply available. However, improvements in the facilities for transport undoubtedly tended to support the western prices of both cotton and foodstuffs, especially the latter.

One is impressed by the extent to which Cincinnati general prices, judged by weighted index numbers, agreed with prices at the seaboard. Before 1817 prices were rather more stable in the interior than at Philadelphia and there was considerable independence of movement. The western price level did show signs, however, of lagging by approximately one year. In the general decline of 1819-1821 the Cincinnati market delayed about two years, but this lag was reduced to three or four months in a similar decline in 1839-1840 and to practically zero in 1857-1858. So far as the direction of movement was concerned, there appears to have been no consistent trend of one price level away from or towards the others. The agreement among general Cincinnati, New York, and New Orleans prices after 1816 is remarkable in view of the fact that noteworthy differences existed in the regional behavior of the prices of individual commodities or groups thereof.

Much of the analysis in this study concerns separate commodities and groups thereof. The principal results, so far as inter-

<sup>8</sup> Cotton production expanded at a more rapid rate than consumption at that time partly because the newer lands were more fertile than the old. Even under a bad price situation this could continue until the new lands were used up.

Virtually no analysis has been made here of the "safety-valve" theory. Regardless of the merits the theory has in explaining the effect of westward migration upon the level of wages in the East, it is curiously one-sided in that it gives no attention to the effect of the "steam" which was supposedly released.

regional comparison are concerned, are to the effect that over the long run western prices of agricultural exports rose as compared with eastern, whereas the prices of manufactured and imported goods in the interior declined, relatively speaking, in an equally steady manner. The coexistence of these two trends can be explained only as the effect of technological improvements, particularly in transportation and communication, and the steadiness of the trends is not incompatible with a social theory of inventions. In the short run, the prices of flour, whisky, and other speculative items rose in the West compared with the East during periods of expansion and fell during depressions such as 1820-1824 and 1840-1843. As a matter of fact, the Cincinnati prices of these commodities occasionally rose above the seaboard market in years of great activity and inflation. This may be considered as a geographical manifestation of the phenomenon observed in the behavior of the prices of goods in various stages of production, comparing prosperity with depression.

Index A (agricultural export prices) was subject to no long-range drift but was featured by the tidal rise and fall. On the other hand, Index B (manufactured and imported goods) underwent an enormous decline between 1788 (the earliest year under analysis) and around 1850. There is evidence of a reversal of trend thereafter. The net result was that the farmers of the Ohio Valley area saw a tremendous increase in the purchasing power of their products over other commodities (other evidence indicates that this trend continued at a declining rate for the remainder of the century).<sup>9</sup> Furthermore, Index A tended to rise above Index B during the prosperity phase of each tide, and conversely. Speculation and investment in lands, as well as their settlement, were undoubtedly accelerated by this appreciation, and vice versa. Furthermore, this phase of price behavior was closely associated with credit expansion and contraction.

<sup>9</sup>Such a widespread and long-range displacement in the price structure is of great economic, social, and political importance; yet it would not necessarily be visible in an analysis of the structure in respect to its purely statistical properties. From the latter point of view the thesis has been advanced that price relatives tend to re-establish themselves in some normal grouping after they have been disorganized by inflation or deflation. This is valuable knowledge, but it seems much more worth while to ascertain to what extent relatives representing specific commodities change their position within the group.

An important corollary to the relative improvement of local agricultural prices is that over the long run the prices of crude items such as wheat and corn tended to rise in relation to flour and whisky, respectively. This was due to reductions in the costs of processing grain and transporting it to market. The data do not permit us to measure the contribution of each type of improvement to the relative appreciation of grain. The comparative appreciation of the latter at the seaboard was of smaller dimensions, but even here it may have been partly the result of reductions in oceanic freight rates. Grain did not become a common item of long-distance shipment from Cincinnati until after 1850, and prior to that time it was quoted in the freight market only in infrequent seasons when the rates were unusually low. This, too, is not conclusive evidence that the phenomenon under discussion was primarily the effect of improvements in processing technique. That is, it can be shown that a substantial reduction of freight rates would bring about an appreciation of wheat in the interior even in the absence of milling improvements or of through shipments of grain, provided there was a proportionate reduction of shipping costs from point to point along the route.

The final entrance of wheat into long-distance shipment from Cincinnati depended upon (1) the reduction by the railways of through freight rates on grain and (2) the preference on the part of mills to store wheat rather than flour.

Freight rates on western rivers tended to decline until 1844 and rise thereafter. Their general behavior, therefore, was not dissimilar to the prices of manufactured goods. The decline of shipping costs was accelerated at the beginning of the twenties by the application of the steamboat and was interrupted by the inflation of the late thirties. These rates were subject to extremely wide seasonal variation on account of fluctuations in the level of water in the river channel. The pattern underwent considerable change between the forties and the fifties, but rates remained very low in the spring and high in the autumn. This is reflected in the seasonality of the prices of many commodities, especially in the interval when the interior depended most heavily upon the river. After 1850 the railway brought noteworthy alterations in these patterns of price seasonality. In certain leading instances the latter increased in amplitude and changed in timing so that the

principal decline during the year occurred more nearly in conjunction with the harvest.

Cincinnati grew to be the leading packing center of the West after 1820, and it is interesting to trace the emergence of hogs as a favorite item of production in the immediate vicinity. There is evidence that the hog pack, which increased more or less according to a Pearl-Reed curve (with the point of inflection in the forties), tended to fluctuate according to the hog-corn price ratio, with a lag of two years. This corroborates findings applying to more recent data. The prices of provisions obeyed the same general pattern as cereals, but the two groups behaved almost inversely towards the end of the period, considered from the short run. Cincinnati also became the leading western market for whisky, the monthly prices of which were especially sensitive to changes in regional economic conditions.

Cincinnati cotton prices, which are not available in a complete series, indicate a considerable measure of agreement with the prices of whisky and provisions. Furthermore, instances are found where cotton quotations changed in advance of those northern products marketed in the South. Dry-goods data reveal the growth of the market and a long-range reduction of prices. As for sugar and other groceries brought up from New Orleans, a leading feature here also was a sharply downward tendency during the first half of the nineteenth century. In some cases a correlation is evident between price behavior and changes in the tariff, which were also generally downward. In other cases direct correspondence is absent.

The prices of bar iron before 1840 and pig iron after that date are important because of the place Cincinnati came to occupy in manufacturing. The general trend of iron prices was downward throughout the period 1788-1861, though notable appreciation took place around 1836 and 1853. Salt prices in the Ohio Valley reflect wide changes in production, in both its geographical and technological aspects. Beginning around 1812, they were subject to administration from time to time on the part of companies organized among the producers of the Kanawha district. The latter tried over a dozen successive arrangements to restrict production and control prices in the interior, some of which furnished experience and example to combinations in various industries after the

Civil War. As for coal, the importance of which increased to a great extent after 1840, the price data are seen to reflect river conditions rather faithfully. River boats continued to handle the great bulk of this commodity because in ordinary times they could quote freight rates far below those by rail.

Like the greater part of the United States, Cincinnati was rarely upon a true specie standard during this epoch. It was caught in the boom and depression following the War of 1812 and suffered greatly from a delayed deflation in 1821-1822. The local paper issues were finally depreciated until they lost currency and were displaced by specie. This involved a drastic alteration of market quotations. In Kentucky the Bank of the Commonwealth issued sufficient paper to support prices until the end of 1822, and the circulation reached approximately 50 per cent discount compared with coin. Louisville then went over to a "sound money" basis. Conditions in western currency were remarkably stable from 1823 to 1835 but equally unstable from then until 1843. The alternate expansion and contraction of money, credit, and prices coincided with flows of capital to and from the West. During periods of expansion there was a noticeable tendency for the depreciated currency of most banks to rise towards par, probably because of an improvement in the reserve position of the respective institutions.

It is evident that most members of the western community had a deep preference for coin over paper during the large part of the period under examination — a preference that was perhaps due in part to the relatively limited quantity of coin and in part to the narrow acceptability, speaking geographically, of the paper currency, except that of the First or Second Bank of the United States. As a matter of fact, notes of the two institutions just mentioned commonly carried a premium over coin because they could be used for interregional exchange. It is suggested that the smaller the area over which it was thought to be acceptable, the more a currency was apt to depreciate. This is thought true not only because of the fact that a mere increase in the quantity outstanding exerted a relatively larger effect upon a local currency but also because general confidence in the future purchasing power of a currency was a function of the area over which it was readily accepted. This, it appears, has in the past constituted one source

of the advantage of coin over paper. As for the relative value of any single issue of bank notes, the hypothesis is advanced, subject to verification or disproof, that the relationship between this variable and the amount of coin held by the bank in question was more dependable than the relationship between the relative value and the quantity of notes in circulation or the specie ratio.

Cincinnati prices reached a peak in 1836, declined in 1837 and 1838, then rebounded in 1839 to a point not quite so high as 1836. Specie payments were formally suspended in 1837, resumed in 1838, and suspended a second time towards the end of 1839. Currency difficulties at this juncture were not greatly different from those of 1818-1822. Although a few local banks managed to keep their circulation within safe limits, cheaper paper came in from Indiana and other states, so that specie and New York exchange rose to about 15 per cent premium at the end of 1841. The commodity market, however, declined in rather close agreement with New York and New Orleans until the deflation was completed and specie payment was resumed around 1843. According to figures on bank credit, the expansion in some western states did not come to an end until 1840 or 1841.

The period between 1843 and 1857 was marked by a general rise of prices which was interrupted by a series of crises. The prices of specie and eastern exchange varied in sympathy with each other throughout this interval; the trend was downward, but there were peaks in time of stress and troughs with the restoration of confidence. The crises were generally communicated to Cincinnati from New York or New Orleans. The one taking place late in 1854 was perhaps the most severe of all. At that time private discount houses, which were displacing banks in Cincinnati, lent construction funds to railroads at exorbitant rates of interest. The crisis, like all the others, wore off in a fairly short time and was succeeded by prosperity more buoyant than ever before. Coin tended to flow to the East, judging from the fact that New York bills generally commanded a premium. Incidentally, American gold coins were more expensive than silver in Cincinnati as late as the end of 1850, when the latter began to appreciate, owing to demand from the East for shipment to Europe. Hence silver was much more common than gold until after discovery of the latter in California. Specie quotations lapsed in

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the middle fifties but were restored towards the end of the decade. Western interest rates were generally 50 to 100 per cent higher than eastern, and tended to vary inversely to prices, especially those of manufactured goods.

The crisis of 1857 brought a cataclysmic fall in prices and trade which caused bankruptcies over a period of several months. Cincinnati, however, appears to have suffered less than New York. A measure of recovery took place in 1858, 1859, and early 1860 which was not uniform in all lines and failed to return commerce to the level of previous years. The manner in which affairs turned for the worse later in 1860, coupled with the great decline in agricultural prices in 1861, leads to the interpretation that another major depression was in store.



## APPENDICES

## APPENDIX A. STATISTICAL SOURCES AND METHODS

*The Price Data and Index Numbers.* Since the technical aspects of the compilation of index numbers covering the period 1816-1860 have been adequately treated elsewhere,<sup>1</sup> there is no need to discuss them here at length. Briefly, the general method was to take quotations, almost exclusively from newspapers, pertaining to the middle of each month, simply average them where they were phrased as a range, and arrange them in series. In order to employ as many of the latter as possible, they were classified into three overlapping periods: 1816-1825, 1824-1846, and 1846-1860. Each period had more series than the one before. Arithmetic averages were computed from price relatives based upon average prices throughout the respective intervals. Besides unweighted general index numbers, three sets of weighted indices were compiled: a general index, an Index A (northern farm products and their derivatives), and an Index B (other commodities, principally manufactured goods, and imported foods and raw materials).<sup>2</sup> The weights for 1816-1825 were estimated from New Orleans receipts in 1825; those for 1824-1846 are based upon receipts at Cincinnati in 1845-1848; and the figures for 1846-1860 were elaborated from similar trade data for 1852-1856. All four sets of index numbers were spliced together so as to yield continuous figures for the interval 1816-1860.

Two revisions were made in these figures, both of which are taken into account in Professor Cole's summary volume cited above. Data were discovered in the files of the *Cincinnati Daily Gazette* for 1835-1837 which were greatly superior to those already taken from the *Advertiser* and the *Whig*. The figures for these years, accordingly, were re-computed with the new data. Secondly, a rather serious non-homogeneity was found to be present in the series of hogs prices for 1846-1860, caused by the failure to discriminate between "net" and "gross" prices. This series was perfected by adjustment of the "gross" prices, and the indices affected thereby were revised.

The classification of the commodities into two groups was evidently in order by reason of the behavior of the individual series. Since that time the question has arisen whether pot ashes (1846-1860 only) should not belong in Index A rather than Index B. Ashes constituted a leading

<sup>1</sup> A. H. Cole, *Wholesale Commodity Prices*, I, 77 *et passim*; T. S. Berry, *op. cit.*

<sup>2</sup> The word "imported" was taken to mean imported from outside the Cincinnati area; thus cotton was classified within this group.

product of the land in earlier years ("black salts" was a prominent item of quotation in Cincinnati between 1816 and 1818). On the other hand, Ohio farmers were employing potash as fertilizer at least as early as 1837.<sup>3</sup> Although most of the supply in the Cincinnati market after 1846 was probably utilized in the flourishing soap industry, the logic of the classification would perhaps better be suited by placing ashes in Index A, where soap itself is now grouped. However, tests over the year 1846 show that such an alteration would cause at most a very minor change in the results, particularly in the weighted index numbers.

As explained in the text above, three fairly important additions have been made to the price analysis since the Cole volume appeared: (1) annual index numbers have been computed for the period 1788-1817 from medians of all Ohio Valley quotations available for these dates; (2) the materials for 1816-1823 have been reworked so as to allow a monthly comparison of the various interior markets, even at the expense of continuity; and (3) the index numbers have been extended through the year 1861.

Figures for the unweighted annual index numbers for 1788-1817 are given in Tables 15-17, Appendix B, and the median prices from which they were computed appear in Table 23. They were also divided into two groups, and it is to be noted that sugar, a mainstay of Index B in later years, here appears as part of Index A. A few of these data were taken from newspapers (the earliest printed prices-current appeared around the end of the eighteenth century); however, the great majority came from the account books and manuscripts cited in the bibliography below. As has been explained in the text, it was necessary to convert almost all of them from English into American money.

Efforts to find Cincinnati prices for 1821 and 1822 in quantities sufficient to allow computation of index numbers finally proved fruitless, but many valuable items were uncovered, particularly in the Isaac Jackson Papers and the account book of Pierce & Brightwell at the Historical and Philosophical Society of Ohio (e.g., Tables 40-41, Appendix B). It was decided, nevertheless, to analyze the fragmentary data for Cincinnati, Lexington, Louisville, and Pittsburgh over 1816-1823 separately for each market. On the whole, the data for Pittsburgh were most continuous (see Tables 45-48, Appendix B). The base 1824-1846 was employed, together with the weights elaborated for that interval. There is some difference between the results so secured and the original regional index numbers for 1816-1825, largely because the weights are so different. For example, flour was given a much larger weight in the earlier computations. Furthermore, the list of commodity series is not exactly

<sup>3</sup> WCA, December 29, 1837, citing the *Buckeye Plowboy*.

the same in each case; however, tests proved that the results were substantially the same as those obtained by a standard list of commodities in later years.

The data for 1861 were taken from the *Cincinnati Price Current* and the *Western Christian Advocate*. The procedure was identical with that followed in computing the figures for the period 1846-1860. Pertinent data are given in Tables 55-56, Appendix B.

The great body of the price data used here may be found in averaged form in the Statistical Supplement to Cole's *Wholesale Commodity Prices*, along with several series not sufficiently continuous to be included in the western index numbers (pilot bread, copper sheathing, pine boards, crude saltpetre, staves, American blister steel, whale oil, and Madeira wine). However, it has proved advisable to include in Appendix B some data which either do not appear in the source just cited or are furnished there in very different form. These include: (1) the prices of flour in Cincinnati, 1816-1822 (Table 24); (2) wheat, 1816-1827 (Table 25); (3) hogs, "gross," 1816-1861 (Table 26); (4) hogs, "net," 1843-1861 (Table 27); (5) bar lead and window glass, 1816-1861 (Tables 33-34); (6) salt of various kinds, 1816-1861 (Tables 35-38).

As has already been indicated, the lion's share of these data was taken from the tabular prices-current or the editorial reviews of the market in general newspapers, the titles of which are given in the bibliography. Letter-sheet prices-current were evidently printed beginning in the 1830's, but virtually none has come to light. Lodge, Hommedieu & Company, publishers of the *Cincinnati Daily Gazette* and *Liberty Hall* (weekly) launched such a sheet in the autumn of 1835. "It was commended—and that was all."<sup>4</sup> A similar project was broached in the spring of 1839 by John H. Wood, and an issue was printed by George W. Bradbury & Company, with Wood as editor. Late in 1842 definite mention was made of a *Cincinnati Price Current*, then commencing publication of a second volume. It "had suspended during the warm season."<sup>5</sup> The prospectus of a *Louisville Price Current* was issued by Mary Palmer on March 1, 1836. A few weeks later a "vast improvement" by "our fair and respected sister of the *Louisville Price Current and Commercial Register*" was noted by a leading Kentucky editor.<sup>6</sup>

Starting with *Peabody's Price Current* around the beginning of 1844, there is a fairly continuous file of journals specifically devoted to com-

<sup>4</sup> CDG, Nov. 24, 1835, Mar. 1, 1836.

<sup>5</sup> *Cincinnati Daily News*, Feb. 25, June 3, 1839; *Cincinnati Daily Chronicle*, Nov. 5, 1842.

<sup>6</sup> CDG, Mar. 1, 1836; *Kentucky Gazette*, Apr. 23, 1836. One issue (Apr. 25, 1840, vol. III, no. 15) is in the files of the American Antiquarian Society.

mercial affairs.<sup>7</sup> The weekly *Cincinnati Price Current* was competing with *Peabody's Weekly Markets* by 1846, and the former publication continued under one title or another until 1914, when it was absorbed by the *National Hay and Grain Reporter* and moved to Chicago. A daily issue also appeared continuously from 1864 to 1914.<sup>8</sup>

Much of our information has been drawn from the annual reports of the Cincinnati Chamber of Commerce, the first three of which appeared in the newspapers.<sup>9</sup> Later issues grew in scope and size and were separately bound under varying titles. The first reviews were compiled by A. Peabody; Richard Smith was superintendent of the Merchants' Exchange from 1852 to 1854, and William Smith occupied the office from 1855 until after the Civil War. The twenty-first report (1869) is apparently misnumbered, as well as all later issues. The series is continuous, beginning with the report for the commercial year ended August 31, 1847.

Other types of sources, such as historical works and monographs, contemporary periodicals, and government documents, were canvassed with comparatively little success. Only a few series of annual Cincinnati prices could be located in the reports of the Ohio Commissioner of Statistics.<sup>10</sup> These series were manifestly inadequate, although they served well for purposes of checking the newspaper data. The same may be remarked as to the quarterly series of agricultural prices at Cincinnati contained in the Aldrich Report.<sup>11</sup> Some few data, notably for 1821, were culled from *Niles' Weekly Register*.<sup>12</sup> But White's study of Cincinnati prices, which is replete with data relating to the period 1844-1914, unfortunately appeared too late to be of use in connection with this study, except to serve as a basis of comparison.<sup>13</sup> And only scattered figures, often unaccompanied by dates sufficiently precise to permit their use, could be located in travel accounts or histories.<sup>14</sup>

<sup>7</sup> By far the best files are at Cornell University.

<sup>8</sup> Depew, *One Hundred Years*, II, 384; White, *An Economic Study*, 6.

<sup>9</sup> LH, Sept. 23, 1847; Sept. 7-28, 1848; Sept. 13, 1849.

<sup>10</sup> For Cincinnati prices of ten staple commodities on or about December 1, 1829-1858, see the third Annual Report (1859), p. 96. Corresponding data for 1830-1862 are contained in the seventh Annual Report (1863), p. 25.

