

HARVARD ECONOMIC STUDIES 50

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IN
AMERICAN BUSINESS

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PUBLISHER'S NOTE

Because of the modern interest in business conditions, surprisingly little is known of the facts of economic movement in the period before the Civil War. No attempt has been made to coordinate the new facts already known or to compile the numerous series of continuous data necessary for an adequate analysis of the period. This book represents an attempt to fill the gap and therefore will be of great value to economists and statisticians; but it will also have much importance to historians and general readers for the light it sheds on economic and political development in the United States before the Civil War.

In the interpretation of their material, furthermore, the authors have carried out their analysis with an eye to present conditions and with the conviction that a study of the past can to some extent at least clarify the problems of the present.

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VOLUME L

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APPENDICES

INTRODUCTION

The methods employed in the less complicated cases of index construction, such as those relating to the volume of trade, bank stocks, or the data on banking operations have been previously described in the text. They will be omitted, therefore, from the discussion here. The major part of the descriptive matter will be devoted to the various commodity-price indices and to the several railroad stock indices.

APPENDIX A

SOURCES OF DATA AND STATISTICAL METHODS USED IN THE CONSTRUCTION OF MONTHLY INDICES OF WHOLESALE COMMODITY PRICES, 1792-1862

COMMODITY PRICE INDICES, 1792-1820

Data and their sources: (See Table 34.) Data on wholesale commodity prices for the period 1792-1820 were transcribed from the *American Apollo* for the months of October 1792 to December 1794 inclusive; from the *Boston Price Current and Marine Intelligencer* from September 1795 to May 1798; from

Russell's Gazette from June 1798 to September 1800; and from the *Boston Gazette* from October 1800 to December 1820. Files of these newspapers are to be found in the Boston Public Library, the Library of the Massachusetts Historical Society, and the Boston Athenaeum.

TABLE 34. — SERIES OF WHOLESALE COMMODITY PRICES TRANSCRIBED, 1792-1820

Commodity	Unit	Total Period Covered	Commodity	Unit	Total Period Covered
Alum ¹	cwt.	1795-1820	Lead, white, dry.....	cwt.	1795-1820
Ashes, pearl.....	ton	1792-1820	Leather, sole.....	lb.	1795-1820
Barley.....	bu.	1800-1820	Linseed oil, American.....	gal.	1800-1820
Beef, mess ¹	bbl.		Lumber.....	M ft.	1795-1820
	(200 lbs.)	1792-1820	Boards, clear (1795-1802)....		
Brandy, French ¹	gal.	1792-1820	Ken and Mach (1803-1809) ..		
Brimstone, roll ¹ , ² , ³	cwt.	1801-1820	Quad and Mach (1809-1820) ..		
Butter, shipping.....	lb.	1800-1820	Molasses.....	gal.	1800-1820
Candles, American tallow ¹	lb.	1792-1820	Nails, 10 d.....	M	1794-1820
Cheese, American.....	lb.	1792-1820	Oats.....	bu.	1800-1820
Coal, American.....	chaldron	1795-1820	Pepper.....	lb.	1800-1820
Coal, foreign ¹	chaldron	1795-1820	Pork, cargo ¹	bbl.	1792-1820
Cocoa, Caracas ²	cwt.	1800-1820	Raisins, Malaga.....	cask	1800-1820
Coffee, West Indian ¹	lb.	1792-1820	Rice ¹	cwt.	1792-1820
Copper, sheets ²	lb.	1794-1820	Rum, New England.....	gal.	1795-1820
Corn, southern Indian.....	bu.	1792-1820	Rye.....	bu.	1800-1820
Cotton, Georgia upland.....	lb.	1792-1820	Salt, Liverpool.....	8 bu.	1792-1820
Duck, Russia ¹ , ²	bolt	1792-1820	Salt peter, refined ¹	lb.	1802-1820
Fish, alewives.....	bbl.	1795-1820	Soap, white American.....	lb.	1800-1820
Flour, rye.....	bbl.	1801-1820	Steel, English blistered ²	lb.	1795-1820
Flour, superfine ²	bbl.	1792-1820	Sugar, Havana brown.....	cwt.	1792-1820
Fur, beaver.....	lb.	1800-1820	Staves, white oak hhd. ²	M	1792-1820
Glass, Bristol (8x10) ¹	100 ft.	1794-1820	Tar, Wilmington ¹	bbl.	1792-1820
Glue, American.....	lb.	1801-1820	Tea, Young Hyson.....	lb.	1801-1820
Gunpowder, foreign.....	lb.	1800-1820	Tea, Hyson.....	lb.	1792-1820
Gunpowder, American.....	lb.	1795-1820	Tin, Plates, No. 1. 3dX.....	box	1795-1820
Hemp.....	ton	1792-1820	Tobacco ¹	cwt.	1792-1820
Iron, Swedish.....	ton	1792-1820	Turpentine ¹	bbl.	1800-1820
Lard.....	lb.	1800-1820	Whale oil, common.....	gal.	1792-1820
Lead, pig ²	cwt.	1795-1820			

¹ Minor changes in specifications.

² This series has a gap of a year or more about the year 1808.

³ This series has a gap of several months or a year sometime between 1812 and 1815.

Series discarded: Generally speaking, series were discarded for four reasons: they were lacking in homogeneity and continuity, or they were not responsive to changes in the business situation, or they duplicated the movement of other price series, or lastly they were economically unimportant. A list of series discarded is given in Table 35.

TABLE 35.—SERIES DISCARDED FOR USE IN WHOLESALE COMMODITY-PRICE INDICES, 1792-1820

Series	Reason
Barley.....	Unimportant
Butter.....	Dairy products better represented by cheese
Coal, American.....	Unimportant
Cocoa, Caracas.....	Unimportant
Flour, rye.....	Unimportant
Fur, beaver.....	Insensitive
Glue, American.....	Insensitive
Gunpowder, American...	Relatively unimportant
Lard.....	Unimportant
Lead, pig.....	Essentially a duplicate of white lead
Linseed oil.....	Unimportant
Molasses.....	Essentially a duplicate of sugar
Oats.....	Unimportant
Pepper.....	Unimportant
Raisins, Malaga.....	Unimportant
Rum, New England....	Showed both foreign and domestic influences
Rye.....	Unimportant
Saltpeter.....	Incomplete
Soap, white American...	Inflexible
Tea, Young Hyson.....	Less important than Hyson
Turpentine.....	Less important than tar

Index numbers: The following index numbers are herewith given for the period from 1792 to 1820.

(1) An all-commodity index number of wholesale commodity prices as quoted in Boston, 1792-1820. (See Table 36.)

(2) An index number of wholesale commodity prices of domestically produced goods as quoted in Boston, 1792-1820. (See Table 37.)

(3) An index number of wholesale commodity prices of imported goods as quoted in Boston, 1792-1820. (See Table 38.)

These index numbers are weighted aggregative indices with the year 1802 as the base. The weights used in the construction of these index numbers are indicated in Tables 1, 2, 3, and 4 in the text.

The index numbers are perfectly homogeneous from 1795 to 1820. Between 1792 and 1794 all of the series used in the 1795-1820 index numbers were not available. In the construction of this earlier

index number only the following domestic prices were used: pearl ashes, beef, tallow candles, American cheese, Indian corn, cotton, superfine flour, whale oil, mess pork, rice, staves, tar, and tobacco. The index of prices of imports between 1792 and 1794 was made from the following series: brandy, coffee, Russia duck, hemp, Swedish iron, Liverpool salt, brown sugar, and Hyson tea. The weights on the reduced list of commodities used in the indices for this early period were adjusted. These short index numbers are also on an 1802 base.¹

(4) Regional index numbers of domestic wholesale commodity prices in Boston, New York, Philadelphia, and Baltimore, 1810-1817. (See Table 39.)

Data and their sources: The Boston index has already been described in connection with the index numbers from 1792 to 1820.² The New York data came from the *New York Price Current* (1810-1815) and from the *New York Shipping and Commercial List* (1815-1817). Statistics of commodity prices in Philadelphia were obtained from *Hope's Philadelphia Price-Current* (1810-1813), *Scott's Philadelphia Price-Current* (1813), and *Grotjan's Public-Sale Report* (1813-1819). All of the commodity price quotations for Baltimore were taken from the *Baltimore Price-Current*. The New York journals are to be found in the New York Public Library and the library of the New York Historical Society; the Philadelphia materials are on file with the Library Company of Philadelphia (Ridgeway Branch) and the library of the Pennsylvania Historical Society. The *Baltimore Price-Current* is in the library of the Maryland Historical Society.

Construction of the regional indices: For the construction of these indices, see the *Review of Economic Statistics*, vol. 9, pp. 171-180. The series used are identical with those used for the aggregative index numbers (see Table 1) of domestic commodities with the following differences: American coal and New England rum were included in the regional index numbers, and rice and tobacco were omitted.

The index numbers of domestic commodity prices for the cities mentioned above have as a base the average of prices in 1810. The formula for averaging is the unweighted geometric mean.

¹ It should be noted that for the years 1792-1794 prices were quoted in shillings and pence. From a contemporary account in the *Boston Price-Current* the rate in New England was six shillings to the dollar. This rate was used therefore in converting prices to a dollar basis.

² See p. 143, above.

TABLE 36. — WEIGHTED ALL-COMMODITY INDEX (A PLUS B) OF WHOLESALE PRICES IN BOSTON:
MONTHLY, 1792-1820¹
(Base: 1802)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1792.....	...	...	...	...	...	...	...	...	...	85	89	89
1793.....	91	89	86	93	95	93	95	91	89	87	88	88
1794.....	93	93	92	94	91	94	95	97	98	101	102	103
1795.....	...	...	...	...	...	...	...	...	119	119	125	121
1796.....	122	125	128	127	125	123	118	118	123	127	126	125
1797.....	123	122	118	116	116	115	112	114	120	116	119	117
1798.....	117	115	110	109	108	110	111	111	110	112	112	114
1799.....	115	116	115	114	116	115	117	117	117	121	127	122
1800.....	115	114	109	108	113	112	115	118	117	121	127	122
1801.....	123	128	132	130	132	127	127	123	119	119	120	107
1802.....	103	99	100	101	101	99	98	98	98	99	102	102
1803.....	101	101	101	102	105	104	110	113	112	113	115	114
1804.....	112	111	112	111	109	107	108	107	111	113	118	118
1805.....	119	122	126	125	125	123	120	118	117	118	120	119
1806.....	119	119	118	112	114	114	114	117	117	115	116	118
1807.....	120	119	119	116	114	113	111	109	107	107	108	107
1808.....	101	100	98	96	95	93	93	95	96	101	102	106
1809.....	103	107	115	111	112	110	104	104	103	102	104	108
1810.....	108	109	110	108	108	107	109	110	108	110	113	110
1811.....	111	108	104	103	103	103	102	103	100	101	104	100
1812.....	105	107	107	102	100	104	105	107	110	113	113	114
1813.....	118	122	121	127	136	132	134	137	139	150	155	161
1814.....	...	161	155	155	152	154	156	157	162	169	...	155
1815.....	...	150	134	129	129	131	131	131	131	133	136	134
1816.....	135	137	137	133	130	126	123	121	123	125	132	134
1817.....	135	136	134	138	137	127	124	128	125	125	128	134
1818.....	136	137	135	130	128	132	130	133	134	136	139	134
1819.....	128	124	121	112	106	101	101	99	101	101	101	99
1820.....	95	93	89	88	89	87	90	90	90	88	88	88

¹ For a discussion of this index, see p. 8.

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TABLE 37. — WEIGHTED INDEX (A) OF WHOLESALE DOMESTIC COMMODITY PRICES IN BOSTON:
MONTHLY, 1792-1820¹

(Base: 1802)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1792.....	...	...	...	...	...	...	...	...	...	82	87	87
1793.....	89	89	87	96	99	96	97	92	88	87	86	86
1794.....	93	90	90	92	88	92	95	97	98	101	102	102
1795.....	...	...	...	...	...	...	...	...	127	127	135	130
1796.....	130	134	138	137	135	131	124	123	130	135	132	131
1797.....	127	127	122	119	118	116	114	116	125	120	123	122
1798.....	120	117	110	108	106	106	107	107	107	110	110	112
1799.....	113	113	113	113	116	115	118	117	118	123	120	120
1800.....	115	115	108	108	116	115	119	123	121	127	135	125
1801.....	128	134	141	138	140	133	131	129	126	124	123	109
1802.....	103	99	100	101	101	98	97	98	98	99	103	101
1803.....	99	100	101	102	103	102	111	112	112	112	113	112
1804.....	109	107	107	107	106	104	105	107	111	112	120	119
1805.....	121	124	130	129	131	127	124	121	119	121	122	120
1806.....	120	121	117	110	113	114	114	118	118	117	118	119
1807.....	121	120	119	117	116	114	117	108	108	108	110	108
1808.....	100	96	93	91	88	84	84	86	85	89	91	87
1809.....	85	91	101	98	104	104	99	98	96	95	98	100
1810.....	103	104	105	103	104	103	105	108	106	109	113	111
1811.....	112	108	103	103	102	101	101	101	96	95	98	93
1812.....	100	103	102	94	90	94	90	93	97	102	104	104
1813.....	101	106	112	120	131	125	126	124	130	142	147	151
1814.....	...	147	144	146	146	149	151	148	150	155	...	140
1815.....	...	132	128	123	123	125	127	130	129	134	139	139
1816.....	141	143	143	138	135	135	137	129	131	135	145	148
1817.....	149	150	149	154	154	140	137	142	136	135	138	144
1818.....	147	147	143	138	135	141	139	142	144	146	150	145
1819.....	138	132	127	114	107	100	102	98	100	101	101	98
1820.....	94	91	86	84	85	83	86	87	88	85	84	83

¹ For the commodities and weights used in the construction of this index, see Table 1, p. 9, and Table 3, p. 11.

TABLE 38. — WEIGHTED INDEX (B) OF WHOLESALE IMPORTED COMMODITY PRICES IN BOSTON:
MONTHLY, 1792-1820¹

(Base: 1802)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1792.....	...	...	...	...	...	...	...	...	...	94	94	94
1793.....	97	88	84	83	85	85	90	88	90	90	91	92
1794.....	93	103	98	100	101	100	95	97	96	101	102	105
1795.....	...	...	...	...	...	...	...	...	102	103	104	103
1796.....	105	106	106	107	106	107	107	108	109	109	112	113
1797.....	113	111	111	111	111	112	108	109	110	109	109	107
1798.....	110	110	112	111	112	117	118	119	117	117	116	118
1799.....	121	121	119	117	117	115	117	117	116	114	117	115
1800.....	115	112	110	108	108	106	108	107	108	110	112	114
1801.....	114	115	116	113	115	114	118	109	105	109	110	104
1802.....	101	99	101	101	101	100	99	98	98	99	100	102
1803.....	103	103	103	104	109	109	110	114	113	114	119	119
1804.....	117	121	120	119	114	114	113	109	110	113	115	115
1805.....	116	117	117	115	114	114	112	112	113	113	116	116
1806.....	117	116	118	116	118	115	114	115	114	113	113	116
1807.....	116	116	119	112	111	110	110	109	106	105	105	106
1808.....	107	109	109	107	108	111	112	115	119	124	125	145
1809.....	140	142	142	137	130	123	115	118	117	117	116	119
1810.....	117	120	120	119	116	115	115	115	113	112	111	109
1811.....	109	107	106	104	103	105	106	107	107	112	117	115
1812.....	116	117	118	118	119	122	135	137	136	135	133	135
1813.....	140	141	140	142	147	146	149	154	156	166	173	183
1814.....	...	190	180	174	166	165	167	176	188	197	...	186
1815.....	...	185	146	143	141	145	138	134	134	131	128	124
1816.....	125	124	124	123	119	114	106	104	106	105	105	106
1817.....	106	107	104	105	102	100	99	101	103	104	108	113
1818.....	115	117	117	115	113	113	112	113	115	116	117	111
1819.....	108	108	109	107	105	105	100	100	101	101	103	101
1820.....	99	97	95	95	97	94	96	96	95	94	96	98

¹ For the commodities and weights used in the construction of this index, see Table 2, p. 10, and Table 4, p. 11.

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TABLE 39. — UNWEIGHTED REGIONAL INDICES OF WHOLESALE DOMESTIC COMMODITY PRICES IN BOSTON, NEW YORK, PHILADELPHIA, AND BALTIMORE: MONTHLY, 1810-1817¹(Base: 1810)²

		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1810	Boston	99	99	99	98	99	99	100	99	99	100	104	103
	New York	101	100	98	99	97	97	100	99	99	101	103	103
	Philadelphia	98	100	98	98	99	98	99	100	98	99	103	104
	Baltimore	96	97	96	96	100	100	100	102	100	103	102	106
1811	Boston	103	102	100	99	99	97	96	97	92	94	95	96
	New York	103	100	98	96	95	93	92	95	95	96	92	95
	Philadelphia	110	108	107	103	101	101	99	100	99	95	96	100
	Baltimore	106	101	99	98	99	97	96	95	95	95	96	96
1812	Boston	98	99	98	94	92	93	93	92	94	97	97	97
	New York	95	97	98	94	92	93	93	95	96	100	103	103
	Philadelphia	100	100	98	94	93	93	95	95	102	101	101	99
	Baltimore	98	99	98	93	91	92	98	96	97	104	103	102
1813	Boston	102	103	104	108	116	114	115	118	118	123	128	134
	New York	108	108	109	117	116	119	119	122	125	130	134	142
	Philadelphia	100	103	103	108	109	...	...	112	114	117	119	130
	Baltimore	106	104	103	106	107	108	109	116	118	122	134	147
1814	Boston . . . . .	...	135	136	140	136	140	142	140	140	144	...	136
	New York	155	152	153	154	150	147	148	143	144	147	152	151
	Philadelphia	135	137	134	138	132	131	127	127	128	136	140	142
	Baltimore	149	143	142	143	137	141	142	142	...	155	161	157
1815	Boston . . . . .	...	133	128	125	124	122	124	122	123	125	127	121
	New York	152	155	143	136	138	140	144	144	146	151	153	146
	Philadelphia	144	143	130	124	123	127	132	132	134	140	142	141
	Baltimore	157	160	134	127	133	134	141	141	146	154	154	153
1816	Boston	124	124	122	116	113	111	107	106	104	109	112	113
	New York	146	146	138	129	128	126	125	119	113	112	113	112
	Philadelphia	139	137	132	129	128	134	135	133	130	124	126	124
	Baltimore	149	147	141	136	137	136	136	132	128	128	131	134
1817	Boston	117	117	116	120	119	114	109	111	109	108	110	114
	New York	116	120	122	121	122	118	115	114	114	113	113	117
	Philadelphia	123	124	125	122	117	113	110	109	107	105	105	107
	Baltimore	132	133	129	126	122	117	116	112	115	114	117	116

¹ For the commodities and methods used in the construction of these regional indices, see p. 9 and the paragraphs under (4) above, p. 144.

² To shift the Boston index to the base July-December 1802, multiply by 1.0744.

COMMODITY PRICE INDICES, 1815-45

Sources of data: For the decade 1815-24, data were drawn from various contemporary newspapers, principally the *New York Shipping and Commercial List*; the *Boston Commercial Gazette*; the *Boston Daily Advertiser*; the *Philadelphia Gazette*; and, in a few cases, *Grotjan's Philadelphia Public-Sale Report*. For the period 1825-45, recourse was first had to the Report of the Secretary of the Treasury for 1863 (38th Congress, 1st Session, Executive Document, No. 3), hereinafter spoken of as the *Finance Report*. All the series which were there presented complete or substantially complete for the two decades, 1815-45, were transcribed. In the cases of important commodities for which quotations in the *Finance Report* were defective, and in those of commodities for which the market or point of sale might be a factor of considerable influence, additional data were transcribed from contemporary newspapers. Substantially a full series of monthly quotations was made a prime requisite for acceptance, interpolation being resorted to only in a few cases, for not more than brief intervals, and only after cognate series had been transcribed from all available sources.

In the end, price series for about ninety different commodities were obtained, nearly all of them covering the whole of the period under investigation. The list of commodities for which price series were secured, together with information as to the description, unit, dates, and sources for the period covered is given in Table 40. Of these series, about seventy are based on quotations from the New York market, twelve from the Boston, seven from New York and Boston combined, and five from Philadelphia.

It will be noted that practically all commodities which were economically important during the years 1815-45 are represented on this list, while leading commodities such as upland cotton, molasses, wool, *et cetera*, usually appear in two or more varieties or

grades. There are many cases in which similar series from more than one source were transcribed. Most of these were sought by reason of a desire either to secure a second set of data from an additional market, or to corroborate doubtful, insensitive or defective series. For example, a complete or even substantially complete series for the important article, wheat, was peculiarly difficult to secure. Many series of wheat prices — for instance those appearing in the *Finance Report* — failed to give homogeneous monthly quotations for considerable intervals during the critical years, 1835-39. Only by recourse to the Philadelphia market and by use of data from the New York market — since no one series was complete in itself — was a set of quotations covering the two decades from 1825 to 1845 finally obtained. However, the acquisition of several series for certain commodities such as wheat, fish, cotton, and cotton goods did not mean their inclusion in the indices of prices finally constructed. As will appear, by an inspection of the list in Table 42 several series were discarded to avoid overweighting specific commodities.