<sup>11</sup> U. S. Senate, Committee on Finance, *Wholesale Prices, Wages, and Transportation*, 4 vols. (Washington, 1893), 52d Cong., 2d Sess. Senate Report no. 1394. Numerous quarterly prices of agricultural products in Cincinnati, 1840-1891, are contained in pt. 2, Table X, pp. 3-90. For annual relative prices of leading commodities see Table 32, pt. 1. Data were taken from the *Cincinnati Daily Gazette* or the Chamber of Commerce reports.

<sup>12</sup> The Cincinnati prices current apply to December, 1821. Cf. *Niles'*, XXI, 381 (Feb. 9, 1822).

<sup>13</sup> See Chapter I, above.

<sup>14</sup> John Melish and D. B. Warden are two early travelers notable for their atten-

*Steamboat Rates and Traffic.* The data belonging to this category have been assembled from the same sources as the price data: local newspapers and the annual reports of the Cincinnati Chamber of Commerce. In general the freight data are more severely limited both in scope and in the period covered.

Significant freight-rate quotations could be located for only a few scattered months before 1840. In contrast, it was found possible to collect satisfactory data for every month when the river was open between January 1841 and April 1861. The great majority of these quotations resemble the price data in that they apply to the middle of each month. A list of sources follows:

## LIST OF SOURCES OF FREIGHT RATES

## 1. River Rates from Cincinnati

<i>Cincinnati Daily Chronicle</i> . . . . .	1841-1843, 1849
<i>Liberty Hall and Cincinnati Gazette</i> . . . . .	1844-1854
<i>Atlas</i> . . . . .	1844
<i>Cincinnati Daily Enquirer</i> . . . . .	1844, 1846-1847, 1849
<i>Cincinnati Daily Commercial</i> . . . . .	1845-1846
Cincinnati Chamber of Commerce Report . . . . .	1851-1870
<i>Western Christian Advocate</i> . . . . .	1855-1861

## 2. Ocean Rates from New Orleans

<i>New Orleans Price Current</i> . . . . .	1835-1860
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*Index of Steamboat Rates, 1841-1860.* The freight data for the years 1841-1860 were found to include special quotations on leading commodities shipped to New Orleans and Pittsburgh. Of these, many were in the form of a range or spread and were therefore averaged like commodity prices. It appeared that six continuous monthly series could be constructed for the period 1841-1860, as follows: New Orleans flour, New Orleans pork, New Orleans whisky, New Orleans pound freight (general merchandise), Pittsburgh whisky, and Pittsburgh pound freight.<sup>15</sup> The large measure of agreement among these series indicated that an unweighted index of freight rates to river points would carry no little significance. Therefore, an index of this type was constructed with the employment of the arithmetic average of relatives.<sup>16</sup>

tion to price quotations in western markets. Cf. Melish, *Travels in the United States of America* (1812), II, 57, 128, 149, 185 ff.; Warden, *Statistical, Political, and Historical Account of the United States* (1819), II, 260-62.

<sup>15</sup> Chart II; Tables 3-8, Appendix B. Other freight quotations included the following: lard to New Orleans; salt, whisky, and pound freight to St. Louis; and molasses and wet barrels to Pittsburgh.

<sup>16</sup> Chart III; Table 2, Appendix B.

*Seasonal Variation in Freight Rates.* The most noticeable fluctuations in the various freight series were seasonal in character, and several indices of seasonal variation have been computed by employment of the median-link-relative method.<sup>17</sup> Since these indices pertain to each decade, a test is afforded of the stability of the various patterns. Efforts to "eliminate" seasonality from the rate series have not been successful because of wide amplitude and the propensity to shift back and forth a month or two from year to year.

*Data on Currency and Exchange.* It has not been found possible to locate regular quotations of the price of gold or silver for years prior to 1837, doubtless on account of the fact that the trade in precious metals was of small dimensions during many of those years. However, one fairly continuous monthly series of specie prices at Louisville from 1822 to 1828, in terms of Commonwealth paper, has been elaborated from data found in the files of the *Louisville Public Advertiser*.<sup>18</sup> Some few quotations of the premium on specie at Cincinnati are available for 1833-1838, but they did not begin to appear in the newspapers regularly until 1840.<sup>19</sup> The figures used in this study are selling rates, which tended to exceed buying rates by  $\frac{1}{4}$  per cent in the early fifties and by  $\frac{1}{8}$  per cent towards the end of the decade.

As explained at various points in the text above, market quotations on bank currencies were also derived from the newspaper files. The *Bank Note Table* which first appeared in Cincinnati early in 1819, was generally a broker's advertisement. A fairly continuous monthly series is available (the worst gap is in 1824-1825) but only selected data are presented in Tables 27, 29, and 30 (and the text itself).

*Index of Receipts at New Orleans, 1810-1862.* This is an annual weighted index of the volume of the receipts of the major Ohio Valley products. The original data for fourteen series (flour and wheat combined, pork in barrels, whisky, corn, butter, lard, hams, bacon [assorted], hemp, cheese, candles, oats, beef, and potatoes) were taken from the *New Orleans Price Current* (see footnotes to Table 1 in the text above). Each "barrel & sack" of wheat was counted as 40 per cent of a barrel of flour. Adjustments were also made in the butter and lard series so as to include data in terms of barrels, firkins, and kegs — ratios of conversion were roughly according to the table at the end of Chapter VI above. All data pertain to commercial years which ended on September 30 up to and including the year 1836, and on August 31 thereafter. This is the procedure followed by Switzler in his report.

<sup>17</sup> Chart IV; Tables 13-14, Appendix B. Only two middle link relatives were averaged, and the final results have been expressed to the nearest per cent.

<sup>18</sup> Table 49, Appendix B.

<sup>19</sup> Tables 51-52, Appendix B.

The base period for the calculation of relatives is the average for the period 1810-1862. Weights were also elaborated so as to represent the average value of each product over the entire interval. Specifically, the weight for each series is proportional to the total value of receipts in the years 1810, 1822, 1830, 1840, 1850, and 1860 — such value being reckoned by multiplying the volume figure by the average price in New Orleans for the same year. The weights are as follows, expressed as percentages of the total.

Flour-wheat	20.2	Butter	2.0	Hemp	1.1
Pork	19.2	Lard	12.4	Cheese	0.5
Whisky	6.0	Hams	4.6	Candles	2.0
Corn	8.3	Bacon, ass'd	16.0	Potatoes	1.8
Oats	3.2	Beef	2.7		
				TOTAL	100.0

*Indices of the Volume of Receipts at Cincinnati, 1845-1861.* These are annual indices of the volume of receipts in each commercial year, which ended on August 31. Sources of the original data for the years 1846-1860 are indicated in Table 12 in the text. The figures for 1845 are taken from *Liberty Hall* (September 13, 1849); those for 1861 may be found in the annual report of the Cincinnati Chamber of Commerce for 1863 (p. 47).

The data purport to cover only receipts by canal, river, and railway and therefore take no account of products brought to the city in wagons or hogs driven to market. In connection with hogs and whisky it was deemed advisable to follow the lead of the Chamber of Commerce by making allowance for these other imports. As a matter of fact, the hog pack was used instead of receipts reported for the packing season, since the Chamber did not estimate shipments by other than public conveyance for years prior to 1853. In the case of whisky, the estimated annual quantity of wagon shipments (46,000 barrels) was added to the figures given for the years 1845-1855. Other series were retained, so far as possible, in the original form.

Four group indices were computed together with one general index covering all commodities. In each case a base period (1845-1861 average) was employed for the calculation of relatives, and the latter were weighted according to the total value for the period 1852-1856. One group index includes local agricultural products; the second, other food-stuffs ("groceries"), as well as salt and cotton; the third, articles associated with local building and manufacturing, particularly metals; and the fourth is confined to "merchandise and sundries," which were itemized by packages and by tons. The last-named, we are told, represented



for the most part dry goods and other miscellaneous manufactures. The series and their respective weights are as follows:

SERIES EMPLOYED IN THE CONSTRUCTION OF FOUR ANNUAL GROUP INDICES OF THE VOLUME OF RECEIPTS AT CINCINNATI, 1845-1861, TOGETHER WITH ASSIGNED WEIGHTS

I. Local Agriculture		II. Groceries		III. Manufactured Goods	
Series	Wt. (per cent)	Series	Wt. (per cent)	Series	Wt. (per cent)
Beans, bu. ....	0.2	Coffee, sack .....	22.5	Blooms, tons .....	5.7
Butter, bbl. ....	2.2	Cotton, bale .....	11.3	Cooperage, piece ...	1.6
Butter, keg .....	0.9	Fish, bbl. ....	2.5	Glass, box .....	2.0
Cheese .....	3.4	Molasses, bbl. ....	12.9	Glassware, pkg. ....	2.7
Corn, bu. ....	1.9	Pepper, bag .....	0.7	Iron, pig .....	24.0
Flaxseed, bbl. ....	0.6	Rice, tierce .....	1.7	Iron & steel, piece...	12.9
Flour, bbl. ....	12.8	Salt, sack .....	1.4	Iron & steel, bundle	21.9
Hemp, bdle., bale ..	1.9	Salt, bbl. ....	2.2	Iron & steel, ton...	9.4
Hogs, head .....	25.5	Sugar, hhd. ....	33.9	Lead, pig .....	5.0
Lard, bbl. ....	6.5	Sugar, bbl. ....	4.1	Lime, bbl. ....	1.0
Lard, keg .....	0.5	Sugar, box .....	1.0	Nails, keg .....	8.1
Oats, bu. ....	0.7	Tea, pkg. ....	5.8	Rosin & tar, bbl. ...	1.1
Oil, bbl. ....	1.7			Shot, keg .....	0.9
Pork & bacon, hhd..	3.0	TOTAL .....	100.0	Yarn, cotton, pkg. .	0.6
Pork & bacon, bbl..	2.9			Yarn, cotton, lb. ...	3.1
Pork & bacon, lb. .	6.9				
Rye, bu. ....	0.3			TOTAL .....	100.0
Tobacco, hhd. ....	3.1				
Tobacco, keg .....	3.7			IV. Merchandise and	
Wheat, bu. ....	3.3			Sundries	
Whisky, bbl. ....	16.9			Mdse, pkg. ....	93.6
Wool, bale .....	1.1			Mdse, ton .....	6.4
TOTAL .....	100.0			TOTAL .....	100.0

The weights assigned to each group for combination into the general index are: Local Agriculture, 34.2; Groceries, 13.4; Manufactured Goods, 9.0; and Merchandise and Sundries, 43.4. These figures are percentages of the total value for the period 1852-1856 (\$282,452,000).

*Correlation of Prices and Receipts, 1822-1861.* Experiments with various procedures such as fitting lines of secular trend to data on receipts, prices, and purchasing power showed that the most significant results, particularly in connection with flour, are obtained by subjecting each series of prices (or receipts) to the following process:

1. Average monthly price-relatives for each calendar year. (Crop-year figures, it was found, involved additional labor and affected results only in a minor way. The same is true of commercial-year averages.)

2. Divide the annual price or receipt relatives for each commodity by the general index of prices or receipts for the same year (New Orleans, 1822-1861; Cincinnati, 1845-1861).

3. Find the "link ratios" or the proportion borne by each of the ratios obtained in the preceding step to a geometric average of the corresponding ratios for the preceding five-year interval. This narrowed the New Orleans receipt data down to the period 1827-1861 and the Cincinnati receipt data to the period 1850-1861.

4. Take the logarithms of the "link ratios" and find the coefficient of simple linear correlation between those representing prices and receipts of the same commodity. "Standard units" for New Orleans receipts for two separate time-periods (1827-1849, 1850-1861) are given in Appendix B (Table 29) along with corresponding units for prices. The former have been plotted in reverse in Chart XX above. Additional data for Cincinnati appear in similar form in Chart XXI and Table 30, Appendix B.

In the analysis of New Orleans prices of leaf tobacco, the index of receipts at that port was revised to include this article. Furthermore, the receipts figures were not plotted in reverse. Otherwise, the procedure was the same as with other commodities.

*Hog-Corn Ratios and the Hog Pack at Cincinnati, 1831-1863.* To construct a series of hog-corn ratios the average monthly price of hogs during the winter packing season (November-February) was divided by the average monthly price of corn during the concurrent crop year (October-September). Since prices for 1843-1844 and later seasons apply to "net" or "dressed" weight and those for earlier years pertain to live or "gross" weight, the former were reduced by 20 per cent. In finding lard-corn, bacon-corn, and pork-corn ratios for 1831-1861 the same procedure was adopted, except that average monthly prices for January, February, and March were divided by crop-year corn prices. Naturally, no adjustment of prices was in order. The ratios, which were assumed to follow a horizontal linear trend, were averaged by the geometric process. Deviations were measured by dividing the ratio for each year by the geometric mean of the series and subtracting 100 from the resulting percentage.

In analyzing the annual data on the Cincinnati winter pack (years ended in 1833-1863), it was found necessary to employ a freehand trend in order to approximate the moderate though fairly constant rate of increase in the thirties, the rapid rise during the forties, and the resumption of a moderate rate of increase thereafter. Deviations from this line of trend were computed by dividing each actual figure by the ordinate of trend and subtracting 100 from the resulting percentage.

The deviations of price ratios from their means (1831-1861) and the deviations of the hog pack from the freehand trend (1833-1863), all of which were obtained in the manner just explained, were then analyzed for simple correlation. Each price-ratio deviation was matched with the hog-pack deviation two years later.

*The Pattern of Annual Economic Variation, 1820-1861.* The method employed in computing this pattern (Chart VI) follows that described by Edwin Frickey.<sup>20</sup> Taking the link relatives of a number of important economic series, (arithmetic) deviations are computed from their respective (geometric) averages. The deviations are then expressed in quartile deviations (in order to reduce them to similar amplitude) and placed in arrays, year by year. Averages of the middle "quartile units" are taken for each year, then converted back to percentages by a "conversion constant." The percentages are added to 100 and then cumulated into a chain. In the present case the number of series is nine, averages pertain to the five middle items, and the "conversion constant" is 9. This method, which has been designed to remove the element of personal judgment as far as possible, allows for the arbitrary choice of the period, series, and "conversion constant."

No series has been adjusted to calendar years because experiments in this direction were fruitless. The component series are as follows:

1. Cincinnati General Prices (1820-1861). Weighted index, average of monthly data.
2. {
  - Number of Steamboats Launched (Hall) (1820-1835).
  - Receipts of Tolls, Louisville Canal (1835-1845). LH, Feb. 12, 1846.
  - Index of Receipts at Cincinnati (1845-1861). Years ended August 31.
3. Tonnage of Steamboats Registered on Western Waters (1820-1861) (Census).
4. Imports, United States (1820-1861). Irregular years.
5. Exports, United States (1820-1861). Irregular years.
6. Sales of Public Lands in the United States, by Acres (Hibbard and Cole), (1820-1861). Calendar years.
7. Immigration to the United States (1821-1862). Irregular years. Lag of one year.
8. {
  - Purchases of Interior Bills of Exchange, Bank of the United States (1820-1835).
  - Loans and Discounts of Western Banks around January (1835-1861). Kentucky and Missouri included.
9. {
  - Circulation and Deposits, Bank of the United States (1820-1835).
  - Circulation and Deposits of Western Banks around January (1835-1861). Kentucky and Missouri included.

<sup>20</sup>"The Pattern of Short Time Fluctuation in Economic Series, 1866-1914," *Review of Economic Statistics*, XVI, 248-55 (December 1934).

*The Pattern of Annual Economic Variation, 1820-1835.* This pattern has been computed with the method just described, except that percentage deviations were employed. The list of component series includes those above which cover the interval 1820-1835. The immigration data have been entered with a lag of one year.

*Notes on the Data for State Banks, 1835-1861.* The Annual Report of John Jay Knox, Comptroller of the Currency, for 1876 contains a fairly long discussion of statistical data available on state banks before the Civil War and a summary of annual figures, by states, for the years 1834-1863 (irregular). The latter was "carefully compiled" from figures gathered each year by the Secretary of the Treasury from state officials according to a resolution of July 1832, and transmitted to Congress from time to time. Although these data are imperfect, "the information they contain, though only approximately correct, is still valuable, and much sought for by writers upon finance and political economy" (p. xliv). The principal defects are: (1) the state officials did not always send in complete returns; (2) the figures vary by states (and banks) as to dates of reference. For example, the Ohio figures for 1835 are quite incomplete, and some pertain to January, others to May and November (cf. Huntington, *op. cit.*, pp. 373-75). The stated procedure was to group the statistics as near the beginning of each year as possible, but no data at all are to be had on some states for particular years.

Examination of these figures leads to the conclusion that Knox assessed their worth rather exactly. A few distressing gaps must be interpolated, and allowances must be made in interpreting figures reported incomplete. Nevertheless, the whole body of data is well worth consideration, since there are numerous instances where they corroborate qualitative and quantitative information drawn from independent sources, such as monthly reports of the State Bank of Indiana, current newspaper comments on the course of finance, or sectional figures on the sale of public lands.

The procedure of compiling the relative figures plotted in Charts XXXV and XXXVIII consists simply of summing the circulation (or other) data for the states in each region and converting the sums into relative figures, using broad intervals (1835-1845, 1843-1861) as a base. Absolute figures for the years 1835-1861 are supplied in Table 50, Appendix B. It was found necessary to go back to the original Treasury reports (see below), since the Comptroller's Report contains several suspicious items, such as the Massachusetts deposits for 1836, and data were apparently accepted which were not so near to the first of the year as others. In spite of apparently serious errors in the Comptroller's summary, however, the totals given there for the various regions

differ only to a limited extent from those compiled here, and the aggregates for the nation are even more nearly the same, for all practical purposes.

It is to be noted that the West is interpreted here to include Kentucky and Missouri but not Ohio (the latter is listed separately in order to permit comparison). The District of Columbia has been omitted. As for the United States Bank, it was deemed advisable to include its figures for the years 1835-1840 in the totals for the Middle Atlantic region and the nation. This step, which was apparently taken in the 1876 summary, probably introduces an element of inaccuracy so far as the regional figures for 1835 are concerned, but it helps to give a sounder summary on the whole.

All in all, these figures are at least on a par with, and probably superior to, many statistics of more recent vintage, such as those on unemployment, national income, or real wages. The overlapping of dates is not so damaging as appears at first sight. It is true that the amount of specie, for instance, is possibly over- or understated, owing to extraordinary shipments from one region to another between the dates of report. The factor of seasonality could also destroy the "representativeness" of the figures if dates for any one state varied widely from one year to another. As for "window-dressing," this source of inaccuracy was probably somewhat more important than in later years. Nevertheless, the data are not cumulative, and it can be shown that New York, and other leading states which dominated their respective regions, reported quite regularly at the end of the year, so that the average deviation in time of report is not large. Furthermore, other states were found to cling to October, November, or February with fair regularity. Thus, the seasonality hazard is reduced; besides, seasonality was not important for at least part of the interval (1835-1845), according to the monthly data available. At the very worst these differences in date of report act, like a haphazard moving average, so as to blur the turning points, and it is doubtful if any series of annual data, however highly refined, can reveal turning points with precision. As for the brighter side of the case, the figures are significant at least in respect to their broad sweeps and sharp sectional differences.

The Congressional documents containing data for the years 1835-1852 bear the serial numbers 385 (pp. 1418-49), 578 (pp. 365-412), and 684 (pp. 325-93). Data for 1853-1861 are taken from the Finance Reports of the Treasury for 1856 (pp. 133-37), 1858 (pp. 348-51), and 1862 (pp. 190-95). The Comptroller's Report on state banking is no. 1753 in the Congressional series, and a reprint of 1893 bears the serial number 3059.