The list of price series given in Table 40 includes representatives of practically all phases of the economic life of the period — agriculture, fishing, lumbering, mining, and manufacturing. Likewise the list embraces, as far as data are available, commodities in various stages of fabrication — raw materials, such as whale oil or indigo, semi-manufactured goods, such as cotton yarn and British bar iron, and articles ready for the consumer, such as sheetings, gunpowder, and rum. Additional series could undoubtedly have been secured by further thumbing of newspapers or “commercial lists,” but it is unlikely that they would have contributed sufficiently to the general index to have made the research worth while. The list as given is broad and diverse enough to mirror the important movements of general prices.

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 40. — SERIES OF WHOLESALE COMMODITY PRICES TRANSCRIBED, 1815-45*

In some cases, series were not transcribed in the full period for which they were available, as, for instance, when observation of quotations for a number of years indicated that the series were insensitive to changes in business conditions.

**(Series used in the construction of the weighted commodity-price index are marked by an asterisk)*

Commodity	Years	Unit	Total Period Covered	Source of Data
*Ashes, pearl	1815-30 1830-45	ton 100 lbs.	1815-45	New York Shipping List New York Shipping List
*Beef	1825-39 1840-44 1845 1843-45	bbl.	1815-45	U. S. Finance Report U. S. Finance Report U. S. Finance Report New York Shipping List
*prime	1815-24			New York Shipping List
*prime	1825-45			U. S. Finance Report
Boards, North River		M ft.	1826-31	U. S. Finance Report
*Butter	1815-24 1821-24 1825-39 1840-45	firkin lb. lb. lb.	1815-45	Boston Commercial Gazette New York Shipping List U. S. Finance Report U. S. Finance Report
*Candles, sperm	1815-24 1825-45	lb.	1815-45	Boston Commercial Gazette U. S. Finance Report
*Coal	1815-24 1825-45 1815-24 1825-30 1830-45	chaldron chaldron ton ton ton	1815-45	New York Shipping List U. S. Finance Report New York Shipping List U. S. Finance Report U. S. Finance Report
*Coffee	1815-24 1815-24 1825-45 1825-45	lb.	1815-45	Boston Commercial Gazette Boston Commercial Gazette New York Shipping List U. S. Finance Report
West Indies, best green	1815-24			U. S. Finance Report
*West Indies, 2nd grade	1815-24			U. S. Finance Report
*Brazil	1825-45			U. S. Finance Report
Brazil	1825-45			U. S. Finance Report
Cognac brandy		gal.	1825-45	U. S. Finance Report
Copper, pig	1825-45 1825-45	lb.	1825-45	U. S. Finance Report New York Shipping List
*Corn, northern	1815-24	bu.	1815-45	New York Shipping List
*northern, yellow	1815-24			U. S. Finance Report
*northern, (not qualified)	1825-45			U. S. Finance Report
Corn meal, northern	1825-36 1837-44 1845	bbl.	1825-45	U. S. Finance Report U. S. Finance Report U. S. Finance Report
northern, (not qualified)	1825-36			U. S. Finance Report
northern, Jersey	1837-44			U. S. Finance Report
northern, (not qualified)	1845			U. S. Finance Report
*Cotton, upland	1815-24 1825-31 1832-33 1834-43 1844-45 1825-37 1838-44 1845	lb.	1815-45	Boston Commercial Gazette Boston Daily Advertiser Boston Daily Advertiser Boston Daily Advertiser Boston Daily Advertiser U. S. Finance Report U. S. Finance Report U. S. Finance Report
*Georgia and North Carolina	1815-24			U. S. Finance Report
* (not qualified)	1825-31			U. S. Finance Report
*good to prime	1832-33			U. S. Finance Report
*fair to good	1834-43			U. S. Finance Report
*fair to prime	1844-45			U. S. Finance Report
(not qualified)	1825-37			U. S. Finance Report
middling	1838-44			U. S. Finance Report
(not qualified)	1845			U. S. Finance Report

APPENDIX A

TABLE 40. — Continued

Commodity	Years	Unit	Total Period Covered	Source of Data
Cotton sheeting, brown, 4-4.....	.....	yd.	1825-45	New York Shipping List
*Cotton yarn, 5-10-14.....	.....	lb.	1823-45	New York Shipping List
*Fish.....	.....	qtl.	1815-45	
*table, Isle of Shoals.....	1815-24			Boston Commercial Gazette
*bank cod.....	1823-35			Boston Daily Advertiser
*bank and bay cod.....	1836-38			Boston Daily Advertiser
*bank cod.....	1839-45			Boston Daily Advertiser
dry cod.....	.....	cwt.	1825-45	U. S. Finance Report
mackerel.....	.....	bbl.	1815-45	
No. 1.....	1815-24			Boston Commercial Gazette
No. 1.....	1825-43			U. S. Finance Report
No. 1, Massachusetts.....	1844-45			U. S. Finance Report
Flax.....	.....	lb.	1825-45	
American.....	1827-45			New York Shipping List
American.....	1825-45			U. S. Finance Report
Russian.....	1826-45			U. S. Finance Report
Furs, beaver, northern.....	.....	lb.	1825-45	
.....	1825-45			U. S. Finance Report
.....	1825-45			New York Shipping List
Gin.....	.....	gal.	1825-45	
Scheidan.....	1825-29			U. S. Finance Report
Holland.....	1830-45			U. S. Finance Report
Glass, American.....	.....		1825-44	
.....	1825-30	100 ft.		U. S. Finance Report
.....	1831-41	50 ft.		U. S. Finance Report
.....	1842	box		U. S. Finance Report
.....	1843-44	50 ft.		U. S. Finance Report
Gunpowder, American.....	.....	25 lbs.	1825-45	U. S. Finance Report
Hams, smoked.....	.....	lb.	1825-45	U. S. Finance Report
Hides.....	.....	lb.	1825-45	
La Plata.....	1825-28			U. S. Finance Report
Buenos Ayres.....	1829-43			U. S. Finance Report
La Plata.....	1844			U. S. Finance Report
Buenos Ayres.....	1845			U. S. Finance Report
Hops, first sort.....	.....	lb.	1825-45	U. S. Finance Report
Indigo.....	.....	lb.	1825-45	
Bengal.....	1825-45			New York Shipping List
Manilla.....	1825-45			U. S. Finance Report
*Iron, English bar.....	.....	ton	1818-45	
*assorted.....	1818-24			New York Shipping List
*assorted.....	1825-30			U. S. Finance Report
*common.....	1831-45			U. S. Finance Report
Iron, pig.....	.....	ton	1815-45	
English.....	1815-24			Boston Commercial Gazette
English.....	1820-24			New York Shipping List
English.....	1825-26			U. S. Finance Report
Scotch.....	1827-45			U. S. Finance Report
*Lard.....	.....	lb.	1821-45	
.....	1815-20			Boston Commercial Gazette
.....	1821-24			New York Shipping List
.....	1825-45			U. S. Finance Report
*Lead.....	.....	cwt.	1815-45	
*pig.....	1815-24			Boston Commercial Gazette
*pig.....	1824-31			Boston Daily Advertiser

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 40. — *Continued*

Commodity	Years	Unit	Total Period Covered	Source of Data
*Lead (<i>continued</i>)				
*pig and bar, Missouri.....	1832-35			Boston Daily Advertiser
*pig.....	1836-45			Boston Daily Advertiser
pig.....	1825-37			U. S. Finance Report
*Leather, hemlock sole.....	.....	lb.	1815-45	Boston Commercial Gazette
	1815-20			New York Shipping List
	1821-24			U. S. Finance Report
	1825-45			
*Linseed oil.....	.....	gal.	1816-45	New York Shipping List
*American.....	1816-24			U. S. Finance Report
*(not qualified).....	1825-45			
*Molasses.....	.....	gal.	1815-45	New York Shipping List
*Havana.....	1815-24			U. S. Finance Report
*Havana.....	1825-44			U. S. Finance Report
*Havana and Matanzas.....	1845			Boston Commercial Gazette
*New Orleans.....	1817-24			U. S. Finance Report
*New Orleans.....	1825-45			
*Nails.....	.....	lb.	1820-45	Boston Commercial Gazette
*assorted sizes.....	1820-26			Boston Daily Advertiser
*assorted sizes.....	1827-45			U. S. Finance Report
cut.....	1830-45			
*Oats.....	.....	bu.	1815-45	Boston Commercial Gazette
*(not qualified).....	1815-20			New York Shipping List
*northern.....	1821-24			U. S. Finance Report
*northern.....	1825-40			U. S. Finance Report
*state, northern.....	1841-45			
*Olive oil.....	.....	gal.	1815-45	Boston Commercial Gazette
*Sicily.....	1815			New York Shipping List
*Sicily.....	1816-17			U. S. Finance Report
*(not qualified).....	1818-45			U. S. Finance Report
Paint, red lead.....	.....	lb.	1830-45	U. S. Finance Report
Pepper.....	.....	lb.	1825-45	U. S. Finance Report
*Pork.....	.....	bbl.	1815-45	Boston Commercial Gazette
cargo.....	1815-24			Boston Commercial Gazette
*navy mess.....	1816-24			U. S. Finance Report
*mess.....	1825-45			U. S. Finance Report
prime.....	1825-45			
*Rice.....	.....	cwt.	1815-45	Boston Commercial Gazette
*(not qualified).....	1815-24			New York Shipping List
*ordinary.....	1821-24			U. S. Finance Report
*ordinary.....	1825-45			
*Rosin, common.....	.....	bbl.	1815-45	New York Shipping List
	1815-24			U. S. Finance Report
	1825-45			
*Rum.....	.....	gal.	1815-45	U. S. Finance Report
Jamaica.....	1825-45			Boston Commercial Gazette
*New England.....	1815-24			Boston Daily Advertiser
*New England.....	1825-31			Boston Daily Advertiser
*New England, pure.....	1832-45			
*Rye, northern.....	.....	bu.	1815-45	New York Shipping List
	1815-24			U. S. Finance Report
	1825-45			
Rye flour, fine.....	.....	bbl.	1815-45	Boston Commercial Gazette
	1815-20			New York Shipping List
	1821-24			U. S. Finance Report
	1825-45			

TABLE 40. — *Continued*

Commodity	Years	Unit	Total Period Covered	Source of Data
*Salt, Liverpool.....	.....		1815-45	
blown.....	1815-24	bu. sack		Boston Commercial Gazette
blown, fine.....	1815-18	bu. sack		New York Shipping List
ground, (fine).....	1819-24	bu. sack		New York Shipping List
*coarse†.....	1815-24	8 bu.		Boston Commercial Gazette
fine.....	1820-23	4 bu.		Boston Commercial Gazette
*fine.....	1825-45	4 bu.		U. S. Finance Report
Sheetings.....		piece	1825-45	
Russia, brown.....	1826-45			U. S. Finance Report
Russia, white.....	1826-45			U. S. Finance Report
Soap.....		lb.	1825-45	
American, No. 1.....	1830-43			Boston Daily Advertiser
New York.....	1825-45			U. S. Finance Report
Sperm oil.....		gal.	1825-45	
winter.....	1825-41			U. S. Finance Report
winter, manufactured.....	1842-44			U. S. Finance Report
winter.....	1845			U. S. Finance Report
*Staves, white oak, hhd.....		M	1815-45	
	*1815-45			New York Shipping List
	1815-24			Boston Commercial Gazette
Steel, American.....		lb.	1825-28	
*Sugar.....			1815-45	
*New Orleans, prime.....	1815	cwt.		Boston Commercial Gazette
*New Orleans, prime.....	1816-24	cwt.		New York Shipping List
*New Orleans, (not qualified).....	1825-45	lb.		U. S. Finance Report
*Tallow.....		lb.	1815-45	
*American.....	1815			Boston Commercial Gazette
*American.....	1816-24			New York Shipping List
*American.....	1825-35			U. S. Finance Report
*(not qualified).....	1836-37			U. S. Finance Report
*American.....	1838-41			U. S. Finance Report
*(not qualified).....	1842			U. S. Finance Report
*American.....	1843-45			U. S. Finance Report
Tea, Young Hyson.....		lb.	1815-45	
	1815-24			Boston Commercial Gazette
	1825-45			U. S. Finance Report
*Tobacco.....		lb.	1815-45	
Bull's Eye.....	1828-45			Boston Daily Advertiser
*Kentucky.....	1815-24			New York Shipping List
*Kentucky.....	1825-45			U. S. Finance Report
manufactured, No. 1.....	1826-45			U. S. Finance Report
*Turpentine, spirits of.....		gal.	1816-45	
	1816-24			New York Shipping List
	1825-45			U. S. Finance Report
*Whale Oil.....		gal.	1816-45	
*(not qualified).....	1815-24			Boston Commercial Gazette
(not qualified).....	1816-24			New York Shipping List
*(not qualified).....	1825-39			U. S. Finance Report
*southern.....	1840-42			U. S. Finance Report
*(not qualified).....	1843			U. S. Finance Report
*southern.....	1844			U. S. Finance Report
*(not qualified).....	1845			U. S. Finance Report

† Adjusted and used with "fine."

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TABLE 40. — *Continued*

Commodity	Years	Unit	Total Period Covered	Source of Data
Wheat.....	.....	bu.	1825-45	
Genesee, (not qualified).....	1825-29			New York Shipping List
Genesee, (not qualified).....	1832-39			New York Shipping List
Genesee, (not qualified).....	1826-38			U. S. Finance Report
Genesee, prime white.....	1839-44			U. S. Finance Report
Genesee, (not qualified).....	1845			U. S. Finance Report
Delaware.....	1827-29			Philadelphia Price Current
Delaware and Maryland.....	1830-31			Philadelphia Price Current
southern.....	1832-45			Philadelphia Price Current
North River, red.....	1825-40			New York Shipping List
Pennsylvania, white.....	1825-27			Philadelphia Price Current
Pennsylvania, red.....	1825-27			Philadelphia Price Current
Pennsylvania, (not qualified).....	1827-38			Philadelphia Price Current
Pennsylvania and Ohio.....	1838-41			Philadelphia Price Current
Pennsylvania and western.....	1842			Philadelphia Price Current
Pennsylvania, red.....	1843-45			Philadelphia Price Current
Virginia, white.....	1825-40			New York Shipping List
*Wheat flour, superior.....	.....	bbl.	1815-45	
Baltimore, superfine.....	1819-24			Boston Commercial Gazette
Philadelphia, superfine.....	1815-18			Boston Commercial Gazette
New York, superfine.....	1815-24			Boston Commercial Gazette
*New York, superfine.....	1815-24			New York Shipping List
*superior.....	1825-38			U. S. Finance Report
*(not qualified).....	1839-41			U. S. Finance Report
*state.....	1842-44			U. S. Finance Report
*Genesee.....	1845			U. S. Finance Report
Philadelphia.....	1830-45			Boston Daily Advertiser
west canal.....	1826-37			U. S. Finance Report
*Whiskey, domestic.....	.....	gal.	1815-45	
*domestic, rye.....	1815-24			New York Shipping List
*domestic, (not qualified).....	1825-45			U. S. Finance Report
Wine.....	.....	gal.	1825-45	
Malaga, dry.....	1825-45			New York Shipping List
port.....	1825-45			U. S. Finance Report
*Wool.....	.....	lb.	1816-45	
American full-blood, washed.....	1827-45			Boston Daily Advertiser
common.....	1825-45			U. S. Finance Report
Saxony, clean.....	1830-37			Boston Daily Advertiser
*merino, washed.....	1815-24			New York Shipping List
*merino.....	1825-45			U. S. Finance Report

Analysis of the series for the 1825-45 unweighted general index: The treatment of the collected series followed the well-known method devised by Professor Warren M. Persons and already utilized not only by himself but by Professors Snider and Silberling in particular investigations of price movements. Accordingly, a description here of the procedure need be but summary.³

The individual series were charted upon separate sheets and by use of a uniform logarithmic scale. Subsequently they were dealt with solely by number,

³ See Professor Persons' detailed description of the method in the *Review of Economic Statistics*, Preliminary Volume I, January and April 1919, pp. 5-107, and pp. 110-212. For the

all other marks of identification being for the moment eliminated. The graphs were then studied over a light box. Charting upon a ratio scale permitted the portrayal of relative degrees of movement among series of varying absolute values; the employment of a light box and the superimposition of charts made it possible to bring the movements of individual series into comparison with one another, while the designation of charts merely by number tended toward the elimination of personal bias.

The preliminary examination of the series im- applications made by Professors J. S. Snider and N. J. Silberling, see the same *Review*, vol. 6 (1924), pp. 93-118 and vol. 5 (1923), Supplement, pp. 219-62.

pressed the investigator with the great variations in the course of individual price series. Scarcely two series, unless they were economically allied, moved together over the entire period of twenty years. Closer inspection, however, began to reveal some order in the apparent diversity. It was observed that certain series not only were strikingly active but exhibited movements common to various others over a portion, sometimes over the greater portion, of the two decades. These "key" or typical series did not always turn out to be of peculiar economic significance. Indeed, they were frequently series relating to commodities of rather minor economic importance, as, for instance, oats or tallow. Perhaps such a "key" group may be looked upon as composed of series in which the price movement was particularly sensitive to changes in general business conditions. A preliminary test group was compounded of the following series.

TABLE 41. — SERIES USED IN THE CONSTRUCTION OF THE "TEST" COMMODITY-PRICE INDEX, 1825-45

Cotton, upland, New York
Cotton sheetings, brown, New York
Cotton yarn, New York
Lead, pig
Leather, hemlock
Molasses, Havana
Rum, New England
Salt, Liverpool
Tallow, American
Whiskey, domestic
Wool, American, full-blood

The development of an index number based upon this group of similarly fluctuating series was next contemplated. Admittedly such an index would probably fail to reflect the movement of prices in general — although the test of experience revealed in this case a situation somewhat contrary to the usual, sound presumption⁴ — but it was thought that a preliminary index would be useful as a criterion or standard for sorting the diverse movements of the ninety-odd series collected. An index number was, therefore, constructed from these eleven series in the form of a simple arithmetic average of price relatives. This index number was adopted as a standard, and all other price series were sorted with respect to deviations from the test index.

⁴ A comparison made between the movement of prices as indicated by the preliminary or test index and that shown by the general index subsequently developed, showed the course of trend and cyclical activity in the two indices to be surprisingly similar. The declination of the curve from 1825 to 1829-30 was somewhat more pronounced in the case of the test index; the amplitude of the cyclical swings was rather greater in a couple of places, e.g., the rise to 1831-32, that to the peak in 1833, and a smaller fall in 1837; but otherwise in timing and in the general character of the two indices there is little difference.

First, a considerable number of the ninety-odd series had to be discarded as too defective for use. Thus, certain wheat series were rejected, as mentioned above, because quotations in specific journals were infrequently given for the important period 1837-42. Even recourse to other sources was often unsuccessful in providing substitute or complementary series of quotations.

A large further number of price series was discarded in a second sorting because of failure to exhibit substantial variations in movement. In many instances, quotations remained constant for a year or two at a time, sometimes longer. Some of these series related to foreign commodities such as Malaga wine or Russian flax, and others related to consumers' goods, such as soap or gunpowder, for which customary prices for extended periods evidently prevailed. Whatever the explanation in the several cases, 25 series were found to reveal no considerable movement over the entire 20-year interval, and accordingly were set aside.

In addition to these two groups, certain other series were eliminated from further consideration because they displayed movements quite different from those of the test index. The two series relating to hops and tea are striking illustrations; but in two or three other cases the differences of movement, though not so conspicuous, were such as to lead us to discard the series.⁵

⁵ Objection might be raised against the elimination of so many series, especially those which are set aside on the ground of their inelasticity or of their irregular movement. The defense for this action must rest on the contention that we are seeking the "typical" or "representative" course of prices, not a mere statistical measure of miscellaneous price series gathered as fortune might direct from the archives of the period. A minute investigation into the marketing of those commodities of which the price movements were peculiar either by reason of their placidity or of their individuality would probably show that no important real difference in movement existed between these cases and those of series actually retained for the index. Perhaps variations in conditions of sales made prices in effect move closely with the trends in the accepted series; or perhaps there existed special circumstances of uncertain crops or irregular supplies from abroad except for which the price movements of "irregular" series would have been more in accord with those of the "representative" series. Furthermore, it may be noted that the inclusion of "insensitive" or "irregular" series in the general index would have merely reduced the sharpness of outline in the curve as finally constructed. The major swings would not have been blotted out. Accordingly, the choice lay between a statistically complete but unresponsive index and one of which the genuineness and accuracy were guaranteed by an adequate economic diversity of individual series — though the actual number of such series would be smaller — and in which the fundamental price changes would be more clearly mirrored. No one, I imagine, would long hesitate at this choice.

Finally, the series which remained were examined for the purpose of eliminating duplicates. In case two or more sets of data were available for a single commodity, the series were again examined for imperfections in quotations, sluggishness, and peculiarity of movement; and the series which were least desirable in these respects were put aside.

The price series catalogued in Table 43, which were discarded for one reason or another and were not employed in the construction of the general index, are listed below, with the reason for their elimination.