## APPENDIX B. STATISTICAL TABLES

TABLE 1  
NUMBER AND TONNAGE OF STEAMBOATS CONSTRUCTED ON WESTERN RIVERS,  
1811-1862 \*

Year	No.	Tonnage	Year	No.	Tonnage	Year	No.	Tonnage
1811....	1	100.00	1829....	36	7,561.53	1847....	120	22,438.82
1812....	..	.....	1830....	33	4,811.15	1848....	120	27,271.03
1813....	1	25.00	1831....	27	4,003.75	1849....	139	28,353.24
1814....	2	385.67	1832....	86	12,187.43	1850....	109	20,910.87
1815....	5	1,077.85	1833....	44	5,548.32	1851....	132	26,711.10
1816....	4	859.23	1834....	62	8,263.31	1852....	155	35,259.24
1817....	5	702.52	1835....	51	5,718.35	1853....	126	33,452.44
1818....	15	3,099.08	1836....	107	14,478.85	1854....	142	33,805.39
1819....	23	5,315.66	1837....	115	21,500.09	1855....	116	30,926.03
1820....	15	2,642.52	1838....	66	12,262.27	1856....	138	32,632.65
1821....	3	545.72	1839....	108	14,454.61	1857....	163	37,080.30
1822....	11	1,013.42	1840....	63	9,223.86	1858....	127	31,481.40
1823....	17	2,278.28	1841....	90	15,870.52	1859....	85	13,838.52
1824....	20	3,171.81	1842....	102	16,794.88	1860....	162	32,432.03
1825....	18	3,065.79	1843....	55	9,385.82	1861....	146	30,459.57
1826....	35	6,563.76	1844....	129	25,395.24	1862....	49	6,653.34
1827....	33	5,244.61	1845....	119	20,104.70			
1828....	19	3,043.05	1846....	150	25,560.32			

\* Source: U. S. Census (1880), IV, 671-672. "Compiled from the records in the Office of the Register of the Treasury."

TABLE 2  
MONTHLY INDEX OF STEAMBOAT FREIGHT RATES FROM CINCINNATI TO PITTSBURGH  
AND NEW ORLEANS, 1841-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1841....	102	94	107	99	76	91	110	133	339	256	140	94
1842....	83	74	67	66	67	67	88	95	108	120	133	92
1843....	108	92	83	76	72	68	93	118	96	76	56	68
1844....	64	53	65	51	51	52	63	109	106	153	62	58
1845....	64	62	50	65	58	60	77	146	123	64	90	118
1846....	106	81	72	69	67	64	72	112	104	143	71	76
1847....	66	106	95	88	107	113	136	106	166	98	53	59
1848....	65	87	70	56	55	59	56	72	116	176	71	66
1849....	63	68	51	60	50	68	83	160	319	92	50	76
1850....	66	53	46	48	40	94	99	91	132	119	85	66
1851....	78	78	63	60	51	82	94	86	175	204	99	102
1852....	83	83	77	53	49	72	159	136	110	237	69	80
1853....	73	54	53	49	52	132	216	148	177	192	85	122
1854....	111	124	104	80	64	104	174	215	255	290	266	224
1855....	86	81	77	86	81	84	88	124	132	108	78	102
1856....	143	143	143	139	103	143	214	208	202	197	191	118
1857....	134	132	106	104	80	78	106	105	151	90	78	60
1858....	53	74	76	68	63	56	84	131	155	171	70	53
1859....	59	56	55	54	69	112	101	119	101	96	105	91
1860....	82	74	74	78	80	71	101	93	93	111	84	81

TABLE 3  
MONTHLY STEAMBOAT FREIGHT RATES ON FLOUR FROM CINCINNATI TO  
NEW ORLEANS, 1837-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1837....	..	..	..	..	..	..	..	..	..	..	..	75
1838....	..	100	..	50	50	100	..	..	..	..	..	..
1839....	..	..	75	63	75	62	..	..	..	..	..	..
1840....	..	..	100	50	40	38	50	..	..	..	..	..
1841....	62½	50	75	62½	37½	50	75	100	150	100	100	62
1842....	75	45	38½	38½	..	38½	50	50	75	75	100	62
1843....	75	62	62	50	50	42½	75	75	..	..	38	50
1844....	40	36½	42½	35½	35	35	32½	68½	68½	100	40	37½
1845....	40	40	30	50	35	45	40	75	87	40	62½	100
1846....	93½	62½	50	40	45	40	40	75	75	87½	47½	62½
1847....	50	93½	77½	68½	90	87	100	87	112	70	35	35
1848....	34	61	40	31½	30	33	33	40	62½	150	50	45
1849....	42½	45	32½	40	30	40	47½	80	150	75	32½	50
1850....	40	34	30	27½	22½	75	72½	62½	75	87	60	47½
1851....	60	55	40	35	35	40	75	60	100	..	40	75
1852....	60	60	50	30	30	45	75	75	..	..	40	50
1853....	40	30	25	25	30	80	90	100	150	..	65	75
1854....	70	80	60	45	40	..	..	..	..	..	..	100
1855....	50	50	50	50	50	50	60	80	80	60	40	50
1856....	..	75	80	80	60	80	125	..	..	..	..	80
1857....	..	90	70	75	60	60	90	90	120	80	50	35
1858....	25	40	40	55	50	40	60	75	100	150	45	30
1859....	30	30	30	30	45	85	75	80	75	75	75	60
1860....	60	50	50	55	50	50	70	70	70	80	55	55

TABLE 4  
MONTHLY STEAMBOAT FREIGHT RATES ON PORK FROM CINCINNATI TO  
NEW ORLEANS, 1837-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1937....	..	..	..	..	..	..	..	..	..	..	..	100
1838....	..	125	..	75	75	75	..	..	..	..	..	..
1839....	..	..	100	100	100	75	..	..	..	..	..	..
1840....	..	..	125	..	..	50	75	..	..	..	..	..
1841....	87½	75	100	75	50	62	87	125	..	125	150	75
1842....	87	62	50	50	..	50	87	75	87	100	125	75
1843....	100	75	75	56	62	68½	100	100	..	..	50	75
1844....	62½	45	62½	40	42½	40	45	87	87	100	50	50
1845....	50	47½	40	62½	56	56½	50	100	100	50	87½	125
1846....	118½	75	60	50	62½	50	62	100	93½	100	60	75
1847....	62	100	87	75	100	112	125	100	150	87	40	50
1848....	56	75	50	40	40	40	37½	50	87½	175	75	62½
1849....	52½	62	40	50	40	50	60	106½	200	90	40	75
1850....	60	42½	34	30	27½	87	..	87½	75	100	90	67½
1851....	75	75	50	50	40	60	90	90	150	..	60	100
1852....	80	75	65	35	35	..	..	..	90	..	60	65
1853....	50	30	35	40	40	100	100	100	125	..	85	100
1854....	90	100	85	60	50	75	145	..	..	..	..	200
1855....	75	70	70	70	65	65	80	125	112½	90	60	75
1856....	..	100	100	100	75	100	125	..	..	..	..	125
1857....	..	125	100	100	75	75	100	100	125	90	75	40
1858....	40	60	60	60	55	45	75	100	150	175	65	40
1859....	40	40	40	40	60	100	90	100	100	100	100	90
1860....	75	65	65	75	75	70	100	90	90	100	75	75

TABLE 5  
MONTHLY STEAMBOAT FREIGHT RATES ON WHISKY FROM CINCINNATI TO  
NEW ORLEANS, 1838-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1838....	..	150	..	..	..	..	..	..	..	..	..	..
1839....	..	..	100	100	100	75	..	..	..	..	..	..
1840....	..	..	..	..	75	75	100	..	..	..	..	..
1841....	100	87½	100	100	62½	87	100	125	200	125	150	87
1842....	93½	75	62	56½	..	56½	68½	87	160	125	125	87
1843....	..	..	..	..	..	..	..	..	..	..	..	..
1844....	75	46½	75	50	50	50	50	100	100	150	50	62
1845....	62½	56½	50	75	62½	62½	62	100	125	62	100	137½
1846....	145	87½	75	62½	75	62½	75	100	125	125	75	87½
1847....	75	112	87	93½	112	125	150	112	162	100	50	60
1848....	67½	86	62½	50	50	50	45	62½	100	200	87	75
1849....	62	75	45	62	50	75	70	106½	250	100	45	83½
1850....	72½	50	40	40	34	100	100	95	150	125	100	77½
1851....	100	100	50	60	50	65	100	100	200	250	175	125
1852....	100	100	85	50	45	75	150	150	100	200	70	80
1853....	60	45	40	37	50	125	200	130	200	..	115	125
1854....	100	125	100	75	60	100	150	..	..	300	300	350
1855....	90	90	90	90	90	90	100	150	125	100	75	100
1856....	..	150	150	150	100	150	175	..	..	..	..	150
1857....	..	150	125	125	100	100	125	125	150	100	80	40
1858....	45	75	75	75	65	50	85	125	150	200	75	45
1859....	50	50	50	50	75	125	100	125	100	100	125	100
1860....	90	85	100	90	85	80	125	100	100	125	100	100

TABLE 6  
MONTHLY STEAMBOAT FREIGHT RATES ON POUND FREIGHT FROM CINCINNATI  
TO NEW ORLEANS, 1838-1860  
(Unit: Cents per hundred pounds)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1838....	..	..	..	..	40	..	50	..	..	..	..	..
1839....	..	..	50	50	50	..	..	..	..	..	..	..
1840....	..	..	..	37½	33	33	40	..	..	..	..	..
1841....	40	37	37	37	25	37½	50	62	100	62½	62½	33½
1842....	38½	30	27½	27½	..	27½	43½	43½	38½	50	75	37
1843....	38½	42	35	42½	30	27½	45	50	..	..	22½	27½
1844....	25	20	25	20	20	22½	22½	45	45	87½	27½	22½
1845....	25	22½	20	25	22½	25	27½	75	50	25	40	50
1846....	25	30	27½	25	27½	25	30	50	40	100	30	30
1847....	25	45	45	37½	50	50	50	50	68½	35	22½	27½
1848....	25	32½	25	22½	22½	20	25	30	50	75	27½	25
1849....	25	25	20	25	20	25	27½	45	100	40	20	27½
1850....	25	22½	19	22½	17½	40	30	37½	75	50	37½	27½
1851....	27½	30	27½	27½	22½	22½	50	45	75	100	75	40
1852....	25	32½	30	25	22½	25	37½	75	40	125	25	30
1853....	27½	19	19	20	20	50	100	65	75	..	42½	50
1854....	40	45	35	25	22½	40	67½	..	..	150	125	125
1855....	30	35	20	30	27½	30	37½	50	62½	40	40	50
1856....	..	..	47½	47½	45	47½	125	..	..	..	..	55
1857....	..	45	45	47½	32½	35	50	40	..	40	35	40
1858....	35	35	27½	27½	27½	27½	42½	42½	50	77½	32½	25
1859....	25	17½	22½	20	20	30	30	55	45	37½	50	40
1860....	30	35	30	32½	32½	27½	37½	45	45	62½	45	37½



TABLE 7  
MONTHLY STEAMBOAT FREIGHT RATES ON WHISKY FROM CINCINNATI TO  
PITTSBURGH, 1841-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1841....	62	62	62	62	62	62	62	62	..	..	..	..
1842....	..	..	..	..	..	..	..	..	..	..	..	..
1843....	75	54	48	36	45	42	36	75	60	48	36	36
1844....	36	36	36	33	33	33	54	75	66	90	42	36
1845....	45	45	33	33	36	33	66	114	75	45	45	45
1846....	..	..	..	..	..	45	50	69	56	..	41	33
1847....	33	50	50	50	..	50	75	50	..	..	..	..
1848....	45	56	56	42½	42½	40	42½	45	90	75	30	40
1849....	40	40	37½	36½	35	40	75	125	300	42½	35	50
1850....	47½	35	32½	35	31½	52½	70	55	88	75	40	27½
1851....	40	40	45	40	33	75	40	33	100	100	30	45
1852....	50	45	50	40	37	60	150	100	75	150	50	50
1853....	60	50	50	40	40	100	150	100	100	125	30	100
1854....	85	85	80	70	50	75	150	..	..	..	..	100
1855....	60	50	60	60	50	60	50	65	125	100	75	100
1856....	..	150	150	150	100	150	175	..	..	..	..	50
1857....	..	90	50	50	40	35	40	50	100	35	50	40
1858....	35	50	55	40	35	35	40	100	100	65	40	40
1859....	50	50	40	40	50	75	75	75	60	50	50	50
1860....	50	40	40	45	50	40	40	40	40	50	40	40

TABLE 8  
MONTHLY STEAMBOAT FREIGHT RATES ON POUND FREIGHT FROM CINCINNATI  
TO PITTSBURGH, 1841-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1841....	25	25	25	25	25	25	25	25	118½	100	22½	22½
1842....	10½	16½	16½	16½	..	..	17½	..	..	..	20	20
1843....	25	17½	16	12	..	..	12	..	..	..	12	12
1844....	..	..	12½	11½	11½	11½	..	25	22½	30	13½	12½
1845....	15	15	11½	11½	12½	11½	22½	..	..	15	15	15
1846....	37	37	15	17½	12½	13½	15	22½	17½	25	13½	12½
1847....	12½	15	15	15	15	17½	25	15	..	20	12½	12½
1848....	15	17½	17½	13½	13½	19	13½	22½	27½	25	12½	12½
1849....	13½	13½	12½	12½	11	17½	20	62½	100	13½	12½	12½
1850....	12½	12½	11½	12½	10	13½	20	15	25	20	12½	11
1851....	12½	12½	14	12½	10	25	12½	12½	37	30	12	18
1852....	15	14	15	12	10	15	50	20	25	50	15	20
1853....	20	15	15	12½	12	30	75	35	30	40	10	20
1854....	25	27½	25	20	15	25	35	..	..	..	40	30
1855....	20	15	15	20	20	20	15	20	15	20	10	15
1856....	..	..	25	20	15	25	40	..	..	..	..	15
1857....	..	22½	20	15	12½	10	15	15	30	12½	12½	12½
1858....	10	15	20	10	10	10	15	35	35	20	12½	12½
1859....	15	15	13½	13½	15	22½	20	20	15	15	15	15
1860....	15	12½	12½	12½	15	12½	20	15	15	15	12½	12½

TABLE 9  
MONTHLY FREIGHT RATES ON FLOUR FROM NEW ORLEANS TO NEW YORK, 1836-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1836....	..	..	..	..	..	..	72½	56½	61½	56½	56½	none
1837....	none	68½	87½	100	50	none	none	none	none	none	62½	68½
1838....	93½	93½	125	118½	75	50	75	60	60	60	..	..
1839....	51½	66½	63½	47½	47½	62½	65	65	65	65	65	65
1840....	65	112½	150	112½	112	112	75	50	50	50	..	50
1841....	45	45	50	36½	32½	35	42½	35	35	35	40	30
1842....	47½	45	42½	55	57½	35	..	..	62½	72½	45	62½
1843....	83½	72½	56½	52½	33	50	55	50	50	47½	45	43½
1844....	50	66½	62½	42½	47½	50	35	32½	32½	35	42½	59
1845....	59	57½	50	50	55	38½	30	30	60	52½	52½	50
1846....	52½	57½	80	67½	116	85	67½	47½	40	40	37½	87½
1847....	72½	100	75	97½	80	80	77½	60	50	52½	61½	50
1848....	42½	62½	57½	70	67½	52½	27½	25	45	42½	42½	62½
1849....	77½	90	90	80	22½	37½	37½	35	35	none	37½	50
1850....	52½	50	..	none	20*	none	20*	30*	30*	32½*	47½*	45
1851....	55	86½	45	50	60	50	50	50	40	55	50	50
1852....	50	50	65	75	45	30	30	30	50	52½	75	125
1853....	85	100	87½	52½	55	75	50	none	40*	none	none	125*
1854....	100*	110	150	100	125	125	100	100	95	50	40	40
1855....	40	none	40*	40	27½	40	50	80	100	75	70	72½
1856....	72½	60	80	47½	40	40	42½	42½	50	50	40	72½
1857....	57½	60	50	27½	22½	22½	32½	27½	45	40	47½	50
1858....	62½	57½	67½	57½	55	42½	50	50	50	55	70	70
1859....	60	55	55	42½	42½	37½	37½	50	50	50	50	50
1860....	50	52½	52½	50	40	50	50	50	60	60	50	50

\* Boston. None shipping to New York.

TABLE 10  
MONTHLY FREIGHT RATES ON FLOUR FROM CINCINNATI TO NEW YORK  
VIA NEW ORLEANS, 1837-1860  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1837....	..	..	..	..	..	..	..	..	..	..	..	143½
1838....	..	193½	..	168½	125	100	175	..	..	..	..	..
1839....	..	..	138½	110½	122½	124½	..	..	..	..	..	..
1840....	..	..	250	162½	152	150	125	..	..	..	..	..
1841....	107½	95	125	98½	70	85	117½	135	185	135	140	92
1842....	122½	90	81½	94	..	73½	..	..	137½	147½	145	124½
1843....	158½	134½	118½	102½	83	92½	130	125	82½	93½	..	..
1844....	90	102½	105	77½	82½	85	67½	101	101	135	82½	96½
1845....	99	97½	80	100	90	83½	70	105	147	92½	115	150
1846....	146½	120	130	107½	161	125	107½	122½	115	127½	85	150
1847....	122½	193½	152½	166½	170	167	177½	147	162	122½	96½	85
1848....	76½	123½	97½	101½	97½	85½	60½	65	107½	192½	92½	107½
1849....	120	135	122½	120	52½	77½	85	115	185	70	100	..
1850....	92½	84	..	..	42½	..	92½	92½	105	119½	107½	92½
1851....	115	141½	85	85	95	90	125	110	140	..	90	125
1852....	110	110	115	105	75	75	105	105	125	..	115	175
1853....	125	130	112½	77½	85	155	140	190	..	..	..	200

TABLE 10 (CONTINUED)  
 MONTHLY FREIGHT RATES ON FLOUR FROM CINCINNATI TO NEW YORK  
 VIA NEW ORLEANS, 1837-1860  
 (Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1854....	170	190	210	145	165	..	..	..	..	..	..	140
1855....	90	..	90	90	77½	90	110	160	180	135	110	122½
1856....	..	135	160	127½	100	120	167½	..	..	..	..	152½
1857....	..	150	120	102½	82½	82½	122½	127½	165	120	97½	85
1858....	87½	97½	107½	112½	105	82½	110	125	150	205	115	100
1859....	90	85	85	72½	87½	122½	112½	130	125	125	125	110
1860....	110	102½	102½	105	90	100	120	120	130	140	105	105

TABLE 11  
 MONTHLY ARRIVALS OF STEAMBOATS AT CINCINNATI, 1848-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1848....	303	348	406	279	343	327	339	333	271	234	304	300
1849....	255	234	308	345	296	269	188	235	260	295	362	337
1850....	286	306	382	260	331	331	259	244	220	237	280	310
1851....	338	282	380	367	350	316	313	305	250	272	374	220
1852....	159	343	419	349	361	331	314	283	328	260	328	350
1853....	340	321	379	402	416	323	283	428	328	292	355	311
1854....	227	344	421	416	376	347	281	189	112	142	192	236
1855....	304	92	295	337	309	224	220	228	245	281	298	316
1856....	20	..	273	352	328	261	238	184	135	118	187	273
1857....	21	185	356	338	305	280	247	258	253	225	259	254
1858....	251	218	299	327	319	268	264	231	195	206	291	322
1859....	286	255	316	279	266	215	202	172	212	235	250	279
1860....	192	262	320	283	279	265	204	204	230	254	267	240

TABLE 12  
 MONTHLY DEPARTURES OF STEAMBOATS FROM CINCINNATI, 1848-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1848....	271	300	356	360	314	297	225	315	264	221	291	277
1849....	184	218	295	323	259	240	172	220	252	322	315	328
1850....	285	291	381	262	324	317	250	259	220	237	280	310
1851....	338	258	329	318	308	277	300	254	240	248	336	201
1852....	236	334	401	343	364	328	298	282	322	259	347	354
1853....	245	340	384	390	408	335	298	340	337	281	387	318
1854....	264	361	416	422	364	316	276	192	115	144	198	225
1855....	321	89	315	328	312	228	229	236	247	177	305	317
1856....	7	9	287	347	330	246	221	190	136	113	182	236
1857....	15	210	344	332	296	278	237	259	247	228	268	257
1858....	259	212	330	312	350	266	254	207	193	191	285	311
1859....	279	255	291	280	231	211	185	160	179	221	257	276
1860....	194	247	319	257	276	251	191	207	218	252	271	236

TABLE 13  
INDICES OF SEASONAL VARIATION IN FREIGHT RATES BY WATER, 1841-1850

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cin. freight index.	91	85	80	78	78	83	99	124	158	139	91	94
Flour, Cin.-N. O.	101	91	83	77	78	85	94	116	140	134	100	102
Pork, Cin.-N. O.	111	93	80	72	72	80	93	123	134	131	100	111
Whisky, Cin.-N. O.	106	96	81	82	77	78	85	109	162	129	90	105
Pound, Cin.-N. O.	87	86	82	85	83	90	104	129	150	118	92	94
Whisky, Cin.-Pitt.	82	82	83	83	84	84	103	134	165	136	81	81
Pound, Cin.-Pitt.	82	83	83	84	85	92	102	143	156	129	81	81
Flour, N. O.-N. Y.	113	119	111	102	95	96	95	89	89	91	93	107
Pork, N. O.-N. Y.	108	124	109	95	88	93	93	91	95	99	102	103

TABLE 14  
INDICES OF SEASONAL VARIATION IN FREIGHT RATES BY WATER, AND ARRIVALS AND DEPARTURES OF STEAMBOATS AT CINCINNATI, 1851-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cin. freight index.	81	80	73	68	59	87	131	127	142	154	105	93
Flour, Cin.-N. O.	82	81	73	72	68	84	126	130	146	156	97	85
Pork, Cin.-N. O.	83	80	77	74	63	90	129	125	143	149	95	91
Whisky, Cin.-N. O.	86	82	73	70	56	81	131	127	139	153	108	94
Pound, Cin.-N. O.	85	86	75	74	67	71	113	121	143	154	113	98
Whisky, Cin.-Pitt.	93	92	91	85	72	108	123	122	122	121	92	81
Pound, Cin.-Pitt.	89	88	87	67	60	90	137	137	135	134	88	88
Flour, N. O.-N. Y.	108	112	113	94	87	89	91	93	102	103	102	106
Pork, N. O.-N. Y.	111	116	115	88	89	90	90	94	99	100	103	105
Arrivals	95	89	117	116	111	97	91	88	82	89	109	116
Departures	85	107	137	131	124	105	90	78	73	70	99	101

TABLE 15  
UNWEIGHTED ANNUAL INDEX NUMBERS OF PRICES IN THE OHIO VALLEY, 1788-1817  
(Base: 1788-1817 average)

	0	1	2	3	4	5	6	7	8	9
1780	..	..	..	..	..	..	..	..	104	102
1790	98	92	98	106	96	111	127	133	109	97
1800	93	90	88	84	87	86	95	95	95	90
1810	87	79	77	106	122	108	116	125	..	..

TABLE 16  
UNWEIGHTED ANNUAL INDEX NUMBERS OF OHIO VALLEY COMMODITY PRICES.  
INDEX A: COMMODITIES IDENTIFIED WITH NORTHERN AGRICULTURE  
(Base: 1788-1817 average)

	0	1	2	3	4	5	6	7	8	9
1780	..	..	..	..	..	..	..	..	93	87
1790	90	88	101	110	95	110	125	134	108	89
1800	88	89	84	82	85	86	95	92	89	87
1810	88	78	84	114	134	117	131	145	..	..

**TABLE 17**  
**UNWEIGHTED ANNUAL INDEX NUMBERS OF OHIO VALLEY COMMODITY PRICES.**  
**INDEX B: COMMODITIES NOT IDENTIFIED WITH NORTHERN AGRICULTURE**  
*(Base: 1788-1817 average)*

	0	1	2	3	4	5	6	7	8	9
1780.....	..	..	..	..	..	..	..	..	130	139
1790.....	118	104	92	96	100	114	132	129	113	117
1800.....	106	94	99	88	90	89	96	104	110	97
1810.....	85	82	60	86	90	86	75	75	..	..

**TABLE 18**  
**ANNUAL RATIOS OF INDEX A TO INDEX B, 1788-1817**

	0	1	2	3	4	5	6	7	8	9
1780.....	..	..	..	..	..	..	..	..	72	63
1790.....	77	85	109	114	96	96	95	104	96	76
1800.....	83	94	84	92	95	96	99	88	82	90
1810.....	104	95	140	133	150	136	175	194	..	..

**TABLE 19**  
**ANNUAL AVERAGES OF INDEX A AND INDEX B, AND ANNUAL RATIOS OF**  
**INDEX A TO INDEX B, 1816-1861**  
*(Base: 1824-1846)*

Year	Index A	Index B	Ratio A/B	Year	Index A	Index B	Ratio A/B
1816.....	164	289	57	1839.....	150	116	130
1817.....	175	272	64	1840.....	111	91	121
1818.....	160	264	61	1841.....	91	87	105
1819.....	164	265	62	1842.....	70	76	92
1820.....	112	237	47	1843.....	73	70	105
1821.....	68	160	42	1844.....	81	71	113
1822.....	78	166	47	1845.....	97	68	142
1823.....	87	129	67	1846.....	81	69	118
1824.....	85	122	70	1847.....	102	76	134
1825.....	85	127	67	1848.....	83	65	128
1826.....	81	115	70	1849.....	87	65	134
1827.....	79	114	69	1850.....	98	72	136
1828.....	81	113	71	1851.....	107	68	158
1829.....	91	112	82	1852.....	112	68	165
1830.....	86	106	82	1853.....	118	84	140
1831.....	100	98	103	1854.....	128	85	150
1832.....	103	98	105	1855.....	153	81	189
1833.....	101	102	99	1856.....	141	93	151
1834.....	93	97	96	1857.....	154	94	163
1835.....	125	102	122	1858.....	120	77	156
1836.....	159	121	131	1859.....	140	79	176
1837.....	142	112	126	1860.....	133	80	167
1838.....	137	115	119	1861.....	123	76	162

TABLE 20

INDICES OF SEASONAL VARIATION IN CINCINNATI WHOLESALE COMMODITY PRICES. (1) GENERAL UNWEIGHTED INDEX; (2) GENERAL WEIGHTED INDEX; (3) INDEX A; (4) INDEX B. FOR THE PERIODS 1824-1836, 1836-1848, AND 1848-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1824-1836</i>												
Genl. Unw. Index . . . . .	101.1	100.2	98.9	98.5	98.9	99.4	100.3	100.4	100.5	100.2	100.9	100.8
Genl. Wt. Index . . . . .	101.1	100.0	98.7	97.1	98.5	99.1	99.7	100.2	100.5	101.4	102.5	101.4
Index A . . . . .	100.7	100.8	100.0	97.5	98.8	99.5	99.4	99.7	100.0	101.0	101.9	100.6
Index B . . . . .	100.7	98.2	97.6	97.8	98.5	100.5	100.9	100.9	100.8	101.6	101.5	101.1
<i>1836-1848</i>												
Genl. Unw. Index . . . . .	100.8	99.4	99.4	99.6	99.0	98.4	98.5	98.3	100.2	102.0	102.4	102.1
Genl. Wt. Index . . . . .	100.3	97.7	98.3	98.2	99.1	98.9	98.3	99.9	101.1	102.5	103.5	102.3
Index A . . . . .	101.2	98.1	98.1	98.6	100.1	99.1	97.4	99.3	101.6	102.2	102.4	101.8
Index B . . . . .	99.2	98.0	99.6	99.2	99.2	99.6	99.6	99.6	100.4	102.9	102.5	100.0
<i>1848-1860</i>												
Genl. Unw. Index . . . . .	99.9	100.3	100.3	100.2	100.8	99.4	98.6	98.8	100.4	100.5	100.3	100.3
Genl. Wt. Index . . . . .	98.8	100.1	99.9	99.5	100.3	99.7	99.5	100.1	102.1	101.6	99.2	99.3
Index A . . . . .	98.7	100.6	100.1	100.4	101.3	99.8	98.8	100.1	102.3	100.7	97.9	99.0
Index B . . . . .	98.9	99.3	98.9	98.3	98.7	99.1	99.8	101.0	101.4	103.2	101.5	99.7

TABLE 21

INDICES OF SEASONAL VARIATION IN CINCINNATI WHOLESALE COMMODITY PRICES FOR THE PERIOD 1876-1888. (1) GENERAL INDEX, CONSTANT WEIGHTS. (2) FARM PRODUCTS INDEX

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
General Index . . . . .	100.9	101.2	100.3	100.5	101.3	99.8	98.2	97.8	99.7	100.2	100.1	100.1
Farm Products . . . . .	101.7	103.0	101.7	102.5	104.9	101.9	98.2	97.1	97.5	97.1	95.8	98.7

For original data, see White, *Memoir 182*, pp. 15, 23.

**TABLE 22**  
**INDICES OF SEASONAL VARIATION IN SIXTEEN SELECTED SERIES OF CINCINNATI WHOLESALE COMMODITY PRICES FOR THE**  
**PERIODS 1824-1836, 1836-1848, AND 1848-1860**

[ 995 ]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1824-1836</i>												
Bacon .....	100.7	99.1	98.9	98.6	98.4	98.2	98.6	102.0	101.7	101.5	101.3	101.1
Butter .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coffee .....	102.1	100.5	98.5	98.2	98.6	99.0	99.4	100.0	100.3	100.7	101.1	101.5
Corn .....	100.8	100.7	100.6	100.4	100.2	100.1	100.0	99.8	99.6	99.5	99.4	99.2
Cotton .....	100.0	99.9	99.8	99.8	99.8	100.3	100.2	100.2	100.2	100.1	100.0	100.0
Flour .....	106.2	105.5	103.1	96.3	96.7	95.3	95.8	97.1	98.0	100.4	102.9	102.8
Lard .....	100.0	99.9	99.7	99.6	99.6	99.4	99.3	99.1	99.0	102.2	102.1	100.2
Molasses .....	102.9	96.6	95.3	95.4	96.1	98.6	101.2	102.7	102.8	102.8	102.9	102.9
Pork, mess .....	98.8	98.6	98.4	98.2	101.2	101.0	101.2	101.0	100.8	100.6	100.4	99.6
Salt, Kanawha .....	102.0	101.5	100.8	99.0	98.7	98.4	98.0	97.7	97.2	102.0	102.7	102.3
Salt, Turks Is. ....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sugar .....	102.4	96.6	96.2	99.2	99.4	99.6	100.4	100.6	100.9	101.1	101.3	102.2
Wheat .....	100.3	100.2	100.2	100.1	100.0	99.9	99.8	99.7	99.6	99.6	100.5	100.4
Whisky .....	99.3	98.6	98.5	97.4	99.4	100.3	101.7	101.0	100.9	99.8	101.5	101.4
<i>1836-1848</i>												
Bacon .....	100.2	99.2	99.8	100.3	98.5	99.3	99.5	100.3	102.6	100.6	99.8	100.0
Butter .....	100.9	100.2	100.6	99.7	97.2	96.4	95.6	101.2	100.8	103.2	102.5	101.7
Coffee .....	100.4	100.0	100.0	99.9	100.1	99.7	99.7	99.7	99.8	99.8	100.4	100.4
Corn .....	98.5	96.1	94.5	100.0	100.5	102.3	104.8	101.7	101.5	101.3	100.1	98.7
Cotton .....	99.9	100.0	100.2	100.4	100.1	99.5	99.7	99.8	100.0	100.2	100.3	99.7
Flour .....	104.7	100.2	99.4	98.3	99.8	100.1	95.3	98.5	98.2	96.7	104.1	104.6
Lard .....	96.0	96.0	100.8	100.6	99.8	98.8	98.3	102.9	103.3	104.5	99.6	99.4
Molasses .....	94.7	95.6	97.3	99.1	99.3	100.1	101.0	101.8	103.5	104.3	102.5	100.7
Pork, mess .....	96.7	97.6	99.5	99.5	101.4	102.0	102.4	102.1	102.1	102.1	97.5	97.1
Salt, Kanawha .....	104.1	97.4	97.5	97.5	97.5	97.6	97.4	97.4	97.4	105.2	105.3	105.3
Salt, Turks Is. ....	97.2	97.5	97.7	97.9	98.1	98.3	98.5	98.7	98.9	105.5	105.7	105.9
Sugar .....	94.0	93.3	97.1	98.0	99.2	100.2	101.2	102.2	104.2	106.7	104.4	99.4
Wheat .....	104.8	101.8	101.2	98.7	99.4	95.4	87.8	95.5	99.4	103.0	105.4	107.6
Whisky .....	103.5	99.3	97.6	95.4	94.4	96.0	97.9	100.2	103.3	102.2	105.0	105.3

TABLE 22 (CONTINUED)

	1848-1860											
Bacon .....	95.0	99.4	98.9	97.3	99.8	100.3	101.4	104.0	107.1	102.6	99.1	95.1
Butter .....	104.9	101.4	110.0	122.2	112.4	70.4	69.1	84.0	89.5	103.1	117.2	115.8
Coffee .....	99.5	99.4	102.0	101.7	100.2	98.9	99.0	99.7	100.0	100.0	99.7	100.2
Corn .....	94.6	95.1	94.0	96.0	105.1	108.0	105.3	107.8	110.6	99.1	92.2	92.2
Cotton .....	100.3	100.3	98.3	98.8	99.4	100.6	100.4	100.2	100.1	99.9	101.3	100.5
Flour .....	100.5	101.9	101.1	101.1	104.6	102.8	98.0	97.8	96.9	98.5	98.1	98.7
Hogs (net) .....	99.5	108.0	106.6	101.7	98.0	96.5	97.4	99.8	99.8	98.3	94.8	99.7
Iron, pig .....	99.2	99.2	99.8	99.9	99.7	99.9	100.1	100.1	100.2	101.6	101.6	99.0
Lard .....	92.5	95.5	96.5	97.2	101.7	103.8	107.0	106.8	110.4	103.2	92.5	92.9
Molasses .....	96.6	97.9	100.2	99.2	101.1	100.7	100.1	100.4	102.5	103.5	100.8	96.8
Pork, mess .....	95.5	100.1	99.9	100.0	102.8	103.7	102.6	104.3	104.2	100.7	91.7	94.5
Salt, Kanawha .....	100.5	100.5	100.5	99.2	99.2	99.8	99.8	99.8	99.7	100.5	100.5	100.5
Salt, Turks Is. ....	96.9	96.6	96.3	96.1	97.0	98.4	99.4	101.0	103.2	106.6	106.7	101.5
Sugar .....	94.8	96.9	96.9	97.1	99.0	100.4	101.3	104.5	105.3	105.5	100.4	97.9
Wheat .....	104.7	105.2	104.5	103.0	108.0	101.2	92.3	91.9	93.2	95.8	98.0	102.2
Whisky .....	98.0	98.7	95.4	92.2	95.3	98.5	99.6	102.0	105.7	105.6	105.5	103.6



TABLE 23  
 MEDIAN ANNUAL PRICES OF FOURTEEN LEADING COMMODITIES IN THE  
 OHIO VALLEY, 1786-1817  
 (Unit: United States dollars)

	1786	1787	1788	1789	1790	1791	1792	1793
Flour, bbl. ....	4.00*	..	4.00	2.67	4.00	..	..	5.00
Wheat, bu. ....	..	..	.58*	.50*	.67*	..	..	..
Corn, bu. ....	.33*	..	.33*	.29*	.29*	.25*	..	.50*
Oats, bu. ....	..	..	..	.25*	.25*	..	..	..
Rye, bu. ....	.83*	..	.50*	.50*	.50*	..	..	..
Tobacco, 100 lbs. ....	..	..	2.50*	2.00*	2.00*	2.50*	3.33*	..
Beef, 100 lbs. ....	2.75*	3.00*	2.50*	2.75*	2.33*	..	..	..
Hogs, 100 lbs. ....	..	2.50*	2.00*	2.08*	2.64*	2.33*	..	..
Sugar, lb. ....	..	..	..	.25*	.21*	.16	..	.33†
Whisky, gal. ....	.83*	..	..	.67*	.67*	..	..	.67†
Salt, bu. ....	..	..	2.75	2.89	2.70	2.50*	2.00	..
Iron, lb. ....	..	..	.17*	.17*	.14*	.14*	..	..
Coffee, lb. ....	..	..	.50*	..	..	.22*	..	.33†
Tea, lb. ....	..	..	3.33*	4.67*	..	..	..	2.00†

	1794	1795	1796	1797	1798	1799	1800	1801
Flour, bbl. ....	4.50†	6.00	7.75	8.00†	6.50	4.50	4.25	4.50
Wheat, bu. ....	.53†	.53†	..	1.00	.67†	.67†	.67†	.67†
Corn, bu. ....	.33†	.40†	.50†	.30†	.33†	.25†	.25†	.25†
Oats, bu. ....	.25†	.33†	.35†	.45†	.33	.27†	.33†	.25†
Rye, bu. ....	.42†	.53†	.67†	.67†	.60†	.40†	.40†	.40†
Tobacco, 100 lbs. ....	..	3.05*	..	4.00	..	..	..	2.00
Beef, 100 lbs. ....	3.33	4.17*	3.33*	4.00†	3.33	3.00*	2.50*	2.25
Hogs, 100 lbs. ....	..	3.75*	..	4.44†	3.00†	2.50†	2.50†	..
Sugar, lb. ....	.20†	.17†	.17†	..	.13†	.13†	..	.25
Whisky, gal. ....	.50†	.67†	.78†	.97†	.75†	.62†	.50†	.60
Salt, bu. ....	..	4.00†	4.67	4.25	2.50*	3.12†	2.67	2.38
Iron, lb. ....	.12†	..	..	..	.13†	.12†	..	.07
Coffee, lb. ....	.50†	..	.50*	.49†	..	..	..	..
Tea, lb. ....	..	2.22†	..	2.50†	2.75*	..	..	2.67*

	1802	1803	1804	1805	1806	1807	1808	1809
Flour, bbl. ....	4.00	4.25	4.50	4.00	5.00	4.00	5.00*	4.00
Wheat, bu. ....	..	.50	.50*	.58*	.75	.62	.50	.50
Corn, bu. ....	.25†	.25*	.25*	.25	.25	.33	.38	.29
Oats, bu. ....	..	..	.25*	.21*	.25*	.40	..	.25
Rye, bu. ....	.40†	..	..	.33*	..	..	..	.50
Tobacco, 100 lbs. ....	..	..	..	3.00	3.00	3.00	2.00	1.50
Beef, 100 lbs. ....	2.75	2.88	3.00	..	..	2.62	2.50*	3.00*
Hogs, 100 lbs. ....	..	2.75	2.75	2.75	3.00	2.75	3.00*	3.12
Sugar, lb. ....	..	.12	..	..	.25*	.17	.17	.25*
Whisky, gal. ....	.50†	.56	.56*	.50*	.50	.40	.42	.38
Salt, bu. ....	2.38	2.44	2.50*	2.25*	2.00*	2.00*	2.00*	2.00*
Iron, lb. ....	.11*	.07	..	.11*	.17*	..	.14*	.10*
Coffee, lb. ....	..	..	.38*	..	..	..	.50*	.48
Tea, lb. ....	..	..	2.02*	..	1.17*	..	2.75*	..

\* Original quotation in Virginia currency.  
 † Original quotation in Pennsylvania currency.

TABLE 23 (CONTINUED)

	1810	1811	1812	1813	1814	1815	1816	1817
Flour, bbl. ....	4.00	4.00	4.38	6.25	9.00	5.25	5.25	7.50
Wheat, bu. ....	.50	.50	.62	1.00	1.06	.68	.75	1.00
Corn, bu. ....	.25	.25	.31	.50	.62	.35	.41	.62
Oats, bu. ....	.50	.20	.46	.44	.50	..	.34	.44
Rye, bu. ....	.50	.40	.37	..	.50	.50	.50	1.00
Tobacco, 100 lbs.	2.00	2.00	1.50*	2.00*	2.50*	5.75	8.00	3.88
Beef, 100 lbs. ...	2.25	4.00	2.54	3.50	4.00	3.50	4.00	4.75
Hogs, 100 lbs. ...	2.62	2.75	2.50	3.84	3.88	3.00	4.50	4.50
Sugar, lb. ....	.21*	.10	.15†	.18	.17	.17	.20	.19
Whisky, gal. ....	.33	.39	.32	.50	.75	.75	.62	.50
Salt, bu. ....	1.50	1.38*	1.00	1.00*	1.00	1.25*	1.00	1.25
Iron, lb. ....	.10*	.10*	.09	.09	.12*	.09	.10	.09
Coffee, lb. ....	.42*	..	.33*	.42*	..	.39	.40	.36
Tea, lb. ....	2.17*	2.25*	1.00	3.00*	2.88	3.00*	1.95	2.00

\* Original quotation in Virginia currency.