There remained after this winnowing process a total of 38 series, representing varied economic activities, from which to construct an index number of general prices for the period 1825-45.⁶

⁶ In the cases of four series — coal, Schuylkill; iron, English bar; iron, British pig; and rosin, common — the price movements do not become noteworthy until 1834 and, accordingly, they are not included in the index for the period before that date. In all four cases there is a lack of any real sensitiveness during the earlier years. The reasons for this lack are not in all cases evident. The novelty of the Schuylkill coal during the late 'twenties and early 'thirties may account for the insensitive, perhaps nominal, prices quoted for that article; while the lack of movement in both series pertaining to imported iron

TABLE 42. — SERIES USED IN THE CONSTRUCTION OF THE UNWEIGHTED WHOLESAL COMMODITY-PRICE INDEX, 1825-45

Ashes, pearl	Olive oil
Beef, prime	Pork, mess
Butter, western dairy	Rice, ordinary
Coal, Liverpool	Rosin, common
Coal, Schuylkill	Rum, New England
Coffee, Brazil	Rye, northern
Corn, northern	Rye flour, fine
Cotton, upland	Salt, Liverpool
Cotton yarn	Spirits of turpentine
Fish, bank cod	Staves, white oak
Iron, English bar	Sugar, New Orleans
Iron, British pig	Tallow, American
Lard	Tobacco, Kentucky
Lead, pig	Whale oil
Linseed oil	Wheat, Pennsylvania
Molasses, Havana	Wheat flour, superior
Molasses, New Orleans	Whiskey, domestic
Nails, assorted	Wool, American, full-blood
Oats, northern	Wool, merino

would indicate that there was something abnormal in the price conditions of that commerce. In the case of rosin no clue was found as to the reason for inactivity of price during the early years, followed by rather frequent and substantial price changes in the later period.

TABLE 43. — SERIES DISCARDED FOR USE IN THE UNWEIGHTED WHOLESAL COMMODITY-PRICE INDEX, 1825-45

Beef, mess: price movement slightly less regular than that of Beef, prime. Also, it substantially duplicated the latter commodity.

Boards, North River: insensitive. Examination of the source beyond the period for which quotations were actually secured showed that there was little movement over years at a time.

Candles, sperm: insensitive and irregular over the greater part of the period.

Coffee, Brazil: duplicate of the other coffee series included.

Cognac brandy: insensitive.

Copper, pig: both copper series proved inelastic.

Corn meal: less regular than the series for Corn, northern.

Cotton, upland: the New York series was discarded as a mere duplicate of the Boston series that was included.

Cotton sheeting: Cotton yarn was taken as representative of manufactured cotton.

Fish, dry cod: somewhat irregular and less satisfactory than Fish, bank cod.

Fish, mackerel: irregular until 1835, and in some measure a duplicate of Fish, bank cod.

Flax, American and Russian: insensitive.

Furs, beaver: both series proved insensitive.

Glass, American: insensitive.

Gunpowder, American: insensitive.

Hams, smoked: defective.

Hides: insensitive.

Hops, first sort: highly irregular.

Indigo, Bengal and Manilla: both of these series proved inelastic.

Lead, pig: one of these series proved a substantial duplicate of the other.

Leather, hemlock sole: insensitive through 1834.

Molasses, New Orleans: the Boston series proved defective.

Nails, cut: discarded in part because a duplicate of Nails, assorted, and also because less elastic than the latter.

Pork, prime: slightly less regular than Pork, mess, and besides largely a duplicate of the latter.

Rum, Jamaica: insensitive.

Sheetings, Russia, brown and white: insensitive.

Soap, American and New York: insensitive.

Sperm oil: insensitive until 1838, and rather irregular thereafter.

Steel, American: insensitive. Examination of the source beyond the point for which quotations were actually taken indicated that the series continued insensitive for much of the later period.

Tea, Young Hyson: highly irregular.

Tobacco, Bull's Eye: irregular.

Tobacco, manufactured: insensitive.

Wheat, Delaware: proved largely duplicate of Wheat, Pennsylvania; which was included.

Wheat, Genesee, North River, red, Virginia, white: defective or utilized merely to check or supplement the series finally chosen.

Wheat flour, Philadelphia and west canal: defective.

Wine, Malaga and port: insensitive.

Wool, common: less sensitive than the wool series included.

Wool, Saxony: defective.

Certain smaller groups of series, drawn chiefly from the 38 series above enumerated, were also secured, which showed diversities of movement over portions of the 21 year period under discussion. There are three of these groups, and each is composed of a sufficient number of series so that the departure of its composite movement from that of the general index may be considered other than fortuitous. Comment upon these latter groups is given in the text of this volume.

The construction of index numbers: By reason of the character of the data available for the development of index numbers and of the conditions surrounding the problem in hand, decision was made at first to employ simple arithmetic indices of relative prices. Then came the question of the most adequate base. Since these indices at the time of their original construction, were designed for use in connection with a study of the crisis of 1837, a base was desirable which would have a definite meaning with respect to that episode. Inspection of the individual price series and construction of the test index above mentioned, however, revealed the fact that one could not accurately think of the crisis of 1837 as the culmination of a brief, sharp, upward movement and the inauguration of a downward movement which in a year or two carried commodity prices to the low level from which they had departed previous to 1837. Instead of such a movement of prices immediately before and after 1837, the actual advance and decline lasted at least through the 9-year interval 1834-42. Accordingly, this 9-year period was taken as the base of the index numbers. From a technical viewpoint, it may be noted that the selection of this base insured that the most significant part of the price record, from 1834 to 1842, would not be vitiated by being far removed from the base.

With guidance derived from such conclusions, the actual monthly prices⁷ for each commodity were expressed as relatives to the average price for the period 1834-42, and from these relatives were constructed unweighted arithmetic index numbers for the whole group of 38 commodities and for such sub-groups among these series (and a few others drawn in for special reasons) as were felt desirable in the interpretation of the general price movement.

Some time after the development of these unweighted indices, determination was made to con-

struct a weighted index, and to push the period of the index back until it overlapped with that already devised by Professor Smith (and published in the *Review of Economic Statistics*, vol. 9 (1927), pp. 171-83. In pushing the index back through 1815 slight changes were made in the series used. Five series employed in the unweighted index, which either could not be carried back of 1825 or were already represented by similar commodities, were dropped from the list. These five were Schuylkill coal, British pig iron, Pennsylvania wheat, American full-blood wool, and rye flour. On the other hand, upon further consideration, two commodities were added that had not been used earlier, leather and sperm candles.

Then came the important question of proper weights. At best they could be but approximate. No data exist for this period by which accurate weights could be assigned to the various commodity series. However, with such clues as could be found in export data and census figures of production (1850), weights were chosen to express roughly the relative significance of the several commodities. The weights were arranged primarily with a view to the importance of the several commodities in determining the tone of business in the northeastern section of the country, domestic as well as foreign trade being taken into account. With the weights listed below and the relative prices on the 1834-42 base, weighted arithmetic index numbers were constructed from these thirty-five series.

TABLE 44. — SERIES AND WEIGHTS USED IN THE CONSTRUCTION OF THE WEIGHTED WHOLESALE COMMODITY-PRICE INDEX, 1815-45

1	Ashes, pearl	1	Oats, northern
2	Beef, prime	1	Olive oil
1	Butter, western dairy	2	Pork, mess
1	Candles, sperm	1	Rice, ordinary
1	Coal, Liverpool	1	Rosin, common
1	Coffee, Brazil	1	Rum, New England
2	Corn, northern	1	Rye, northern
6	Cotton, upland	1	Salt, Liverpool, fine
3	Cotton yarn, 5-10-14	1	Spirits of turpentine
2	Fish, bank cod	2	Staves, white oak, hhd.
3	Iron, British bar	1	Sugar, New Orleans
1	Lard	1	Tallow, American
1	Lead, pig	3	Tobacco, Kentucky
2	Leather, hemlock sole	1	Whale oil
1	Linseed oil	4	Wheat flour, superior
1	Molasses, Havana	1	Whiskey, domestic
1	Molasses, New Orleans	3	Wool, merino
1	Nails, assorted		

⁷ Where a spread was given in the original price data, the low figures were employed.

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TABLE 45. — WEIGHTED INDEX OF GENERAL WHOLESALE COMMODITY PRICES: MONTHLY, 1815-45¹

(Base: 1834-42)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1815.....	174	190	177	159	163	170	176	179	184	190	188	181
1816.....	184	182	182	176	173	172	166	159	154	155	163	164
1817.....	171	170	168	167	172	166	159	158	157	159	160	169
1818.....	177	177	171	167	170	169	170	173	175	177	177	170
1819.....	164	161	159	148	139	131	129	125	127	126	127	124
1820.....	123	122	115	112	112	112	113	114	115	109	109	107
1821.....	106	103	101	99	102	101	104	106	108	110	120	117
1822.....	117	114	115	114	115	112	110	103	103	104	104	102
1823.....	102	103	103	98	100	101	102	102	99	100	99	100
1824.....	98	97	96	96	96	99	98	97	98	99	100	99
1825.....	100	100	104	114	115	117	113	110	107	109	105	106
1826.....	103	103	98	97	94	93	95	92	90	92	94	93
1827.....	94	95	95	95	92	91	89	90	91	91	92	94
1828.....	88	90	88	88	87	88	88	88	89	91	91	95
1829.....	95	94	93	92	89	89	85	85	85	85	86	85
1830.....	85	84	84	82	84	83	82	83	85	87	88	88
1831.....	86	88	89	90	89	90	87	87	89	91	92	91
1832.....	96	93	92	90	90	90	88	88	90	92	94	93
1833.....	94	91	92	91	93	93	93	96	98	99	98	98
1834.....	94	91	88	86	87	87	88	89	92	93	94	97
1835.....	99	98	100	103	107	110	115	115	113	111	112	116
1836.....	118	116	121	128	122	118	116	119	122	128	130	127
1837.....	128	131	129	119	102	102	103	103	98	101	106	108
1838.....	107	103	101	100	100	101	102	102	107	113	115	117
1839.....	118	125	124	123	120	118	114	112	112	108	104	101
1840.....	92	93	90	85	84	82	81	82	86	89	90	89
1841.....	88	90	88	87	88	84	84	86	91	90	87	85
1842.....	84	80	78	75	74	73	73	72	70	69	68	69
1843.....	69	67	67	68	70	71	72	73	74	73	74	73
1844.....	74	75	75	76	74	73	72	73	72	73	74	74
1845.....	72	72	74	78	78	76	76	77	79	78	83	86

¹ For commodities and weights used in the construction of this index, see Table 44 above.