† Original quotation in Pennsylvania currency.

TABLE 24  
MONTHLY MEAN FLOUR PRICES IN CINCINNATI, 1816-1822  
(Unit: Cents per barrel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	525	550	500	500	450	450	..	600	600	500	600	700
1817....	..	700	775	750	750	..	750	650	400	500	..	600
1818....	550	600	600	..	550	500	500	600	..	700	625	625
1819....	..	600	475	500	..	..	512½	500	500	562½	562½	437½
1820....	437½	462½	412½	..	343½	331	362½	350	312½	312½	312½	350
1821....	..	..	..	..	200	150	..	200	200	..	375	250
1822....	250	270	..	200	250	224	224	..	..	250	..	..

TABLE 25  
MONTHLY MEAN WHEAT PRICES IN CINCINNATI, 1816-1827  
(Unit: Cents per bushel)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	75	75	62½	62½	62½	75	..	75	75	75	75	100
1817....	100	100	100	103	100	..	..	75	..	75	75	75
1818....	75	90	80	87½	80	75	81½	100	..	93¾	100	100
1819....	..	100	93½	93½	..	82½	93½	81½	68½	68½	68½	68½
1820....	68½	68½	68½	52	56½	56½	56½	56½	56½	56½	56½	..
1821....	..	..	..	..	..	31½	31½	31½	37½	37½	50	..
1822....	37½	40	..	..	..	..	..	..	..	..	..	50
1823....	40	..	50	50	50	..	50	50	50	50	50	50
1824....	50	50	50	50	55	55	55	55	55	40	40	40
1825....	40	40	40	40	40	..	..	..	30	50	..	..
1826....	..	..	..	..	..	..	..	..	..	37½	45	45
1827....	45	50	50	50	50	50	40	45	45	45	..	..

TABLE 26  
MONTHLY MEAN PRICES IN CINCINNATI OF LIVE HOGS (1816-1843) AND  
HOGS, GROSS WEIGHT (1846-1861)  
(Unit: Cents per 100 lbs.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	500	500	..	..	..	..	..	..	..	..	..	475
1817....	..	475	..	..	..	..	..	..	..	..	..	400
1818....	450	550	..	..	..	..	..	..	..	..	500	600
1819....	600	600	..	..	..	..	..	..	..	..	..	..
1820....	500	..	..	..	..	..	..	..	..	..	..	225
1821....	225	225	..	..	..	..	..	..	..	..	..	125
1822....	..	..	..	..	..	..	..	..	..	..	..	..
1823....	175	..	..	..	..	..	..	..	..	..	..	250
1824....	250	250	..	..	..	..	..	..	..	..	225	225
1825....	231½	237½	237½	..	..	..	..	..	..	..	..	220
1826....	200	200	..	..	..	..	..	..	..	..	..	175
1827....	175	212½	212½	..	..	..	..	..	..	..	..	..
1828....	175	..	..	..	..	..	..	..	..	..	232½	275
1829....	275	275	..	..	..	..	..	..	..	..	237½	212½
1830....	287½	312½	..	..	..	..	..	..	..	..	..	..
1831....	312½	..	..	..	..	..	..	..	..	400	300	..
1832....	..	..	..	..	..	..	..	..	..	..	..	318½
1833....	318½	318½	..	..	..	..	..	..	..	..	..	375
1834....	..	..	381½	..	..	..	..	..	..	343½	356	343½
1835....	..	..	..	..	..	..	..	..	..	412½	..	600
1836....	725	..	..	..	..	..	..	..	..	..	700	700
1837....	650	..	..	..	..	..	..	..	..	..	350	412½
1838....	400	425	..	..	..	..	..	..	..	..	587½	612½
1839....	600	..	..	..	..	..	..	..	..	..	350	350
1840....	425	456½	..	..	..	..	..	..	..	..	..	400
1841....	368	362½	362½	..	..	..	..	..	..	..	200	212½
1842....	181	200	..	..	..	..	..	..	..	..	206½	168½
1843....	181	200	..	..	..	..	..	..	..	..	..	..
1846....	..	..	..	..	..	..	..	..	190	..	..	..
1847....	..	..	300	..	..	..	..	..	..	..	..	..
1848....	..	..	..	..	..	157½	..	..	237½	250	..	..
1849....	..	..	..	..	..	..	..	..	..	..	..	..
1850....	..	..	..	..	250	250	250	260	265	270	..	..
1851....	..	375	360	355	355	355	355	335	335	367½	..	..
1852....	..	..	400	..	425	425	400	412½	..	475	..	..
1853....	..	500	506½	462½	450	437½	412½	412½	412½	412½	..	..
1854....	..	..	425	400	375	362½	337½	337½	387½	355	..	..
1855....	..	400	425	450	437½	462½	487½	500	550	600	..	..
1856....	..	512½	487½	462½	455	450	525	537½	537½	537½	..	..
1857....	..	600	612½	625	625	611	612½	637½	637½	500	..	..
1858....	..	..	500	462½	425	375	375	450	450	425	..	..
1859....	..	600	612½	500	500	500	537½	525	512½	450	..	..
1860....	..	587½	550	525	487½	500	542½	562½	592½	525	..	..
1861....	..	525	487½	450	312½	325	287½	300	295	307½	262½	..

**TABLE 27**  
**MONTHLY MEAN PRICES OF HOGS, NET WEIGHT, IN CINCINNATI, 1843-1861**  
*(Unit: Cents per 100 lbs.)*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843....	..	..	..	..	..	..	..	..	..	..	256	252½
1844....	260	260	260	287½	262	262	262	262	262	..	270	295
1845....	350	331½	362½	362½	362½	362½	362½	362½	362½	362½	400	406
1846....	368½	342½	350	350	350	355	355	225	215	212½	287½	290
1847....	360	426½	432½	445	445	..	450	450	400	425	350	287½
1848....	262½	285	..	..	..	..	..	..	..	..	329	362½
1849....	325	..	..	..	262½	..	..	..	..	251½	270	292½
1850....	330	..	312½	350	312½	..	..	370	312½	337½	350	407½
1851....	422½	425	437½	..	..	..	..	..	..	..	445	465
1852....	495	492½	500	500	537½	537½	500	512½	512½	575	532½	658½
1853....	625	612½	..	..	..	..	..	..	..	..	455	430
1854....	450	531	..	..	..	..	..	..	..	..	362½	425
1855....	425	..	..	..	..	..	..	..	..	..	681	600
1856....	575	612½	..	..	..	..	..	..	..	..	577½	655
1857....	720	718½	..	..	..	..	..	..	..	..	562½	540
1858....	477½	602½	..	..	..	..	..	..	..	..	650	642½
1859....	600	..	..	..	..	..	..	..	..	..	587½	607½
1860....	625	..	..	..	..	..	..	..	..	..	655	525
1861....	622½	..	..	..	..	..	..	..	..	..	311½	335

**TABLE 28**  
**RATIOS OF AVERAGE PRICES IN NEW YORK, PHILADELPHIA, NEW ORLEANS, AND CINCINNATI OF WHEAT (BUSHEL) TO FLOUR (BARREL), CORN (BUSHEL) TO WHISKY (GALLON), AND FLAXSEED (BUSHEL) TO LINSEED OIL (GALLON), BY FIVE-YEAR PERIODS, 1796-1860**  
*(In percentages)*

Five Years Ending	Wheat-Flour				Corn-Whisky				Flaxseed-Linseed Oil
	Cin.	N. O.	Phila.	N. Y.	Cin.	N. O.	Phila.	N. Y.	Cin.
1800....	12.9*	..	16.5*	18.7*	57.4	..	..	..	..
1805....	13.0†	..	17.7†	19.6†	46.0	..	..	..	..
1810....	13.1	..	18.5	20.5	73.9	..	..	..	..
1815....	13.4	..	18.4	20.0	74.9	..	..	..	..
1820....	14.3	..	20.0	19.7	86.5	..	169.0	188.5	47.9
1825....	14.5	..	19.3	20.0	94.5	260.7‡	169.0	208.2	63.9
1830....	14.7	..	19.7	20.4	120.0	305.1	196.0	232.7	69.2
1835....	15.9	..	20.5	21.2	135.5	311.2	220.1	241.0	75.3
1840....	16.9	..	20.9	20.4	138.4	232.0	224.1	249.3	84.8
1845....	18.5	17.7	20.9	20.8	157.2	209.7	238.4	256.0	108.8
1850....	18.7	18.5	21.5	21.1	181.2	263.4	262.9	278.0	149.9
1855....	19.2	19.2	21.6	25.1	208.3	248.6	266.3	274.5	167.5
1860....	21.2	21.0	23.6	28.7	241.2	292.3	292.5	301.9	177.7

\* No data for 1796 included.  
† No data for 1802 included.  
‡ No data for 1821 included.

**TABLE 29**  
**ANNUAL VARIATIONS IN AVERAGE CINCINNATI PRICES OF SELECTED COMMODITIES**  
**(CALENDAR YEARS) AND RECEIPTS AT NEW ORLEANS (COMMERCIAL YEARS). RATIO**  
**TO THE MEAN OF THE PRECEDING FIVE YEARS, EXPRESSED IN TERMS OF STANDARD**  
**DEVIATIONS. 1827-1849; 1850-1861**

Year	Flour		Mess Pork		Whisky		Corn	
	Prices	Receipts	Prices	Receipts	Prices	Receipts	Prices	Receipts
1827....	+ .38	-1.00	- .62	+ .26	+ .61	+2.44	+ .82	- .63
1828....	+ .74	-1.08	- .16	- .06	- .78	+ .79	+ .18	- .91
1829....	+1.93	- .61	- .04	+1.24	+ .17	-1.21	+ .86	- .66
1830....	- .53	-2.19	+ .94	-2.61	+ .20	-2.53	+ .45	-1.93
1831....	+ .10	+1.45	+ .91	- .05	+1.73	- .80	+1.54	+1.13
1832....	+ .25	+ .69	- .03	+1.58	+1.05	+ .51	+ .04	- .85
1833....	-1.10	+1.29	+ .16	+ .71	+ .71	+ .53	- .15	+ .60
1834....	-1.19	+ .77	+ .28	+1.03	-1.53	- .31	- .24	- .03
1835....	+ .20	- .16	+ .18	+ .23	+ .98	- .31	+ .59	+1.46
1836....	- .01	- .18	+ .96	- .52	- .27	- .28	-2.15	+1.71
1837....	+1.07	- .60	+ .68	+ .51	- .63	+ .36	- .19	+1.37
1838....	+ .10	- .21	+ .29	+ .62	+ .66	+ .55	+ .82	+ .04
1839....	-1.17	+ .58	- .10	+ .62	+ .86	-1.56	+1.02	- .18
1840....	-1.80	+1.47	+ .24	- .16	-2.04	+1.27	-2.69	- .50
1841....	+ .53	+ .19	- .44	+ .60	-1.96	+ .84	-1.22	-1.16
1842....	+ .84	- .14	-3.18	+ .36	+1.36	- .09	- .97	- .44
1843....	+ .32	- .32	- .53	-1.19	+ .37	+ .38	- .73	- .26
1844....	+ .10	-1.37	- .50	+ .71	+1.26	- .24	+1.04	-1.26
1845....	- .83	+ .22	+1.53	- .55	+ .53	+ .97	+ .95	- .22
1846....	-2.43	+ .58	+ .21	- .63	+ .25	- .15	+ .09	+ .93
1847....	+ .67	+1.76	+1.60	-2.37	- .58	- .63	+ .15	+1.53
1848....	+ .85	- .85	- .53	- .64	- .40	+ .13	+ .01	+ .23
1849....	+ .88	- .22	- .54	+ .21	0	- .63	- .24	+ .14
1850....	+ .44	-2.34	-1.21	+1.97	+1.07	-1.52	+ .83	-1.36
1851....	-1.10	- .20	+ .71	- .84	- .05	+1.02	- .25	- .68
1852....	-1.31	+ .11	+1.76	- .93	-1.03	+ .79	- .76	+ .03
1853....	- .29	- .03	+1.27	- .26	- .06	+ .23	+ .53	- .33
1854....	+1.86	+ .44	-1.92	-1.47	+ .95	+ .06	+ .63	- .79
1855....	+1.94	- .18	- .65	+ .81	+1.87	- .41	+ .85	- .11
1856....	+ .15	+1.28	- .59	- .05	+ .23	- .13	-1.23	+ .70
1857....	- .75	+1.37	+ .67	- .60	- .86	+ .95	+ .12	- .27
1858....	- .96	+1.19	+ .47	+ .50	- .25	- .97	+ .28	- .42
1859....	- .12	0	- .29	+1.56	+ .86	+ .96	+1.83	-1.41
1860....	- .06	- .93	+ .11	- .75	-1.16	+1.01	- .96	+ .73
1861....	+ .20	- .67	- .32	+ .02	-1.56	-2.06	-1.85	+2.38

TABLE 29 (CONTINUED)

Year	Lard		Butter		Oats		Tobacco *	
	Prices	Receipts	Prices	Receipts	Prices	Receipts	Prices	Receipts
1827....	-1.33	+2.04	-1.62	+1.45	+1.60	-1.24	-.04	+.32
1828....	-1.30	+1.25	-.84	-.85	-.55	-1.63	+.02	-.17
1829....	-2.02	+.61	+.62	-.75	+.16	+.24	-.29	-.17
1830....	-.08	-3.45	+.37	-.98	+.36	-1.07	-.12	-.69
1831....	+1.30	-.48	-1.52	-.91	+1.11	-2.26	-.60	-.49
1832....	+.37	+.81	-.27	+.13	+.63	-1.13	-.41	+.07
1833....	+.20	+.14	+1.37	+2.06	+.39	+1.77	+.05	-.58
1834....	+.94	+1.04	-.15	-.10	-.82	+1.59	+.92	-.66
1835....	+.10	+1.08	+.16	-1.75	+.07	+.86	+.82	+.21
1836....	+2.04	-.78	+.43	-1.19	-2.02	+1.05	-.34	+1.35
1837....	-.37	-.52	+.68	-.52	-.58	+.98	-1.16	-.46
1838....	-.61	-.61	-.19	+.67	+.39	-.27	+.02	+.18
1839....	+.17	-.82	+.73	-.38	+.52	+.05	+1.80	-.98
1840....	+1.18	-1.05	-.76	+1.33	-2.76	+.27	+1.34	+.77
1841....	-1.10	+.08	-1.95	+.55	+.01	-.14	+1.67	+.35
1842....	-1.01	+.58	-1.73	-1.14	-.39	-.13	+.63	+1.00
1843....	-.47	+1.85	-.73	+.18	-1.50	+.42	-1.71	+1.54
1844....	-.42	+1.03	+.44	-.98	+1.23	-.09	-1.94	+.24
1845....	+1.03	-.16	+1.06	+1.53	+.46	+.42	-1.70	+.23
1846....	0	-.79	+.58	+1.17	+.28	+.33	-.66	-1.16
1847....	+1.57	-1.94	+1.00	+.26	+.15	+.81	-1.07	-2.70
1848....	+.44	+.47	+1.63	-.07	+.70	+.28	+.54	-1.37
1849....	-.61	-.36	+.65	+.16	+.62	-1.08	+1.01	-1.73
1850....	-1.59	+1.13	+1.00	+.13	+1.29	-1.06	+1.41	-.40
1851....	+.98	-.82	+.46	+1.59	-.56	+.62	+1.66	+.70
1852....	+1.69	-.08	+2.36	+.67	-1.55	+.48	-.28	+2.16
1853....	+.40	-.30	-.93	+.55	+.12	+.38	-.75	+1.18
1854....	-.93	+.31	-1.30	+.81	+.20	+1.40	-.72	-.27
1855....	-1.19	+2.57	+.21	-.58	-.56	+.18	-.55	+.36
1856....	-.74	-.21	+.19	-1.07	-.75	+.06	-.08	-.25
1857....	+1.05	-.19	-.30	-.95	+.39	-1.32	+1.37	-.12
1858....	+.76	+.20	-.14	-.39	+1.58	0	+.94	+1.10
1859....	+.17	-.30	+.28	-.89	+1.50	-2.25	-.71	+1.17
1860....	+.24	-.72	-1.48	+1.61	-.29	+1.05	-1.04	+.78
1861....	-.95	-1.58	-.44	-1.46	-1.31	+.47	+.07	-1.57

\* Prices of leaf tobacco in New Orleans. The period 1827-1861 is taken as a unit.

TABLE 30

ANNUAL VARIATIONS IN RECEIPTS OF SELECTED COMMODITIES AT CINCINNATI BY RIVER, CANAL, AND RAILWAY, 1850-1861 (COMMERCIAL YEARS). RATIO TO THE MEAN OF THE PRECEDING FIVE YEARS, EXPRESSED IN TERMS OF STANDARD DEVIATIONS

Year	Flour	Mess Pork	Whisky	Corn	Lard	Butter	Oats
1850.....	-.18	+.53	+.49	+2.23	+1.80	-.84	-.32
1851.....	+2.37	-.15	+1.65	+.93	+1.40	+2.32	-.95
1852.....	+.48	-2.13	+.02	-.76	+.20	+.59	-2.33
1853.....	-.25	-.30	-.06	-.50	-.35	-1.24	-.64
1854.....	-1.69	-.46	-1.62	-1.25	+.19	+.10	+.28
1855.....	-1.27	+.57	-.72	-.40	-.37	-1.43	+1.33
1856.....	+.15	-.44	+.55	-.05	+.48	-.81	0
1857.....	+.39	-.57	+1.93	+1.65	-2.21	-.32	+1.18
1858.....	+.89	-.49	-.06	-.43	-.74	+.80	+.37
1859.....	+.19	+1.49	-.50	-.58	-.57	-.73	-.60
1860.....	-.48	+.05	-1.32	-.51	-.41	+.19	+.93
1861.....	-.60	+1.89	-.38	-.36	+.54	-.08	+.74

TABLE 31

ANNUAL RATIOS OF THE AVERAGE PRICE OF HOGS DURING THE WINTER PACKING SEASON TO THE AVERAGE PRICE OF CORN FOR YEAR ENDED SEPTEMBER 30, 1788-1861

Year	0	1	2	3	4	5	6	7	8	9
1780.....	..	..	..	..	..	..	..	..	6.0	7.2
1790.....	9.1	9.3	..	..	..	9.4	..	14.8	9.0	10.0
1800.....	10.0	..	..	11.0	11.0	11.0	12.0	8.2	8.0	10.8
1810.....	10.5	11.0	8.1	7.7	6.2	8.6	12.6	8.4	8.9	13.3
1820.....	15.3	10.4	7.4	8.6	12.8	15.3	7.9	8.8	8.2	10.4
1830.....	10.3	7.8	9.3	9.6	12.3	8.8	16.3	16.7	8.2	10.0
1840.....	11.2	16.8	8.3	9.0	7.2*	7.4*	10.5*	8.1*	7.7*	8.8*
1850.....	6.1*	9.1*	12.1*	10.6*	7.7*	5.0*	12.0*	9.2*	10.4*	6.8*
1860.....	10.4*	15.2*	..	..	..	..	..	..	..	..

\* "Net" price of hogs was reduced by 20 per cent before computing the ratio.