APPENDIX A

TABLE 46. — UNWEIGHTED INDEX OF AGRICULTURAL WHOLESALE COMMODITY PRICES: MONTHLY, 1825-45¹
(Base: 1834-42)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1825.....	74	72	73	75	78	81	79	78	85	90	87	86
1826.....	88	90	85	84	83	86	88	84	83	89	90	88
1827.....	91	93	90	85	81	82	78	78	82	79	80	88
1828.....	80	77	72	73	72	74	73	73	78	83	84	88
1829.....	91	91	91	87	82	86	78	80	80	81	80	78
1830.....	79	78	77	74	76	78	76	77	82	83	81	81
1831.....	78	84	87	89	85	85	81	80	83	86	88	86
1832.....	93	89	87	80	80	85	87	88	90	90	93	92
1833.....	93	87	86	84	88	87	86	88	92	94	92	91
1834.....	87	84	77	72	74	77	78	81	85	86	87	84
1835.....	87	87	89	91	96	106	114	116	110	106	107	114
1836.....	118	117	122	130	120	113	108	114	124	133	142	137
1837.....	136	144	138	127	104	109	117	117	107	109	114	122
1838.....	115	106	105	107	109	111	109	106	117	127	127	132
1839.....	130	135	129	127	126	126	119	113	114	106	104	100
1840.....	89	92	89	83	82	81	80	86	91	95	94	88
1841.....	81	81	80	78	79	76	80	84	93	90	85	85
1842.....	82	77	76	72	73	70	69	68	64	63	63	66
1843.....	64	61	61	62	66	68	72	72	72	68	69	67
1844.....	66	68	68	69	69	66	63	65	64	67	69	68
1845.....	64	67	71	75	73	70	74	76	84	82	88	95

TABLE 47. — UNWEIGHTED INDEX OF INDUSTRIAL WHOLESALE COMMODITY PRICES: MONTHLY, 1825-45¹
(Base: 1834-42)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1825.....	103	102	105	114	118	117	113	109	106	108	107	104
1826.....	102	102	97	97	95	93	95	93	93	93	95	96
1827.....	96	96	97	98	96	94	92	93	95	98	98	97
1828.....	96	95	93	93	92	94	92	90	91	94	92	93
1829.....	94	95	93	92	88	85	82	80	82	84	84	85
1830.....	87	85	87	83	85	82	84	84	87	92	92	95
1831.....	92	94	95	96	94	96	94	96	98	100	102	100
1832.....	101	98	99	95	94	91	91	91	93	97	97	98
1833.....	99	95	96	98	99	99	99	101	102	105	102	103
1834.....	99	96	92	89	90	88	88	90	91	93	94	98
1835.....	101	101	104	106	110	110	114	112	113	112	115	119
1836.....	122	120	124	130	127	121	118	121	124	124	129	129
1837.....	130	131	132	124	113	106	99	100	99	101	106	107
1838.....	108	104	100	99	97	97	97	100	102	108	108	108
1839.....	109	115	116	112	109	107	107	106	104	103	96	93
1840.....	91	89	88	84	83	84	81	81	85	88	90	88
1841.....	90	91	88	86	86	84	82	87	89	91	90	90
1842.....	90	85	82	80	77	78	76	76	77	78	77	79
1843.....	78	75	75	74	74	75	73	75	80	80	80	80
1844.....	82	82	81	81	80	81	81	81	81	81	82	81
1845.....	79	77	78	83	85	82	81	82	82	83	88	88

¹ A discussion of these indices and the commodities used are given in the text, pp. 65, 66.

COMMODITY PRICE INDICES, 1843-62

Data and their sources: For this period, too, the main reliance was put upon data compiled in the *Finance Report* already mentioned. About ninety series were transcribed largely from this source, and those others used to complement the ninety series were drawn from contemporary news-sheets. A list of these commodities, together with the periods covered and the markets to which they appertain, is presented in the accompanying Table 48.

While the list contains most items of domestic and foreign commerce which were significant during the period, the material is not without certain defects. Some important products of American manufacture are missing — wool cloth, for example, and boots and shoes. These gaps in the evidence, arising from the unavailability of data, become in some measure less momentous because of the inclusion of certain other series such as raw wool and leather — the raw stock of these manufacturing industries.

Again, series were not always complete for every

month in the two hundred and forty. Gaps of a month or two were filled in by interpolation when supplementary data were not available in other sources — the change of price between known values being made to proceed by even stages — and rarely was it found necessary to improvise for longer periods. Series were discarded if they lacked data for as much as four or five months, especially when that deficiency came at a general turning point of values, such as 1847 and 1858.

A third element which might appear a defect — namely, the use of quotations taken from different markets — seems of no great real importance. An examination of price series obtained from both the Boston and New York markets shows these areas to have been so closely related that no disparity of real moment existed between the course of values in the two regions. It was possible, therefore, to bring together the series from the New York district and the few from Boston to reveal characteristic price changes in this, the most important, eastern section of the country.

APPENDIX A

TABLE 48.—SERIES OF WHOLESALE COMMODITY PRICES TRANSCRIBED, 1843-62*

In some cases, series were not transcribed in the full period for which they were available, as, for instance, when observation of quotations for a number of years indicated that the series were insensitive to changes in business conditions.

*(Series used in the construction of the weighted commodity-price index are marked by an asterisk)

Commodity	Years	Unit	Total Period Covered	Source of Data
*Ashes, pearl, first sort.....	.....	cwt.	1843-62	New York Shipping List
*Beef.....	.....	bbl.	1843-62	U. S. Finance Report
*mess, country.....	1843-44			U. S. Finance Report
*mess, (not qualified).....	1843-50			U. S. Finance Report
mess, city.....	1850-52			New York Shipping List
mess, country.....	1850-52			New York Shipping List
*mess, country.....	1851-52			U. S. Finance Report
*mess, (not qualified).....	1853-62			U. S. Finance Report
prime.....	1843-62			U. S. Finance Report
*Butter.....	.....	lb.	1843-62	U. S. Finance Report
*state.....	1843-45			U. S. Finance Report
*western dairy.....	1846-50			U. S. Finance Report
*state.....	1851-62			U. S. Finance Report
Candles, sperm.....	.....	lb.	1843-62	U. S. Finance Report
*Coal.....	.....	ton	1843-62	U. S. Finance Report
anthracite, domestic.....	1843-62	chaldron	1843-62	U. S. Finance Report
*Liverpool.....	1843-62	lb.	1843-62	U. S. Finance Report
*Coffee.....	.....	lb.	1843-62	U. S. Finance Report
Brazil.....	1843-62			New York Shipping List
*Brazil.....	1843-62			U. S. Finance Report
Java, white.....	1843-45			New York Shipping List
Java, white.....	1846-52			U. S. Finance Report
Java, white.....	1850-62			U. S. Finance Report
Java, green.....	1846-49			U. S. Finance Report
*Cognac brandy.....	.....	gal.	1843-62	U. S. Finance Report
*Copper, pig.....	.....	lb.	1843-62	U. S. Finance Report
.....	1845-52			Boston Daily Advertiser
.....	1853-62			U. S. Finance Report
Copper sheathing.....	.....	lb.	1843-62	U. S. Finance Report
*Corn, northern.....	.....	bu.	1843-62	U. S. Finance Report
Corn meal.....	.....	bbl.	1843-62	U. S. Finance Report
Jersey.....	1843-44			U. S. Finance Report
northern.....	1845-52			U. S. Finance Report
(not qualified).....	1853-62			U. S. Finance Report
*Cotton, upland.....	.....	lb.	1843-62	U. S. Finance Report
*middling.....	1843-62			Boston Daily Advertiser
fair to prime.....	1843-50			Boston Daily Advertiser
fair to good.....	1851-60			Boston Daily Advertiser
middling fair.....	1861-62			New York Shipping List
*Cotton sheetings, brown.....	.....	yd.	1843-62	New York Shipping List
Cotton yarn, 5-13.....	.....	lb.	1843-57	
*Fish.....	.....		1843-62	Boston Daily Advertiser
*bank cod and Grand Bank.....	1843-62	qtl.		U. S. Finance Report
dry cod.....	1843-62	cwt.		U. S. Finance Report
mackerel, No. 1.....	1843-62	bbl.		U. S. Finance Report
Flax.....	.....	lb.	1843-57	U. S. Finance Report
American.....	1843-57			U. S. Finance Report
Russian.....	1843-47			U. S. Finance Report
Furs, beaver, northern.....	.....	lb.	1845-62	U. S. Finance Report

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 48. — Continued

Commodity	Years	Unit	Total Period Covered	Source of Data
Gin.....	.....	gal.	1843-62	
Holland.....	1843-46			U. S. Finance Report
Medler's Swan.....	1847-62			U. S. Finance Report
Glass.....	.....		1843-62	
American.....	1843-44	50 ft.		U. S. Finance Report
American.....	1847-52	box		U. S. Finance Report
American, window.....	1853-62	50 ft.		U. S. Finance Report
English crown.....	1845-46	50 ft.		U. S. Finance Report
Gunpowder, American.....	.....	25 lbs.	1843-62	
(not qualified).....	1843-45			U. S. Finance Report
common.....	1846-47			U. S. Finance Report
(not qualified).....	1848			U. S. Finance Report
common.....	1849			U. S. Finance Report
(not qualified).....	1850			U. S. Finance Report
common.....	1851-55			U. S. Finance Report
shipping.....	1856-62			U. S. Finance Report
Hams, pickled.....	.....	lb.	1843-62	
.....	1843-51			New York Shipping List
.....	1852-62			U. S. Finance Report
*Hides.....	.....	lb.	1843-62	
*Buenos Ayres.....	1843			U. S. Finance Report
*La Plata.....	1844			U. S. Finance Report
*Buenos Ayres.....	1845-62			U. S. Finance Report
Hops, first sort.....	.....	lb.	1843-62	U. S. Finance Report
Indigo.....	.....	lb.	1843-62	
Bengal.....	1843-55			New York Shipping List
Bengal, middling.....	1855-62			Boston Daily Advertiser
Manilla.....	1843-62			U. S. Finance Report
*Iron.....	.....	ton	1843-62	
bar, English, common.....	1843-62			U. S. Finance Report
*pig, Scotch.....	1843-45			U. S. Finance Report
*pig, English.....	1846-53			U. S. Finance Report
*pig, Scotch.....	1854-62			U. S. Finance Report
*Lard.....	.....	lb.	1843-62	
*(not qualified).....	1843-62			U. S. Finance Report
Ohio, and city.....	1843-44			New York Shipping List
Ohio.....	1844-46			New York Shipping List
Ohio, prime.....	1850-52			New York Shipping List
*Lead, pig.....	.....	cwt.	1843-62	
.....	1843-62			Boston Daily Advertiser
.....	*1843-62			U. S. Finance Report
*Leather, hemlock.....	.....	lb.	1843-62	
*sole.....	1843-46			U. S. Finance Report
*middling.....	1847-52			U. S. Finance Report
*(not qualified).....	1853-62			U. S. Finance Report
*Linseed oil.....	.....	gal.	1843-61	
*(not qualified).....	1843-45			U. S. Finance Report
*Dutch and English.....	1846			Boston Daily Advertiser
*Dutch and English.....	1847-54			U. S. Finance Report
*English.....	1855-61			U. S. Finance Report
Lumber, boards, North River, clear.....	.....	M ft.	1843-55	New York Shipping List
*Molasses.....	.....	gal.	1843-62	
Havana.....	1843-44			U. S. Finance Report
Havana and Matanzas.....	1845			U. S. Finance Report

TABLE 48. — *Continued*

Commodity	Years	Unit	Total Period Covered	Source of Data
*Molasses (<i>continued</i>)				
Matanzas	1846-57			U. S. Finance Report
Cuba, clayed	1858-62			U. S. Finance Report
*New Orleans	1843-62			U. S. Finance Report
Nails		lb.	1843-62	
assorted sizes	1843-62			Boston Daily Advertiser
cut	1843-62			U. S. Finance Report
*Nutmeg		lb.	1843-62	U. S. Finance Report
*Oats, northern		bu.	1843-62	
*state northern	1843-45			U. S. Finance Report
*northern	1846-62			U. S. Finance Report
*Olive oil		gal.	1843-62	U. S. Finance Report
Paints, red lead		lb.	1843-62	U. S. Finance Report
*Pepper		lb.	1843-62	U. S. Finance Report
*Pork		lb.	1843-62	
mess	1843-62	lb.		U. S. Finance Report
*prime	1843-62	bbl.		U. S. Finance Report
*Rice		cwt.	1843-62	
*ordinary	1843-53			U. S. Finance Report
*fair	1854			U. S. Finance Report
*ordinary	1855-62			U. S. Finance Report
ordinary to fair	1850-53			New York Shipping List
fair	1854-55			New York Shipping List
*Rosin, common		bbl.	1843-62	
*common, (not qualified)	1843-62			U. S. Finance Report
*common, (in yards)	1851-52			New York Shipping List
*common, (delivered)	1853-62			New York Shipping List
white, (not qualified)	1851-62			U. S. Finance Report
*Rum		gal.	1843-62	
Jamaica	1843-62			U. S. Finance Report
*New England	1843-62			Boston Daily Advertiser
*Rye, northern		bu.	1843-62	U. S. Finance Report
Rye flour		bbl.	1843-62	
fine	1843-52			U. S. Finance Report
(not qualified)	1853-62			U. S. Finance Report
*Salt, Liverpool, fine		sack	1843-62	
	*1843-62			U. S. Finance Report
	1855-62			New York Shipping List
Sheetings		piece	1843-62	
Russian, brown	1843-54			U. S. Finance Report
Russian, white	1843-54			U. S. Finance Report
Soap		lb.	1843-62	
New York	1843-56			U. S. Finance Report
brown	1857-62			U. S. Finance Report
Sperm oil		gal.	1843-62	
winter, manufactured	1843-44			U. S. Finance Report
winter	1845-62			U. S. Finance Report
*Staves, white oak		M	1843-62	New York Shipping List
Steel, American		lb.	1843-48	New York Shipping List
*Sugar		lb.	1843-62	
*Havana, white, refined	1843-45			New York Shipping List
*Havana, white	1846-62			U. S. Finance Report
New Orleans	1843-62			U. S. Finance Report
Louisiana, fair	1857			New Orleans Price Current
*Tallow, American		lb.	1843-62	U. S. Finance Report

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TABLE 48. — *Continued*

Commodity	Years	Unit	Total Period	Source of Data
Tea, Young Hyson	lb.	1843-62	U. S. Finance Report Boston Daily Advertiser U. S. Finance Report
	1843-59			
	1860-61			
	1862			
*Tobacco .....	.....	lb.	1843-62	U. S. Finance Report U. S. Finance Report
*Kentucky	1843-62			U. S. Finance Report
manufactured, No. 1	1843-62			U. S. Finance Report
*Turpentine, spirits of .....	.....	gal.	1843-62	U. S. Finance Report
Whalebone .....	.....	lb.	1843-62	U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report New York Shipping List New York Shipping List
polar	1843-45			U. S. Finance Report
polar, northwest coast	1846-48			U. S. Finance Report
northwest coast	1849-54			U. S. Finance Report
(not qualified)	1855-56			U. S. Finance Report
northwest coast	1857-62			U. S. Finance Report
slab	1843-44			New York Shipping List
northwest coast	1853-54			New York Shipping List
*Whale oil .....	.....	gal.	1843-62	U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report
(not qualified)	1843			U. S. Finance Report
southern	1844			U. S. Finance Report
(not qualified)	1845-47			U. S. Finance Report
southern	1848-51			U. S. Finance Report
(not qualified)	1852-62			U. S. Finance Report
*Wheat, Genesee .....	.....	bu.	1843-62	U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report U. S. Finance Report
prime white	1843-44			U. S. Finance Report
(not qualified)	1845			U. S. Finance Report
western	1846			U. S. Finance Report
western red	1847			U. S. Finance Report
mixed and red	1848			U. S. Finance Report
(not qualified)	1849-62			U. S. Finance Report
Wheat flour .....	.....		1843-62	
common				
state	1843-44	bu.		U. S. Finance Report
Genesee	1845-52	bu.		U. S. Finance Report
state	1855	bu.		U. S. Finance Report
(not qualified)	1856-62	bu.		U. S. Finance Report
Genesee, common	1843-62	qtl.		Boston Daily Advertiser
Genesee, fancy brands	1853-62	bu.		New York Shipping List
*Whiskey, domestic .....	.....	gal.	1843-62	U. S. Finance Report
Wine .....	.....		1843-62	
claret	1843-53	cask		U. S. Finance Report
Bordeaux	1854-62	cask		U. S. Finance Report
Malaga, dry	1843-55	gal.		New York Shipping List
Malaga, dry	1856-62	gal.		Boston Daily Advertiser
Malaga, sweet	1843-55	gal.		New York Shipping List
Malaga, sweet	1856-62	gal.		Boston Daily Advertiser
port	1843-62	gal.		U. S. Finance Report
*Wool .....	.....	lb.	1843-62	
American, full-blood				
merino, washed	1843-62			Boston Daily Advertiser
common	1843-62			U. S. Finance Report
*merino	1843-62			U. S. Finance Report

Analysis of the series: The technique used in handling these series was the same as that used for the earlier period. The individual series were charted on a uniform ratio scale and then studied over a light box.

In the examination of the charts, the dominant purpose was the segregation of those series, the movements of which were common to a large proportion of the total number, or which fell into

remained. Like the "insensitive" items, they were considered unrepresentative. They were not lacking in variability, but their movements were highly individualistic.

Even after the elimination of insensitive and erratic series, an accurate study of the remaining charts held no small difficulties — especially for the period prior to 1852. Up to that time, commodity

TABLE 49. — SERIES DISCARDED FOR USE IN THE UNWEIGHTED WHOLESALE COMMODITY-PRICE INDEX, 1843-62

Beef, mess, varying description: defective.	Lumber, boards, North River, clear: insensitive.
Beef, prime: defective.	Molasses, Cuban, varying description: represented by Molasses, New Orleans.
Candles, sperm: represented by sperm oil.	Nails, assorted sizes: insensitive.
Coal, anthracite: defective and insensitive.	Nails, cut: defective and insensitive.
Coffee, Brazil (both series): irregular.	Paints, red lead: insensitive.
Coffee, Java, white: lack of homogeneity.	Pork, mess: represented by Pork, prime.
Copper sheathing: insensitive.	Rice, ordinary: defective.
Corn meal: represented by Corn, northern.	Rum, Jamaica: represented by Rum, New England.
Cotton, upland, varying description: discarded in favor of Cotton, middling.	Rye flour, fine: represented by Rye.
Cotton yarn, 5-13: insensitive.	Sheetings, Russian, brown: defective and insensitive.
Cotton sheetings, brown, 4-4: insensitive.	Sheetings, Russian, white: defective and insensitive.
Fish, dry cod: represented by Fish, bank cod.	Soap, New York: insensitive.
Fish, mackerel, No. 1: defective.	Steel, American: insensitive.
Flax, American: defective.	Sugar, New Orleans: defective.
Flax, Russian: insensitive and defective.	Tea, Young Hyson: lacking in homogeneity and insensitive.
Furs, beaver, northern: insensitive.	Tobacco, manufactured, No. 1: insensitive.
Gin: insensitive.	Whalebone, varying description: defective.
Glass, American, varying description: lack of homogeneity and insensitive.	Wheat flour, Genesee, common: represented by Wheat, Genesee.
Gunpowder, American, varying description: insensitive.	Wheat flour, Genesee, fancy brands: lacking in homogeneity and represented by Wheat, Genesee.
Hams, pickled: represented by Pork, prime. (Included in the agricultural index.)	Wine, claret and Bordeaux: lacking in homogeneity and insensitive.
Hops, first sort: irregular.	Wine, Malaga dry: insensitive.
Indigo, Bengal: lack of homogeneity and insensitive.	Wine, port: lacking in homogeneity and insensitive.
Indigo, Manilla: lack of homogeneity and insensitive.	Wool, American full-blood: represented by Wool, merino.
Iron, English bar, common: represented by Iron, British pig.	Wool, common: represented by Wool, merino.
Lard: represented by Pork, prime. (Included in the agricultural index.)	

smaller groups exhibiting common characteristics during some significant part of the two decades. The purpose obviously was that pursued in the commodity-price investigation for the period 1815-45 — to set up major or minor groupings of the material which, over time-periods suggested by the data themselves, would reveal characteristic variations in the course of prices.

Adherence to this general aim meant putting aside once more those series which manifested no appreciable changes over relatively long portions of the time-interval. Certain other series — among them hops and Brazilian coffee — were discarded on another score. After the material as a whole had been studied, and was found to fall into certain groups based upon common price movements, a few

prices showed no single uniform or predominant general movement, with the result that groups discovered and segregated were sometimes composed of only six or eight series. The period from 1852 to 1858 was somewhat simpler in character, as if commodity-price movements were now controlled by more powerful forces than had prevailed in the earlier years; yet even for these seven years, at least two significant groups of series could be distinguished on the basis of their characteristic activities; and, although during the period 1858-61 the greater number of the selected series manifested a common movement in greater or less degree, still a cleavage was possible if the degree to which the series responded to the underlying forces then in operation was employed as a criterion.

Examination of the material, therefore, led to a formation of no less than four groups. One, containing thirteen series, extended over the years 1843-48; two, comprised of eleven and twenty-two series, respectively, spanned the decade 1849-58; and the fourth, composed of seventeen series, covered the briefer period, 1858-61. Each of these groups seemed sufficiently broad and significant to warrant the construction of an index based upon it. In addition, as a check upon these narrower indices and as a basis for gauging the general movement of all commodity prices, the aggregates of active and non-erratic series were thrown together for the construction of an all-inclusive index covering the whole twenty-year interval.

The indices to be computed, then, were:

- I. Special Index based on 13 commodities for 1843-48.
- IIa. Special Index based on 11 series for 1849-58.
- IIb. Special Index based on 22 series for 1849-58.
- III. Special Index based on 17 series for 1858-61.
- IV. General Index (unweighted) based on 33 series for 1843-62.

The series contained in the Special Indices I, IIa, IIb, and III are listed in the text,⁸ while those for General Index IV are to be found in Table 50 below.