TABLE 32

ANNUAL DEVIATIONS OF HOG-CORN PRICE RATIOS FROM THEIR MEAN, 1831-1861. ANNUAL DEVIATIONS OF THE CINCINNATI HOG PACK FROM FREEHAND LINE OF TREND, 1833-1863 (Unit: One standard deviation)

Year	Ratio	Pack	Year	Ratio	Pack	Year	Ratio	Pack
1831....	-.58	...	1842....	-.42	+1.32	1853....	+.35	-.22
1832....	-.10	...	1843....	-.19	+1.53	1854....	-.61	+.60
1833....	0	-1.64	1844....	-.80	+.49	1855....	-1.54	-.38
1834....	+.93	0	1845....	-.74	-1.15	1856....	+.83	+.22
1835....	-.26	+1.64	1846....	+.32	+.49	1857....	-.13	-.66
1836....	+2.27	-.22	1847....	-.48	-1.21	1858....	+.29	+.60
1837....	+2.40	-1.21	1848....	-.61	+1.64	1859....	-.93	-.38
1838....	-.45	+1.81	1849....	-.26	+.60	1860....	+.29	+.16
1839....	+.16	+1.75	1850....	-1.15	+.33	1861....	+1.89	-.11
1840....	+.54	-2.08	1851....	-.16	-.55	1862....	...	+.05
1841....	+2.43	-.11	1852....	+.86	-.33	1863....	...	+.93

TABLE 33  
 MEAN MONTHLY PRICES OF BAR LEAD IN THE CINCINNATI MARKET, 1819-1861  
 (Cents per 100 lbs.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1819....	..	950	950	..	..	..	..	..	..	..	..	..
1823....	800	..	..	..	700	..	700	625	625	625	625	625
1824....	625	625	500	500	550	800	750	750	750	750	750	750
1825....	850	850	900	850	825	825	950	950	900	900	900	900
1826....	900	875	800	800	750	750	750	750	750	750	750	750
1827....	750	750	662	662	662	700	700	700	700	700	700	700
1828....	700	650	650	650	650	625	588	600	600	600	600	550
1829....	550	550	500	500	500	500	500	475	475	425	425	425
1830....	425	425	425	425	425	400	400	400	400	400	400	400
1831....	425	425	425	425	375	425	425	500	500	600	600	600
1832....	600	600	600	600	600	600	600	650	650	650	650	650
1833....	650	650	650	650	650	650	650	650	650	650	650	650
1834....	638	638	638	638	638	638	625	612	612	612	612	612
1835....	612	650	650	612	675	700	700	700	700	700	700	700
1836....	675	675	700	700	725	725	750	725	725	750	750	750
1837....	750	750	750	825	825	800	800	725	675	675	675	675
1838....	675	675	675	675	725	725	725	725	725	725	725	725
1839....	825	825	875	..	700	700	700	700	700	700	700	700
1840....	700	700	700	700	550	550	500	400	600	600	600	600
1841....	600	550	550	550	500	500	500	500	500	500	550	550
1842....	550	500	450	450	400	400	400	400	400	400	400	350
1843....	350	350	350	400	400	400	375	375	..	..	375	375
1844....	400	400	400	..	400	400	400	400	400	400	400	400
1845....	400	400	400	400	400	400	400	400	400	400	400	450
1846....	500	456	462	425	400	394	394	394	394	419	412	450
1847....	469	475	481	425	438	438	438	438	438	438	438	831
1848....	475	475	462	431	430	400	420	462	444	456	450	450
1849....	444	444	444	444	462	462	462	488	525	525	475	..
1850....	475	..	475	550	525	550	525	500	500	500	512	500
1851....	512	500	525	..	500	..	512	512	500	500	500	488
1852....	488	488	488	495	495	500	500	525	525	522	538	538
1853....	650	725	762	..	700	700	700	700	662	725	738	738
1854....	725	750	750	750	750	738	738	725	725	750	750	750
1855....	738	738	738	662	662	638	638	638	662	712	738	738
1856....	712	712	712	738	738	738	738	738	762	762	762	762
1857....	..	762	762	762	762	762	712	712	712	712	712	638
1858....	612	612	612	612	612	612	638	638	638	638	638	575
1859....	600	600	600	638	638	638	638	638	638	638	638	638
1860....	612	612	612	612	612	612	612	612	612	612	612	606
1861....	638	638	638	638	612	612	612	588	638	700	700	700





TABLE 34 (CONTINUED)

1840	387½	387½	387½	387½	337½	337½	337½	337½	337½	337½	337½	337½
1841	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½
1842	337½	337½	337½	337½	337½	337½	337½	312½	312½	312½	312½	312½
1843	287½	287½	287½	262½	262½	262½	237½	237½	...	...	212½	212½
1844	...	...	...	...	...	...	212½	187½	181	181½	181½	187½
1845	200	200	200	190	192½	192½	192½	190	190	190	200	200
1846	200	200	150	207½	193½	193½	193½	190	200	195	225	225
1847	260	225	225	250	250	275	400	300	325	300	375	380
1848	387	370	370	370	397½	397½	387½	362½	325	325	385	385
1849	368½	362½	362½	325	320	325	325	340	340	340	312½	320
1850	312½	312½	290	250	250	250	262½	262½	262½	262½	237½	237½
1851	237½	237½	175	190	187½	210	212½	200	225	225	225	225
1852	225	195	195	195	195	195	195	212½	212½	212½	262½	262½
1853	287½	287½	287½	287½	287½	287½	262½	262½	262½	262½	262½	287½
1854	287½	282½	262½	262½	262½	262½	262½	262½	262½	262½	262½	262½
1855	300	300	300	300	300	300	300	300	300	300	300	300
1856	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½	337½
1857	...	337½	337½	337½	337½	337½	337½	337½	337½	387½	387½	387½
1858	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½
1859	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½
1860	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½	387½
1861	387½	387½	387½	387½	387½	387½	187½	187½	187½	187½	187½	187½

TABLE 35  
MEAN MONTHLY PRICES OF "1ST QUALITY" SALT IN THE CINCINNATI  
MARKET, 1816-1820  
(Cents per bushel of 50 lbs.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	100	100	100	100	100	100	..	100	100	..	87½	75
1817....	100	87½	100	..	125	150	150	125	..	..	..	200
1818....	200	200	150	..	150	150	200	200	200	..	150	150
1819....	175	175	..	..	200	..	..	200	..	250	..	..
1820....	300	175	..	..	150	150	..	..	..	..	..	..

TABLE 36  
MEAN MONTHLY PRICES OF "2ND QUALITY" SALT IN THE CINCINNATI  
MARKET, 1816-1817  
(Cents per bushel of 50 lbs.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	87½	87½	87½	87½	87½	87½	..	87½	87½	..	77½	..
1817....	..	77½	..	..	..	..	..	..	..	..	..	..

TABLE 37  
MEAN MONTHLY PRICES OF "KENHAWA" SALT IN THE CINCINNATI  
MARKET, 1818-1823  
(Cents per bushel of 50 lbs.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1818....	..	..	..	..	..	..	..	150	..	..	..	..
1819....	..	..	150	150	..	..	150	150	150	162	162	156
1820....	187½	125	125	..	125	125	118½	106½	100	100	100	100
1821....	87½	..	87½	..	100	100	100	50	50	75	43½	..
1822....	43½	43½	..	75	75	62½	70	68½	106½	106½	75	50
1823....	62½	62½	30	33½	42½	..	42½	45	50	50	62	43

TABLE 38  
MEAN MONTHLY PRICES OF TURKS ISLAND SALT IN THE CINCINNATI  
MARKET, 1824-1860

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1824....	83½	83½	83½	83½	83½	83½	83½	77½	77½	..	77½	75
1825....	91½	92½	92½	92½	92½	92½	117½	117½	117½	115	115	120
1826....	111	88½	88½	88½	88½	88½	..	..	100	..	..	100
1827....	100	100	118	90	90	90	95	95	95	95	95	95
1828....	95	125	125	100	100	100	100	88½	90	90	118½	118½
1829....	118½	118½	118½	118½	118½	118½	100	100	100	100	100	100
1830....	100	100	100	100	100	100	100	100	100	100	100	100
1831....	72½	67½	67½	67½	67½	67½	67½	67½	67½	85	112	112
1832....	112	112	112	112	112	87	87	87	93½	93½	93½	93½
1833....	93½	93½	93½	93½	93½	93½	93½	93½	93½	93½	93½	81
1834....	77½	77½	77½	77½	77½	77½	77½	77½	77½	77½	77½	..
1835....	77½	77½	77½	75	75	75	75	75	75	75	75	72½
1836....	72½	72½	72½	72½	72½	72½	72½	72½	72½	72½	72½	55
1837....	55	55	55	55	55	55	55	55	55	62½	62½	62½
1838....	68½	68½	68½	68½	62½	..	62½	62½	62½	87½	106½	175

TABLE 38 (CONTINUED)

1839....	75	75	75	75	75	75	75	75	75	75	75
1840....	75	75	75	75	75	75	75	75	55	55	55
1841....	55	55	55	38	45	45	47½	47½	63½	67½	62½
1842....	52½	45	45	40	40	40	40	40	37	62½	67½
1843....	56	45	45	45	45	45	45	38½	61½	60	62½
1844....	36	36	38½	..	38½	38½	42½	42½	42½	47½	52½
1845....	27½	27½	27½	27½	32½	32½	32½	34	34	36½	36½
1846....	37½	36	42½	42½	42½	36	36	36	36	55	50
1847....	35	35	35	35	33	..	..	..	..	50	40
1848....	35	34	34	34	..	..	..	..	42½	42½	47½
1849....	45	45	45	45	45	40	37½	37½	..	45½	40
1850....	30	30	30	30	28	28	32	32	32	..	35
1851....	30	30	30	29	..	30	30	30	30	40	35
1852....	31	31	..	..	..	37½	37½	37½	37½	35½	32½
1853....	30	30	30	30	30	32	..	35	38½	47½	60
1854....	72½	60	60	..	..	..	..	85	..	35	35
1855....	42½	..	..	..	..	..	..	..	..	55	52½
1856....	43½	43½	43½	43½	43½	43½	43½	..	..	..	55
1857....	..	32½	32½	32½	32½	32½	32½	32½	32½	32½	27
1858....	27½	..	..	..	..	..	..	..	..	..	35
1859....	30	30	30	30	30	30	30	..	..	35	35
1860....	32½	32½	26½	26½	28½	28½	28½	26½	26½	32½	32½

TABLE 39  
ANNUAL TOTAL INSPECTIONS OF KANAWHA SALT, 1827-1875\*  
(Fifty-pound bushels)

Year	Bushels	Year	Bushels
1827.....	787,000	1851.....	2,862,676
1828.....	863,542	1852.....	2,741,570
1829.....	989,758	1853.....	2,729,910
1830.....	906,132	1854.....	2,233,863
1831.....	956,814	1855.....	1,493,548
1832.....	1,029,207	1856.....	1,264,049
1833.....	1,288,873	1857.....	1,266,749
1834.....	1,702,956	1858.....	
1835.....	1,960,583	1859.....	
1836.....	1,762,410	1860.....	No records
1837.....	1,880,415	1861.....	
1838.....	1,811,076	1862.....	
1839.....	1,593,217	1863.....	
1840.....	1,419,205	1864.....	1,300,991
1841.....	1,443,645	1865.....	861,973
1842.....	1,919,389	1866.....	1,275,017
1843.....	2,197,887	1867.....	1,321,066
1844.....	1,874,919	1868.....	1,528,282
1845.....	2,578,499	1869.....	1,822,430
1846.....	3,224,786	1870.....	1,721,963
1847.....	2,690,087	1871.....	
1848.....	2,876,010	1872.....	No records
1849.....	2,951,492	1873.....	
1850.....	3,142,100	1874.....	
		1875.....	967,465

\* Source: J. P. Hale, "Salt," in M. F. Maury and W. M. Fontaine, *Resources of West Virginia* (1876), p. 303.

TABLE 40

MONTHLY MEAN PRICES OF COFFEE IN THE CINCINNATI MARKET, ACCORDING TO THE  
ACCOUNTS OF PIERCE & BRIGHTWELL AND ISAAC JACKSON, 1816-1823

(Cents per lb.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	..	43 $\frac{3}{4}$	46 $\frac{7}{8}$	44	44	43 $\frac{3}{4}$	44	37 $\frac{1}{2}$	..	37 $\frac{1}{2}$	37 $\frac{1}{2}$	43 $\frac{3}{4}$
1817....	46 $\frac{3}{4}$	40 $\frac{3}{4}$	37 $\frac{3}{8}$	43 $\frac{3}{4}$	40 $\frac{3}{4}$	37 $\frac{1}{2}$	34 $\frac{3}{8}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$
1818....	40 $\frac{3}{4}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	43 $\frac{3}{4}$	43 $\frac{3}{4}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	43 $\frac{3}{4}$	50	56
1819....	53	50	50	56	56	56	..	62	62	..	..	..
1820....	63	..	..	50	..	62 $\frac{1}{2}$	69	..	..	..	..	62 $\frac{1}{2}$
1821....	..	..	43 $\frac{3}{4}$	..	56 $\frac{1}{4}$	62 $\frac{1}{2}$	..	..	..	..	..	..
1822....	..	..	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	35 $\frac{1}{4}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$	37 $\frac{1}{2}$
1823....	..	..	..	37 $\frac{1}{2}$	33 $\frac{1}{4}$	33 $\frac{1}{4}$	33 $\frac{1}{4}$	37 $\frac{1}{2}$	..	..	..	..

TABLE 41

MONTHLY MEAN PRICES OF SUGAR IN THE CINCINNATI MARKET, ACCORDING TO THE  
ACCOUNTS OF PIERCE & BRIGHTWELL AND ISAAC JACKSON, 1816-1823

(Cents per lb.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1816....	22 $\frac{1}{2}$	32 $\frac{3}{8}$	28 $\frac{3}{8}$	..	..	..	21 $\frac{1}{4}$	28 $\frac{1}{4}$	25	26 $\frac{3}{8}$	31 $\frac{1}{4}$ *	31 $\frac{1}{4}$
1817....	28 $\frac{3}{8}$	31 $\frac{1}{4}$	31 $\frac{1}{4}$	..	25	25	25	25	25	25	25*	25 $\frac{3}{8}$
1818....	25 $\frac{3}{8}$	20	25	25	..	25	20	20	20	22 $\frac{1}{2}$	20	20
1819....	22 $\frac{1}{2}$	20	16 $\frac{3}{4}$	16 $\frac{3}{4}$	16 $\frac{3}{4}$	18 $\frac{1}{2}$	19	20	19 $\frac{3}{8}$	22 $\frac{1}{2}$	25	22 $\frac{1}{2}$
1820....	..	..	..	20	20	14 $\frac{3}{8}$	25	20	20	16 $\frac{3}{4}$	20	..
1821....	20	12 $\frac{1}{2}$	..	12 $\frac{1}{2}$	16 $\frac{3}{4}$	8 $\frac{1}{2}$	10	12 $\frac{1}{2}$	10	10	10	8
1822....	9 $\frac{1}{2}$	7 $\frac{3}{4}$	..	9 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	15 $\frac{1}{2}$	12 $\frac{1}{2}$
1823....	..	12 $\frac{1}{2}$	..	10 $\frac{1}{2}$	10 $\frac{1}{4}$	9 $\frac{1}{4}$	11 $\frac{1}{4}$	..	..	..	..	..

\* New Orleans.

† Brown.

TABLE 42

WEIGHTED ANNUAL INDEX OF IMPORTS OF OHIO VALLEY PRODUCTS AT NEW ORLEANS,  
TOGETHER WITH RELATIVES REPRESENTING FLOUR (AND WHEAT), PORK, WHISKY,  
CORN, OATS, BUTTER, AND TOBACCO, 1810-1862

(Base: 1810-1862 average)

Year	Index	Flour & Wheat	Pork	Whisky	Corn	Oats	Butter	Tobacco*
1810.....	5	7	4	6	2	2	5	17
1811.....	9	25	8	13	1	2	5	14
1812.....	6	16	2	10	3	1	5	5
1813.....	..	..	..	..	..	..	..	..
1814.....	7	14	4	24	8	1	5	14
1815.....	..	..	..	..	..	..	..	..
1816.....	7	18	6	10	1	1	1	17
1817.....	7	18	3	9	6	1	5	17
1818.....	16	44	14	9	10	1	9	22
1819.....	..	..	..	..	..	..	..	..

TABLE 42 (CONTINUED)

1820.....	..	..	..	..	..	..	..	..
1821.....	..	..	..	..	..	..	..	..
1822.....	8	22	4	3	8	1	5	75
1823.....	10	21	11	15	6	1	9	43
1824.....	9	19	6	28	5	1	9	63
1825.....	13	26	9	49	10	1	9	43
1826.....	15	24	21	16	20	2	14	46
1827.....	18	24	16	53	11	1	24	77
1828.....	25	28	23	65	12	1	19	72
1829.....	25	29	31	38	13	3	19	70
1830.....	42	25	22	36	9	2	28	82
1831.....	41	67	39	46	46	1	28	80
1832.....	32	39	43	55	11	1	28	72
1833.....	32	49	37	50	22	6	47	51
1834.....	44	60	58	47	22	10	38	60
1835.....	53	54	58	53	55	9	28	87
1836.....	47	53	49	49	76	11	28	121
1837.....	53	48	73	67	78	19	38	70
1838.....	61	60	87	77	62	15	61	92
1839.....	70	82	104	43	69	23	47	68
1840.....	61	94	76	83	59	25	66	106
1841.....	87	94	136	110	60	32	85	128
1842.....	96	92	153	93	80	37	61	164
1843.....	116	106	128	124	94	71	109	224
1844.....	152	100	258	129	72	77	99	198
1845.....	108	104	136	145	73	85	151	171
1846.....	187	185	232	173	210	159	246	176
1847.....	250	362	189	188	414	347	265	135
1848.....	219	142	223	200	220	275	236	135
1849.....	275	206	345	191	276	157	322	125
1850.....	256	114	340	175	159	192	284	147
1851.....	231	181	204	238	185	283	326	154
1852.....	215	177	174	216	215	273	255	217
1853.....	218	153	199	206	171	264	260	181
1854.....	211	176	156	191	246	346	270	118
1855.....	185	127	173	161	155	259	184	128
1856.....	226	273	174	220	280	346	199	135
1857.....	219	297	152	265	265	232	180	133
1856.....	222	315	175	185	185	335	189	181
1859.....	184	204	167	226	226	147	132	152
1860.....	207	180	136	274	274	389	217	164
1861.....	195	193	134	138	138	326	113	77
1862.....	29	55	7	3	3	27	33	2

\* Tobacco was not included in the index.

TABLE 43  
WEIGHTED ANNUAL INDEX OF IMPORTS OF FARM PRODUCTS AND PROVISIONS AT  
CINCINNATI, TOGETHER WITH RELATIVES REPRESENTING FLOUR,  
WHEAT, PORK, CORN, AND WHISKY, 1845-1861  
(Base: 1845-1861 average)

Commercial Year	Index	Flour	Wheat	Pork (bbls.)	Corn	Whisky
1845.....	53	35	74	116	22	63
1846.....	65	48	66	144	7	71
1847.....	77	122	89	108	113	73
1848.....	84	36	86	186	45	69
1849.....	84	107	58	118	43	67
1850.....	81	55	49	115	82	74
1851.....	90	115	59	84	62	92
1852.....	104	122	57	60	82	101
1853.....	118	107	52	106	91	104
1854.....	120	102	62	105	94	101
1855.....	96	82	66	103	106	97
1856.....	123	130	162	70	123	136
1857.....	106	118	112	53	211	169
1858.....	123	151	183	60	137	130
1859.....	121	133	193	103	143	121
1860.....	124	123	160	68	169	109
1861.....	128	117	171	100	169	121

TABLE 44  
WEIGHTED ANNUAL INDICES OF IMPORTS OF MANUFACTURED GOODS AND "GROCERIES"  
AT CINCINNATI, TOGETHER WITH RELATIVES REPRESENTING IRON AND STEEL (IN TONS),  
NAILS, LEAD, GLASS, FOREIGN SALT (SACKS), DOMESTIC SALT (BARRELS), COFFEE,  
SUGAR, PEPPER, AND COTTON, 1845-1861  
(Base: 1845-1861 average)

Year	Index Manufactures	Index Groceries	Iron & Steel	Nails	Lead	Glass	Foreign Salt	Domestic Salt	Coffee	Sugar	Pepper	Cotton
1845....	58	43	11	38	269	37	101	110	54	40	56	21
1846....	46	47	7	39	43	37	19	122	57	40	45	19
1847....	60	55	31	65	75	51	81	136	61	48	86	49
1848....	69	75	15	71	68	58	94	104	83	79	94	53
1849....	76	68	33	66	79	97	111	84	77	66	35	36
1850....	76	74	36	98	85	100	159	125	69	78	70	34
1851....	81	84	47	99	103	106	73	87	94	87	53	28
1852....	98	104	184	75	94	126	131	63	99	115	37	50
1853....	123	130	256	123	99	123	103	86	112	144	150	65
1854....	144	134	260	119	113	105	95	99	94	188	193	80
1855....	107	113	67	111	100	119	104	81	118	137	61	59
1856....	145	98	69	122	77	114	116	60	95	95	99	114
1857....	149	79	113	132	106	90	213	124	106	47	91	74
1858....	108	122	96	99	103	98	86	80	133	131	155	74
1859....	152	164	162	163	90	147	64	88	148	172	211	196
1860....	132	149	153	158	107	165	88	131	134	118	158	307
1861....	81	163	160	123	89	125	64	121	166	115	110	432

**TABLE 45**  
**UNWEIGHTED MONTHLY INDEX NUMBERS OF WHOLESALE COMMODITY PRICES IN**  
**CINCINNATI, LEXINGTON, LOUISVILLE, AND PITTSBURGH, 1816-1823**  
*(Base: 1824-1846 average)*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1816</i>												
Cin. ....	189	190	185	186	184	184	...	185	187	..	102	194
Lex. ....	..	..	..	..	..	..	..	..	..	..	206	203
<i>1817</i>												
Cin. ....	..	191	195	..	197	..	..	189	..	..	..	..
Lex. ....	200	198	195	197	196	192	192	193	196	199	197	197
Pitts. ....	..	..	..	219	216	219	219	215	208	207	207	..
<i>1818</i>												
Cin. ....	191	190	184	..	184	179	..	190	..	..	184	189
Lex. ....	197	195	205	205	199	200	212	207	207	208	..	..
Lou. ....	..	..	..	..	..	..	209	209	209	212	205	207
Pitts. ....	..	..	..	191	187	192	191	191	191	192	201	195
<i>1819</i>												
Cin. ....	..	..	210	210	..	..	210	211	209	217	217	215
Lou. ....	207	207	..	..	..	..	..	..	..	..	..	..
Pitts. ....	193	192	191	190	188	188	189	186	185	185	179	176
<i>1820</i>												
Cin. ....	218	203	198	..	190	191	194	190	185	184	184	..
Pitts. ....	176	169	162	159	158	154	151	137	139	139	139	140
<i>1821</i>												
Pitts. ....	132	126	124	121	117	117	116	115	112	114	108	107
<i>1822</i>												
Lou. ....	..	..	..	..	..	..	..	..	..	262	252	116
Pitts. ....	107	107	107	107	107	109	112	..	..	..	..	..
<i>1823</i>												
Cin. ....	109	..	..	108	108	..	111	110	112	110	108	106
Lou. ....	..	114	..	..	..	..	..	..	..	..	113	111



TABLE 46  
WEIGHTED MONTHLY INDEX NUMBERS OF WHOLESALE COMMODITY PRICES IN  
CINCINNATI, LEXINGTON, LOUISVILLE, AND PITTSBURGH, 1816-1823  
(Base: 1824-1846 average)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1816</i>												
Cin. ....	206	210	198	197	190	190	..	199	200	..	206	207
Lex. ...	..	..	..	..	..	..	..	..	..	..	212	209
<i>1817</i>												
Cin. ....	..	211	211	..	209	..	..	201	..	..	..	..
Lex. ...	200	198	196	200	199	200	199	199	202	203	204	204
Pitts. ...	..	..	..	231	226	228	229	222	213	207	207	..
<i>1818</i>												
Cin. ....	199	191	182	..	180	177	..	199	..	..	194	196
Lex. ...	204	196	204	196	196	207	220	216	217	217	..	..
Lou. ...	..	..	..	..	..	..	206	206	206	216	209	209
Pitts. ...	..	..	..	197	190	200	201	201	204	204	223	209
<i>1819</i>												
Cin. ....	..	..	214	207	..	..	210	212	215	229	229	223
Lou. ...	210	210	..	..	..	..	..	..	..	..	..	..
Pitts. ...	204	201	201	200	199	201	210	199	195	195	185	183
<i>1820</i>												
Cin. ....	231	207	193	..	180	178	181	180	173	173	173	..
Pitts. ...	183	168	156	149	145	143	140	126	131	133	134	128
<i>1821</i>												
Pitts. ...	119	112	109	104	104	104	104	103	99	101	105	101
<i>1822</i>												
Lou. ...	..	..	..	..	..	..	..	..	..	254	242	113
Pitts. ...	101	101	101	101	101	104	108	..	..	..	..	..
<i>1823</i>												
Cin. ....	101	..	..	105	106	..	108	107	110	107	109	105
Lou. ...	..	109	..	..	..	..	..	..	..	..	115	113

TABLE 47  
 WEIGHTED MONTHLY INDEX NUMBERS OF THE WHOLESALE PRICES OF AGRICULTURAL  
 EXPORTS (INDEX A) IN CINCINNATI, LEXINGTON, LOUISVILLE,  
 AND PITTSBURGH, 1816-1823  
 (Base: 1824-1846 average)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1816</i>												
Cin. ....	187	193	177	176	167	167	..	176	176	..	182	192
Lex. ....	..	..	..	..	..	..	..	..	..	..	188	183
<i>1817</i>												
Cin. ....	..	195	201	..	197	..	..	182	..	..	..	..
Lex. ...	168	175	172	177	175	176	176	176	176	178	177	177
Pitts. ...	..	..	..	223	216	209	211	204	189	181	177	..
<i>1818</i>												
Cin. ....	174	167	165	..	163	160	..	182	..	..	177	180
Lex. ...	177	166	177	165	165	172	185	184	184	184	..	..
Lou. ...	..	..	..	..	..	..	..	185	185	185	202	187
Pitts. ...	..	..	..	170	165	181	183	183	187	187	207	188
<i>1819</i>												
Cin. ....	..	..	177	173	..	..	179	178	176	186	186	180
Lou. ...	188	185	..	..	..	..	..	..	..	..	..	..
Pitts. ...	180	177	176	176	175	177	196	180	176	176	168	170
<i>1820</i>												
Cin. ....	173	162	155	..	142	135	137	140	126	126	126	..
Lex. ...	141	126	125	125	125	121	121	121	123	123	118	119
Pitts. ...	170	149	138	131	127	127	123	110	115	118	117	105
<i>1821</i>												
Lex. ...	119	..	..	..	..	..	..	..	..	..	..	..
Pitts. ...	99	92	89	86	87	87	86	86	83	83	91	86
<i>1822</i>												
Lou. ...	..	..	..	..	..	..	..	..	..	196	202	93
Pitts. ...	86	86	86	86	86	87	94	..	..	..	..	..
<i>1823</i>												
Cin. ....	69	..	..	92	92	..	92	90	95	91	92	88
Lou. ...	..	88	..	..	..	..	..	..	..	..	100	97

TABLE 48  
WEIGHTED MONTHLY INDEX NUMBERS OF THE WHOLESALE PRICES OF MANUFACTURED  
AND IMPORTED GOODS (INDEX B) IN CINCINNATI, LEXINGTON,  
LOUISVILLE, AND PITTSBURGH, 1816-1823  
(Base: 1824-1846 average)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>1816</i>												
Cin. ....	274	274	274	274	274	274	..	284	284	..	293	262
Lex. ....	..	..	..	..	..	..	..	..	..	..	263	263
<i>1817</i>												
Cin. ....	..	270	244	..	253	..	..	267	..	..	..	..
Lex. ....	266	247	247	248	248	250	246	246	256	256	261	261
Pitts. ....	..	..	..	246	242	262	260	254	253	253	259	..
<i>1818</i>												
Cin. ....	294	280	246	..	242	242	..	260	..	..	256	256
Lex. ....	258	258	258	261	261	278	293	282	285	287	..	..
Lou. ....	..	..	..	..	..	..	237	237	237	237	241	241
Pitts. ....	..	..	..	245	232	232	232	232	232	234	250	245
<i>1819</i>												
Cin. ....	..	..	268	258	..	..	256	261	271	291	291	288
Lou. ....	242	245	..	..	..	..	..	..	..	..	..	..
Pitts. ....	246	244	244	243	242	242	235	232	228	228	214	207
<i>1820</i>												
Cin. ....	318	274	250	..	235	241	247	239	242	242	242	..
Pitts. ....	205	200	189	179	177	171	170	155	159	159	164	167
<i>1821</i>												
Pitts. ....	153	146	143	136	134	134	134	133	129	133	128	128
<i>1822</i>												
Lou. ....	..	..	..	..	..	..	..	..	..	338	300	144
Pitts. ....	129	128	128	128	128	134	134	..	..	..	..	..
<i>1823</i>												
Cin. ....	145	..	..	124	125	..	131	131	130	129	133	129
Lou. ....	..	139	..	..	..	..	..	..	..	..	137	136

TABLE 49  
 PER CENT PREMIUM OF SPECIE OVER COMMONWEALTH PAPER IN LOUISVILLE, 1821-JANUARY 1827. PER CENT DISCOUNT ON  
 COMMONWEALTH PAPER IN LOUISVILLE, FEBRUARY 1827-1828

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1821.....	..	..	..	..	..	..	33	..	..	..	..	..
1822.....	..	..	67.5	105	72.5	97.5	..	..	..	101.5	87.5	76
1823.....	72.5	82.5	..	77.5	..	91.5	101.5	101	102.5	106	105	103
1824.....	99	98.5	101	101	101	99	99	100.5	102	102	101	101
1825.....	98.5	101	98	96.5	97	77.5	67.5	61.5	50	51	51	49
1826.....	49	45.5	unc.	unc.	31.5	31.5	31.5	33.5	34	34	45	37.5
1827.....	37.5	30*	27*	..	25*	21.5*	23.5*	21.5*	21.5*	21.5*	21.5*	21.5*
1828.....	21.5*	21.5*	..	21*	20*	..	19*	19*	12.5*	12.5*	..	..

\* Discount.  
 unc. Uncertain.

TABLE 50  
CIRCULATION, DEPOSITS, LOANS AND DISCOUNTS, AND SPECIE IN STATE BANKS BY REGIONS (INCLUDING THE BANK OF THE UNITED STATES)  
NEAR THE FIRST OF THE YEAR, 1835-1861 \*

(In millions)

[ 1861 ]	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847
<b>CIRCULATION</b>													
New England . . . . .	17.9	22.3	20.0	19.7	20.8	16.2	17.6	18.0	14.7	19.5	23.8	26.2	26.9
Mid. Atlantic . . . . .	45.1	61.6	55.3	34.9	43.1	31.9	27.7	27.0	21.4	27.4	32.8	36.4	37.6
So. Atlantic . . . . .	16.9	26.5	28.4	20.0	20.9	16.8	17.5	14.3	12.1	13.7	16.3	17.6	17.0
Southwest . . . . .	14.2	21.4	24.4	24.9	28.6	30.7	27.1	14.4	2.9	4.1	5.7	8.0	8.1
West . . . . .	2.6	6.6	10.1	9.8	14.0	11.4	12.8	10.2	7.2	9.4	10.2	12.2	10.8
Ohio . . . . .	5.2	9.7	8.3	6.2	8.2	4.6	3.7	....	1.9	2.2	2.3	4.5	5.7
United States . . . . .	101.9	148.1	146.5	115.5	135.6	111.6	106.4	86.7	60.2	76.3	91.1	104.9	106.1
<b>DEPOSITS</b>													
New England . . . . .	16.8	21.0	22.2	12.5	13.7	9.9	12.0	10.3	9.1	15.1	17.6	17.2	14.7
Mid. Atlantic . . . . .	45.6	54.6	53.4	31.9	38.7	31.6	31.4	33.6	31.1	49.1	46.7	53.0	52.6
So. Atlantic . . . . .	7.7	11.9	15.0	9.7	10.0	7.4	7.0	6.0	5.3	6.7	7.3	8.2	7.4
Southwest . . . . .	10.9	20.4	22.1	18.7	18.8	19.3	11.7	9.0	6.7	8.3	10.2	11.1	12.4
West . . . . .	2.0	6.7	11.6	6.0	6.5	3.7	2.4	2.2	2.2	3.5	4.0	4.0	3.3
Ohio . . . . .	2.1	6.1	7.6	4.1	2.7	2.0	2.0	....	1.1	.5	.4	3.0	2.4
United States . . . . .	85.1	120.7	131.9	82.9	90.4	73.9	66.5	62.6	55.5	83.2	86.2	96.5	92.8
<b>LOANS AND DISCOUNTS</b>													
New England . . . . .	78.0	93.1	97.5	89.4	87.2	80.9	81.3	81.8	75.6	75.4	83.9	89.6	89.0
Mid. Atlantic . . . . .	157.6	191.8	207.2	169.9	171.6	144.4	102.3	102.2	86.3	105.5	115.1	123.7	119.1
So. Atlantic . . . . .	36.8	51.4	61.8	56.3	59.9	58.5	49.9	43.2	38.8	37.8	40.7	41.4	41.4
Southwest . . . . .	63.0	92.0	112.6	120.2	135.1	138.0	118.9	93.7	32.2	27.3	29.1	30.0	31.6
West . . . . .	5.6	13.4	22.2	23.3	27.3	25.4	22.6	20.1	15.7	16.5	16.5	18.8	16.4
Ohio . . . . .	9.8	17.1	18.2	17.2	16.5	13.4	10.8	....	6.9	3.0	3.2	8.0	8.3
United States . . . . .	350.8	458.8	519.5	476.3	497.6	460.6	385.8	349.8	255.5	265.5	288.5	311.5	305.8
<b>SPECIE</b>													
New England . . . . .	2.1	2.8	2.5	3.0	4.1	3.3	4.4	4.4	3.9	8.5	5.8	4.6	4.4
Mid. Atlantic . . . . .	27.8	19.2	14.0	13.4	16.3	13.0	10.8	10.4	15.5	19.4	14.2	15.4	16.3
So. Atlantic . . . . .	5.2	7.0	7.2	6.2	8.5	5.7	6.0	5.4	4.5	6.3	6.9	6.6	5.9
Southwest . . . . .	4.4	5.3	6.5	4.9	8.0	6.6	6.4	4.7	5.4	9.6	10.6	8.7	8.5
West . . . . .	1.7	2.7	4.1	4.7	5.0	3.7	3.9	3.7	3.7	5.1	5.6	5.3	5.3
Ohio . . . . .	1.7	2.9	3.2	2.7	2.6	1.8	1.2	....	.9	.8	.7	1.2	1.2

TABLE 30 (CONTINUED)

	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861
<b>CIRCULATION</b>														
New England . . . . .	31.5	25.3	29.3	31.8	39.3	44.3	54.8	49.5	50.1	54.9	36.3	41.7	44.7	47.5
Mid. Atlantic . . . . .	46.3	38.8	41.9	47.2	46.2	53.7	61.1	57.3	59.0	62.8	44.1	49.6	53.1	52.9
So. Atlantic . . . . .	19.9	18.8	25.1	36.1	31.8	27.6	40.8	30.9	35.4	38.7	27.7	37.4	35.9	29.5
Southwest . . . . .	9.8	9.2	11.6	15.7	12.6	12.1	17.2	15.1	19.5	21.4	13.1	22.3	24.6	15.6
West . . . . .	12.7	12.8	13.2	13.1	14.7	17.4	27.3	22.3	25.0	29.1	22.5	36.5	41.0	40.9
Ohio . . . . .	8.3	9.2	10.4	11.1	11.5	11.4	9.8	8.1	9.1	9.2	6.2	8.0	8.0	8.1
United States . . . . .	128.5	114.1	131.5	155.0	156.1	166.5	211.0	183.2	198.1	216.1	149.9	195.5	207.3	194.5
<b>DEPOSITS</b>														
New England . . . . .	16.2	12.7	15.1	17.2	22.4	23.9	29.1	29.4	32.3	35.1	27.5	43.3	41.3	44.6
Mid. Atlantic . . . . .	59.7	51.3	64.2	79.7	72.7	97.4	111.9	117.6	127.5	139.9	113.7	150.6	145.9	156.8
So. Atlantic . . . . .	8.2	7.4	9.9	11.5	12.3	13.1	14.6	11.6	12.9	15.2	13.2	18.1	18.2	16.4
Southwest . . . . .	10.7	10.7	10.7	11.7	10.4	14.3	15.6	15.4	20.6	20.9	17.5	30.3	29.0	23.5
West . . . . .	4.2	4.3	4.6	4.3	4.8	5.6	9.3	10.5	12.4	13.3	9.2	14.1	15.5	15.4
Ohio . . . . .	4.3	4.4	4.7	5.3	6.0	7.4	7.6	5.5	7.1	6.5	3.9	4.4	4.0	4.0
United States . . . . .	103.3	90.8	109.2	129.7	128.6	161.7	188.1	190.0	212.8	230.9	185.0	260.8	253.9	260.7
<b>LOANS AND DISCOUNTS</b>														
New England . . . . .	97.5	92.7	98.5	107.9	127.9	138.8	162.8	168.9	182.2	192.3	171.6	181.1	192.8	205.0
Mid. Atlantic . . . . .	139.5	130.1	149.9	169.8	165.5	198.8	233.8	241.6	279.2	299.9	247.6	284.8	289.7	304.2
So. Atlantic . . . . .	45.0	47.8	51.0	60.3	56.6	54.0	73.3	69.5	75.9	82.3	70.0	76.9	82.3	79.4
Southwest . . . . .	33.6	31.4	29.7	39.4	36.6	29.3	47.4	43.7	48.0	55.3	42.3	51.8	60.8	49.2
West . . . . .	17.2	18.0	19.9	19.6	21.4	24.5	38.5	36.9	42.2	43.4	35.7	52.5	58.1	58.0
Ohio . . . . .	11.8	13.7	15.6	17.0	19.2	16.8	17.4	13.6	14.9	15.2	9.6	11.2	11.1	10.9
United States . . . . .	344.6	333.7	364.6	414.0	427.2	462.2	573.2	574.2	642.4	688.4	576.8	658.3	694.8	706.7
<b>SPECIE</b>														
New England . . . . .	5.5	4.2	4.2	4.6	5.1	6.1	6.8	6.3	7.0	7.3	6.2	13.9	10.2	9.4
Mid. Atlantic . . . . .	14.9	13.6	15.1	19.7	18.9	19.4	22.7	21.5	22.0	23.3	38.0	43.9	33.2	37.7
So. Atlantic . . . . .	6.8	6.2	7.3	8.8	8.4	7.7	8.8	6.8	7.8	7.2	6.2	10.7	10.0	8.2
Southwest . . . . .	10.0	9.9	9.4	9.2	7.1	8.1	10.6	9.2	11.7	10.0	14.4	22.5	17.1	17.7
West . . . . .	6.4	6.7	6.0	5.3	5.9	6.8	8.4	8.1	9.1	8.2	7.6	11.8	11.2	11.7
Ohio . . . . .	2.6	2.9	3.2	2.8	2.8	2.6	2.3	1.7	2.1	2.0	1.7	1.8	1.8	2.4
United States . . . . .	46.2	43.5	45.2	50.3	48.2	50.7	59.6	53.6	59.7	58.0	74.1	104.6	83.5	87.1

\* For sources and methods, see Appendix A.

TABLE 51

PER CENT PREMIUM OF AMERICAN GOLD (SELLING RATES) OVER CURRENCY, IN CINCINNATI MONEY MARKET, 1833-1861

[ 590 ]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1833.....	...	...	...	...	...	...	...	...	par-3	par-3	par-3	...
1834.....	...	...	...	par	par-1	...	...	...	...	...	...	...
1835.....	...	...	...	...	...	...	...	...	...	...	...	...
1836.....	...	...	...	...	...	...	...	...	...	...	...	...
1837.....	...	...	...	...	...	9.00	...	...	...	...	...	...
1838.....	...	8.00	...	...	...	...	...	par-1	par-.50	...	...	...
1839.....	...	...	...	...	...	...	...	...	...	...	...	...
1840.....	...	...	...	7.25	7.50	8.00	8.00	6.50	4.00	4.75	3.75	4.00
1841.....	4.00	4.00	8.00	6.50	7.50	7.50	7.50	8.00	8.00	7.50	8.50	9.00
1842.....	10.00	13.00	8.00	7.50	4.50	3.50	3.50	3.50	2.00	2.00	1.50	1.00
1843.....	1.50	1.75	2.75	...	...	...	...	...	1.00	1.00	.88	.75
1844.....	...	1.00	1.00	...	...	...	2.00	.75	...	...	...	...
1845.....	.75	...	...	1.50	1.50	...	...	...	.75	.50	.38	.25
1846.....	par	...	1.00	2.50	...	2.00	2.00	.50	1.25	1.00	1.00	...
1847.....	...	.75	.75	1.00	.88	.50	1.12	1.12	1.12	1.12	1.12	1.12
1848.....	1.12	1.50	1.50	1.25	1.25	1.25	1.25	1.00	1.00	1.00	1.00	.50
1849.....	.50	1.00	1.00	1.25	1.50	1.50	1.50	1.50	1.50	1.50	1.00	1.00
1850.....	.75	.75	1.00	1.00	1.00	1.00	.75	.75	.75	.75	.75	.50
1851.....	.50	.75	.50	1.00	.62	.62	.75	.50	.50	.75	.75	.75
1852.....	.75	.75	.75	.75	.75	.75	.50	.50	.50	.25	.25	.25
1853.....	.50	.75	.75	.75	.75	.75	.75	...	...	...	...	...
1854.....	...	...	...	...	...	...	...	...	...	...	7.50	.25
1855.....	...	...	...	...	...	...	...	...	.75	.75	.50	...
1856.....	.50	.50	.50	.50	.75	.62	...	...	...	.75	.75	.75
1857.....	.75	1.00	1.00	.75	1.00	1.00	1.00	.62	2.50	7.00	2.50	1.50
1858.....	1.00	.94	.81	.69	.56	.56	.50	.50	.25	.25	.25	.25
1859.....	.38	.38	.38	.45	.45	.62	.50	.42	.45	.50	.38	.25
1860.....	.69	.44	.45	.45	.38	.42	.42	.38	.34	.38	.50	1.75
1861.....	.88	.56	.56	.50	1.00	.50	.50	.50	.44	.50	.44	.44

TABLE 52  
PER CENT PREMIUM OF SILVER OR "SPECIE" (SELLING RATES) OVER CURRENCY IN THE CINCINNATI MARKET, 1837-1858

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1837.....	...	...	...	...	5.00	7.00	...	10.00*	10.00*	6.00*	7.00*	7.00*
1838.....	3.00*	6.50*	7.00*	5.00*	5.00*	3.00*	3.00*	par-1#	par-.50#	par-.50#	par-.50#	.50*
1839.....	par-.50#	par-.50#	1.00*	2.50*	1.00*	...	...	...	...	...	...	...
1840.....	...	...	...	7.25*	6.50	7.00	7.00	5.50	3.00	3.50	3.00	3.00
1841.....	3.00	3.50	7.00	5.50	6.50	6.00	6.00	7.00	6.50	6.50	7.75	8.50
1842.....	9.00	11.50	7.00	6.50	3.00	1.50	2.00	2.50	.75	1.00	1.00	.50
1843.....	.50	1.00 <sup>x</sup>	2.00 <sup>x</sup>	1.25 <sup>x</sup>	1.25 <sup>x</sup>	.75 <sup>x</sup>	.75 <sup>x</sup>	.75 <sup>x</sup>	.75 <sup>x</sup>	1.00 <sup>x</sup>	.50	.50
1844.....	.50	1.00	1.00	1.00	.75	.75 <sup>x</sup>	.75 <sup>x</sup>	.75 <sup>x</sup>	.75 <sup>x</sup>	...	.75 <sup>x</sup>	.75 <sup>x</sup>
1845.....	.62	1.12	.88	1.00	1.00	1.00 <sup>x</sup>	.75	.75 <sup>x</sup>	1.00	1.00	1.00	1.00
1846.....	par <sup>x</sup>	.75 <sup>x</sup>	1.00 <sup>x</sup>	1.50 <sup>x</sup>	.75	.75	.75	.75	.75	.75	.50	.50
1847.....	.50	.44	.44	.44	.50	.50	.50	.50	.50	.50	.50	.50
1848.....	1.00	1.00	1.00	1.25	.75	.75	.75	.75	.75	.75	.75	.50
1849.....	.50	.75	.75	1.25	1.25	1.25	1.25	1.25	.75	.75	.75	.75
1850.....	.50	.50	.75	.75	.75	.75	.50	.50	.50	.50	.50	.50
1851.....	.75	1.50	1.00	1.50	1.25	1.25	2.00	1.00	1.25	1.75	1.75	1.75
1852.....	1.75	1.75	.75	.75	.75	.75	.75	.75	.75	1.00	3.50	2.00
1853.....	2.00	3.50	3.50	3.50	3.50	3.50	3.50	...	...	...	...	...
1854.....	...	...	...	...	...	...	...	...	...	...	...	...
1855.....	...	...	...	...	...	...	...	...	.69 <sup>b</sup>	.62 <sup>b</sup>	.50 <sup>b</sup>	...
1856.....	...	...	...	...	...	...	...	...	...	...	...	...
1857.....	...	...	...	...	...	...	...	...	...	...	4.00	.75
1858.....	.50	.50	.50	.50	par	par	.25	.25	par	par	par	par

\* "Specie."  
 # "Silver and Gold."  
<sup>x</sup> Per cent discount on Ohio and Indiana currency, "specie standard."  
<sup>b</sup> "Coin."



TABLE 53  
PER CENT PREMIUM OF NEW YORK SIGHT EXCHANGE (SELLING RATES) OVER CURRENCY IN THE CINCINNATI MARKET, 1837-1861

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1837.....	...	2.50	2.50	...	...	3.50	...	3.00	4.00	4.50	4.00	4.00
1838.....	3.75	6.00	5.50	7.00	7.00	4.00	4.00	1.50	2.25	2.00	2.00	1.75
1839.....	2.00	1.75	2.25	2.50	2.00	2.00	2.50	2.50	2.50	11.00	...	...
1840.....	8.50	8.50	10.50	8.50	8.50	8.50	8.50	7.00	6.25	5.50	4.50	4.50
1841.....	5.00	7.00	11.00	8.00	9.50	8.50	8.25	9.25	9.25	8.75	11.00	15.00
1842.....	13.50	14.50	9.50	8.50	4.50	4.50	4.00	4.00	2.50	2.50	1.00	1.75
1843.....	1.25	1.50	2.00	1.75	2.75	1.75	1.75	2.00	1.25	1.25	.50	par
1844.....	par	1.12	.75	1.00	1.50	1.50	1.50	1.50	1.50	1.25	1.25	1.25
1845.....	1.00	1.25	1.25	1.75	1.75	2.00	2.00	1.50	1.75	1.50	1.38	1.25
1846.....	.50	1.00	1.75	2.75	3.25	2.25	2.50	1.75	1.25	1.00	1.00	.75
1847.....	.50	.50	.50	.75	.62	par	.75	1.00	.75	.75	.50	1.00
1848.....	1.50	1.75	1.75	2.00	2.00	2.00	2.00	1.25	1.00	1.25	1.00	.75
1849.....	1.25	1.50	1.50	2.00	1.75	1.50	1.50	1.50	1.75	1.75	.75	...
1850.....	...	.75	.75	.75	.75	.75	.75	.75	.75	.75	.50	.50*
1851.....	.50	.50	.50	.75	.75	.75	.75	.50	.50	1.00	1.00	.75
1852.....	1.00	1.00	.50	.75	.75	.75	.50	.50	par	.50	.25	.25*
1853.....	.25	.50	.75	.75	.75	.50	.75	.50	.50	.75	.50	.75
1854.....	1.00	.75	1.00	1.25	1.50	1.25	1.25	1.75	1.25	1.25	3.00	1.25
1855.....	1.00	.75	.75	.75	.75	.50	.75	.50	.50	.75	.25	.25
1856.....	.50	.50	.50	.50	.75	.75	.50	.50	.75	.75	.62	.50
1857.....	1.00	.75	.75	1.00	1.00	.75	.75	.75	2.00	6.00	2.75	1.50
1858.....	1.00	1.00	1.00	.88	.75	.62	.50	.50	.38	.25	.25	.25
1859.....	.38	.38	.50	.50	.50	.75	.62	.62	.50	.62	.50	.25
1860.....	.75	.50	.50	.50	.50	.50	.50	.50	.50	.50	.38	1.50
1861.....	.50	.50	.50	.50	.50	.44	.38	.25	.25	.25	.25	.25

\* Discount.

TABLE 54  
 PER CENT PREMIUM (OR DISCOUNT) OF NEW ORLEANS SIGHT EXCHANGE (SELLING RATES) OVER CURRENCY  
 IN THE CINCINNATI MARKET, 1837-1861

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1837	...	...	...	...	...	...	...	...	...	5.50*	6.00*	1.50*
1838	par	par	...	4.00*	3.50*	5.00*	5.50*	4.50*	5.00*	5.00*	5.00*	...
1839	...	...	...	1.75	.50*	...	...	...	...	...	...	...
1840	...	...	...	par	.50*	.75*	1.50*	1.50*	3.00*	...	...	...
1841	...	...	...	...	...	...	...	...	...	...	...	...
1842	5.00	...	...	...	...	...	...	...	...	...	...	...
1843	...	...	...	...	...	...	...	...	...	...	...	.88
1844	.62	...	...	...	...	...	...	...	...	...	...	...
1845	1.00	1.00	1.50	1.75	1.75	.88	.88	1.00	1.75	1.50	1.38	.25
1846	par	par	par	par	.50	1.75	2.00	2.00	2.00	2.00	2.00	.75
1847	.50	.50	.75	.75	.75	par	.75	.50	.75	.75	.25	1.00
1848	1.00	1.75	1.25	1.00	.75	.75	.75	par	par	par	par	par
1849	par	.75	.62	.75	1.50	.25	.38	.12	.12	.12	.12	.12
1850	.50	.50	1.00	.50	.50*	.50*	.25	par	par	.50	.75	2.00*
1851	.62	.88	.88	.25	.50	.12*	par	par	par	par	.62	.50
1852	1.00	1.00	.75	1.00	.25	.50	.50	.50	par	.50	1.00	.25
1853	.75	1.00	.50	.50	.50	.50	.50	.50	.25	.25	par	.50
1854	.50	.75	1.00	par	par	.25	.50	.50	...	par	...	.50
1855	.75	1.00	1.00	1.00	par	...	par	...	.50*	.50	par	.50
1856	.50	.75	.50	.75	par	.50	.38	.50	...	.38	.50	.75
1857	1.00	1.25	.75	.12	par	par	.12	par	...	...	1.00	1.25
1858	par	.25	1.00	par	par	.25	.50	.50	.50	1.00	1.00	1.00
1859	1.00	1.00	.75	.50	.50	.25*	par	par	.25	.50	.50	.50
1860	1.00	.75	.25	.30	.30	par	.25*	par	par	.25	.50	.50
1861	.88	.75	.25	par-.25*	...	...	...	...	...	...	...	...

\* Discount.

**TABLE 55**  
**MONTHLY WEIGHTED INDEX NUMBERS OF CINCINNATI WHOLESALE COMMODITY**  
**PRICES, 1861. GENERAL INDEX; INDEX A (NORTHERN AGRICULTURAL**  
**EXPORTS); INDEX B (MANUFACTURED AND IMPORTED GOODS)**

Index	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>Base: 1824-1846</i>												
General .	99	100	99	99	92	89	86	89	89	92	90	92
Index A.	119	119	118	118	106	103	98	98	98	101	97	96
Index B.	71	73	72	73	73	72	71	78	76	82	81	86
<i>Base: 1846-1860</i>												
General .	99	100	99	99	92	89	86	89	89	92	90	92
Index A.	102	102	101	101	91	88	84	84	84	86	83	82
Index B.	92	95	94	95	95	93	92	101	99	107	105	112

**TABLE 56**  
**MONTHLY MEAN WHOLESALE PRICES ON FIFTY SELECTED COMMODITIES IN THE CINCINNATI MARKET, 1861**

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bacon, sides *	7.0	8.5	9.12	9.5	7.0	7.5	7.0	6.0	5.62	4.5	5.5	5.25
Barley, pr. fall †	76.0	67.5	71.0	62.5	60.0	50.0	45.0	45.0	45.0	42.5	45.0	49.0
Beans, small white †	90.0	87.5	95.0	100.0	125.0	122.5	140.0	125.0	145.0	132.5	160.0	145.0
Beeswax, yellow *	27.5	27.5	28.5	28.5	..	..	25.0	25.0	25.0	25.0	26.0	26.0
Butter, prime roll *	14.5	12.5	15.0	16.0	11.5	9.0	11.0	11.5	13.5	14.0	13.0	11.5
Candles, tallow mould *	11.5	11.5	11.5	11.5	11.5	11.5	11.5	10.5	10.5	10.5	10.5	10.5
Cheese, selected W. Reserve *	8.5	8.5	9.0	8.5	6.25	5.0	6.25	5.75	5.75	5.75	5.75	5.5
Corn, ear †	35.0	31.5	31.5	30.5	32.5	28.0	30.0	28.0	26.0	30.0	25.0	28.5
Feathers, live geese *	37.5	37.5	37.5	36.0	33.0	31.5	30.0	30.0	30.0	30.0	33.0	32.5
Flaxseed †	110.0	110.0	110.0	110.0	..	100.0	..	85.0	91.25	97.5	103.75	110.0
Flour, superfine ‡	468	455	452	438	450	422	355	355	362	405	405	402
Ginseng *	40.0	40.0	45.0	45.0	..	42.5	42.5	39.0	39.0	50.0	50.0	45.0
Hemp, Ky. & Mo. §	725	..	..	..	..	..	..	..	..	..	..	..
Hides, dry salt *	9.5	9.5	9.5	9.5	6.5	6.5	6.5	6.5	6.5	8.75	10.25	10.25
Hogs §	622 <sup>a</sup>	525 <sup>b</sup>	488 <sup>b</sup>	450 <sup>b</sup>	312 <sup>b</sup>	325 <sup>b</sup>	288 <sup>b</sup>	300 <sup>b</sup>	295 <sup>b</sup>	308 <sup>b</sup>	311 <sup>a</sup>	335 <sup>a</sup>
Hops, 1st sort Eastern *	32.5	32.5	32.5	32.5	32.5	22.5	22.5	26.5	31.5	25.0	22.5	25.5
Lard, prime bbl. *	10.5	9.5	9.0	9.19	8.75	8.5	..	8.75	8.5	8.0	6.25	7.25
Leather, oak sole city *	27.5	27.5	27.5	27.5	..	24.5	21.5	21.5	21.5	25.0	27.0	27.0
Oats †	29.0	27.0	26.5	26.0	28.0	24.0	23.0	25.0	21.0	27.0	28.75	28.75
Oil, lard ¶	87.5	87.5	87.5	82.5	77.5	72.5	72.5	65.0	67.5	67.5	62.5	62.5
Oil, linseed ¶	53.0	55.0	65.0	62.5	55.5	52.5	55.0	52.5	49.0	51.25	60.0	66.5
Pork, mess †	1600	1675	1687	1700	1650	1488	1400	1450	1325	1231	950	975
Rye †	63.0	58.5	59.0	55.5	54.5	49.0	43.0	40.0	38.0	35.5	42.5	40.5
Soap, Common #1 *	5.5	5.0	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Tallow, rendered *	8.25	8.25	..	..	6.25	7.12	7.75	7.75	7.62	7.38	7.88	7.69

[ 595 ]

\* Cents per pound.  
† Cents per bushel.  
‡ Cents per barrel.  
§ Cents per 100 pounds.

¶ Cents per gallon.  
<sup>a</sup> Net (dressed) weight.  
<sup>b</sup> Gross (live) weight.

TABLE 56 (CONTINUED)  
MONTHLY MEAN WHOLESALE PRICES ON FIFTY SELECTED COMMODITIES IN THE CINCINNATI MARKET, 1861

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Tobacco, Ky. six twist * . . . . .	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	10.5	10.5	10.0	11.5
Wheat, prime red † . . . . .	99.0	99.0	100.0	99.0	104.0	94.0	69.0	76.0	74.0	85.0	84.0	86.5
Whisky, common ‖ . . . . .	13.5	13.75	13.75	12.75	12.5	12.5	13.0	13.75	13.5	14.5	14.5	13.75
Wool, common * . . . . .	..	..	..	..	..	..	20.0	20.0	..	37.0	40.0	46.0
Ashes, pot * . . . . .	4.62	4.62	..	4.25	4.00	4.00	4.00	4.00	..	4.00	4.00	..
Coal, yard † . . . . .	9.5	10.0	..	9.5	9.5	9.5	8.5	9.5	11.5	11.5	11.5	10.5
Cod, dry * . . . . .	4.38	4.12	4.12	4.12	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Coffee, prime Rio * . . . . .	13.5	13.62	13.5	14.75	14.62	14.75	14.75	15.88	15.88	17.12	16.75	18.5
Cotton . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
Cotton yarn * . . . . .	20.0	20.0	20.0	20.3	21.0	21.0	23.7	24.5	30.0	30.0	32.0	32.0
Glass, 8 x 10 window ‖ . . . . .	388	388	388	388	388	388	188	188	188	188	188	188
Iron, common bar * . . . . .	2.25	2.25	2.25	2.25	2.25	2.62	..	2.62	2.38	2.38	2.38	2.38
Iron, Ohio R. hot blast pig ** . . . . .	2350	2350	2350	2350	2350	2150	2150	..	1900	1900	1900	2100
Lead, bar * . . . . .	6.38	6.38	6.38	6.38	6.12	6.12	6.12	6.12	5.88	6.38	7.00	7.00
Mackerel No. 3 † . . . . .	1125	1075	1075	1075	1075	1075	800	850	750	750	650	875
Molasses, N. O. ‖ . . . . .	30.5	31.5	32.5	32.5	31.5	31.0	31.0	36.0	36.5	45.5	44.5	42.5
Nails, 10d § . . . . .	288	270	270	270	268	268	268	268	258	258	258	258
Pepper * . . . . .	10.5	10.5	10.5	10.5	10.5	10.5	..	10.2	12.5	13.5	11.5	14.5
Rice * . . . . .	4.75	..	4.75	4.75	7.12	7.12	6.38	6.38	7.12	8.38	8.25	8.00
Salt, Kanawha † . . . . .	27.0	27.0	27.0	27.0	27.0	27.0	27.0	30.0	30.0	33.0	35.0	45.0
Salt, Turks Island † . . . . .	32.5	32.5	32.5	32.5	32.5	32.5	32.5	..	..	..	50.0	50.0
Shot, all sizes †† . . . . .	1675	2075	2075	2075	2075	2075	2075	2075	1925	2125	2238	2238
Sugar, N. O. fair * . . . . .	6.25	6.62	6.68	6.12	6.12	6.38	6.5	8.38	8.75	9.75	9.50	9.62
Tar, No. Carolina ‡ . . . . .	425	425	425	425	512	512	512	575	600	600	675	700
Turpentine ‖ . . . . .	41.0	41.0	42.0	42.0	82.5	82.5	82.5	122.0	148.0	152.0	172.0	172.0

\* Cents per pound.  
† Cents per bushel.  
‡ Cents per barrel.  
§ Cents per 100 pounds.

‖ Cents per gallon.  
¶ Cents per box.  
\*\* Cents per ton.  
†† Cents per keg.

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