TABLE 50. — SERIES USED IN THE CONSTRUCTION OF THE UNWEIGHTED GENERAL WHOLESALE COMMODITY-PRICE INDEX (IV), 1843-62

Ashes, pearl, first sort	Rosin, common
Butter, western	Rum, New England
Coal, Liverpool	Rye, northern
Cognac brandy	Salt, Liverpool
Copper, pig	Sperm oil
Corn, northern	Spices, nutmeg
Cotton, middling	Spices, pepper
Fish, bank cod	Spirits of turpentine
Hides, Buenos Ayres	Staves, white oak, hhd.
Iron, British pig	Sugar, Havana, refined
Lead, pig	Tallow, American
Leather, hemlock sole	Tobacco, Kentucky
Linseed oil, English	Whale oil
Molasses, New Orleans	Wheat, Genesee
Oats, northern	Whiskey, domestic
Olive oil	Wool, merino
Pork, prime	

Construction of index numbers: The number and composition of the indices decided on, the form in which they were to be constructed was considered. First, an unweighted arithmetic index was determined upon — largely because this form had been previously employed in the early investigation of the

⁸ See pp. 95, 96, above, and Charts 31, 32, 33. Since these indices appear on the charts mentioned above it was felt unnecessary to print the actual index numbers.

period 1825-45 — while for reasons similar to those that had prevailed in the latter case, a broad base for this index was sought. For the present investigation, the mean of monthly values over the eleven-year period, 1848-58, was chosen — an interval which appeared to comprehend the whole swing of prices which reached a peak in 1855-57. Indices constructed in this manner — simple arithmetic upon a broad base — seemed the most serviceable that could be secured under the circumstances, although admittedly they are by no means ideal and might well be inaccurate, especially at the extremes of the whole period over which they were to run.

Subsequently, a weighted index seemed worthy of construction determined by the same reasons as obtained in the case of the period 1815-45. Again, export and import data and production figures were used to assign weights which — as in the earlier weighted index — would reflect the relative importance of the commodities in the business life of the northeastern communities.

With the weights thus devised and the relative prices on the 1848-58 base, weighted arithmetic index numbers were constructed employing 37 series. Again, one series was dropped and certain others added. The series for sperm oil was eliminated by reason of the presence of that for whale oil. The series for mess beef and ordinary rice were completed by recourse to the *New York Shipping List*; and a new series for Brazilian coffee was drawn from the same source. In addition to these, it was decided to add lard and brown sheetings because of the importance of these products; even though pork and upland cotton were already included. The new list for the weighted index is given below in Table 51.

TABLE 51. — SERIES AND WEIGHTS USED IN THE CONSTRUCTION OF THE WEIGHTED WHOLESALE COMMODITY-PRICE INDEX, 1843-62

1 Ashes, pearl	1 Oats, northern
3 Beef, mess	1 Olive oil
1 Butter, western	3 Pork, prime
2 Coal, Liverpool	1 Rice, ordinary
1 Coffee, Brazil	1 Rosin, common
1 Cognac brandy	1 Rum, New England
1 Copper, pig	1 Rye, northern
2 Corn, northern	1 Salt, Liverpool
9 Cotton, middling	1 Spices, nutmeg
3 Cotton sheeting	1 Spices, pepper
2 Fish, bank cod	1 Spirits of turpentine
1 Hides, Buenos Ayres	3 Staves, white oak, hhd.
4 Iron, British pig	1 Sugar, Havana, refined
1 Lard	1 Tallow, American
1 Lead, pig	3 Tobacco, Kentucky
1 Leather, hemlock sole	2 Whale oil
1 Linseed oil, English	7 Wheat, Genesee
2 Molasses, New Orleans	1 Whiskey, domestic
	4 Wool, merino

TABLE 52. — WEIGHTED INDEX OF GENERAL WHOLESALE COMMODITY PRICES: MONTHLY, 1843-62¹
(Base: 1848-58)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843.....	72	70	69	70	73	74	75	72	74	75	77	77
1844.....	79	81	81	79	78	76	75	77	75	74	75	75
1845.....	75	74	74	80	82	79	79	80	80	82	87	89
1846.....	85	85	85	86	84	80	78	77	76	81	83	82
1847.....	84	94	95	95	98	101	93	92	96	94	93	88
1848.....	86	85	85	84	79	78	76	75	76	78	74	75
1849.....	78	80	81	81	78	77	78	81	84	86	85	87
1850.....	87	92	92	89	88	90	90	90	90	92	94	95
1851.....	93	96	92	93	94	87	85	82	83	82	82	80
1852.....	81	83	85	87	90	91	91	93	95	95	96	96
1853.....	98	102	102	101	100	96	97	100	102	106	109	109
1854.....	110	115	113	111	113	111	110	109	111	108	110	109
1855.....	107	107	110	113	116	120	120	118	119	120	120	120
1856.....	117	116	117	116	114	108	111	113	114	119	122	122
1857.....	124	126	131	132	133	133	131	132	130	119	111	108
1858.....	97	95	100	100	103	99	100	102	104	106	102	102
1859.....	102	106	106	104	103	104	100	99	97	96	96	97
1860.....	99	99	99	98	99	97	95	96	97	98	98	93
1861.....	94	93	92	93	98	95	92	100	113	116	120	130
1862.....	147	145	128	133	136	137	151	186	188	200	215	227

¹ For commodities and weights used in the construction of this index, see Table 51 above.

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TABLE 53. — UNWEIGHTED INDEX OF AGRICULTURAL WHOLESALE COMMODITY PRICES: MONTHLY, 1843-62¹
(Base: 1848-58)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843.....	65	62	61	62	63	65	67	67	69	66	68	67
1844.....	64	66	68	66	64	61	59	61	60	62	63	66
1845.....	66	69	71	76	74	74	76	79	84	82	88	92
1846.....	90	86	83	82	75	69	67	65	64	78	77	77
1847.....	77	94	99	98	102	112	95	87	91	90	94	90
1848.....	84	79	82	81	80	77	73	75	76	78	76	77
1849.....	82	83	80	73	72	71	72	76	78	79	81	84
1850.....	82	84	81	76	79	85	84	81	84	83	84	91
1851.....	91	94	94	94	96	88	83	81	81	82	80	84
1852.....	89	88	90	98	95	92	93	95	96	100	103	103
1853.....	107	103	100	93	98	94	95	96	102	104	104	102
1854.....	108	115	111	102	111	113	108	104	111	104	111	115
1855.....	121	115	123	126	134	136	129	120	122	125	125	132
1856.....	123	119	115	112	103	102	106	112	114	120	121	123
1857.....	121	128	132	134	140	143	140	136	136	117	110	113
1858.....	94	92	95	99	104	97	96	104	105	108	102	104
1859.....	104	108	106	107	104	110	98	94	97	98	99	100
1860.....	101	99	99	97	95	95	94	95	98	100	101	92
1861.....	89	87	85	85	86	78	73	76	79	86	90	93
1862.....	89	92	93	90	91	82	81	95	95	109	119	124

TABLE 54. — UNWEIGHTED INDEX OF INDUSTRIAL WHOLESALE COMMODITY PRICES: MONTHLY, 1843-62¹
(Base: 1848-58)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843.....	80	78	76	77	78	76	76	76	80	80	83	82
1844.....	84	86	84	84	82	82	81	83	82	81	82	82
1845.....	80	79	78	83	86	82	81	82	81	83	88	89
1846.....	86	86	86	86	84	81	79	80	79	80	84	85
1847.....	82	87	89	89	90	87	85	89	94	92	93	88
1848.....	86	87	86	84	80	77	76	76	78	80	79	80
1849.....	80	82	82	83	79	76	78	80	83	86	85	86
1850.....	86	89	89	88	86	85	86	88	88	89	91	90
1851.....	92	92	90	89	89	86	84	84	84	83	84	82
1852.....	80	83	84	83	89	89	86	87	91	93	97	97
1853.....	100	105	105	103	101	97	97	100	102	107	114	114
1854.....	112	119	118	117	114	110	108	108	110	112	110	111
1855.....	107	105	105	105	108	108	111	114	118	119	122	121
1856.....	120	118	118	118	119	115	118	121	120	124	126	127
1857.....	128	129	132	131	130	128	127	129	127	118	110	108
1858.....	100	96	100	102	102	101	101	102	106	106	103	103
1859.....	102	107	107	106	105	105	105	102	101	101	102	103
1860.....	105	105	104	102	102	100	99	100	100	101	100	96
1861.....	93	92	92	92	98	96	95	110	121	127	130	136
1862.....	150	152	137	137	151	157	166	210	208	217	237	240

¹ A discussion of these indices and the commodities used are given in the text, pp. 97-99.

APPENDIX B

QUARTERLY INDICES OF DOMESTIC AND FOREIGN WHOLESALE COMMODITY PRICES, 1825-62

Data and their sources: Full particulars as to the source of data, periods covered, and description of the commodities are to be found above in Tables 40 and 48.

Construction of the indices: The lists of series used

in the indices of domestic and imported commodity prices are given below in Tables 55 and 56. No deviation was made from the method customarily used, except that in these cases the indices were put on a quarterly instead of a monthly basis.

TABLE 55. — SERIES USED IN THE CONSTRUCTION
OF THE UNWEIGHTED DOMESTIC WHOLESALE
COMMODITY-PRICE INDEX, 1825-62

Ashes, pearl	Oats, northern
Beef, prime	Pork, mess
Butter, western dairy	Rice, ordinary
Candles, sperm	Rosin, common
Coal, Schuylkill	Rum, New England
Corn, northern	Rye, northern
Cotton, upland	Spirits of turpentine
Cotton yarn, 5-10	Staves, white oak, bhd.
Fish, bank cod	Sugar, New Orleans
Fish, mackerel	Tallow, American
Lard	Tobacco, Kentucky
Lead, pig	Whale oil
Leather, hemlock sole	Wheat flour, superior
Linseed oil	Whiskey, domestic
Molasses, New Orleans	Wool, American full-blood
Nails, assorted	

TABLE 56. — SERIES USED IN THE CONSTRUCTION
OF THE UNWEIGHTED FOREIGN WHOLESALE
COMMODITY-PRICE INDEX, 1825-62

Coal, Liverpool
Coffee, Brazil
Hides, Buenos Ayres
Indigo, Bengal
Iron, Scotch pig
Iron, English bar
Molasses, Havana
Olive oil
Salt, Liverpool, fine
Spices, nutmeg
Tea, Young Hyson
Wine, Malaga

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TABLE 57. — UNWEIGHTED INDEX OF DOMESTIC
WHOLESALE COMMODITY PRICES: QUARTERLY, 1825-62
(Base: 1834-42)

	January	April	July	October
1825	92	97	99	100
1826	98	94	94	94
1827	97	97	89	93
1828	93	89	87	91
1829	92	90	83	84
1830	85	81	82	88
1831	85	91	87	92
1832	97	90	88	83
1833	95	91	91	98
1834	93	82	84	89
1835	94	99	112	108
1836	119	128	112	125
1837	127	120	104	102
1838	109	102	103	116
1839	119	122	116	108
1840	93	87	84	94
1841	90	87	84	92
1842	87	76	74	72
1843	70	68	73	75
1844	76	76	73	75
1845	74	80	79	83
1846	87	83	74	81
1847	83	96	97	98
1848	88	84	76	82
1849	82	84	80	88
1850	86	85	86	91
1851	94	91	86	85
1852	86	92	94	97
1853	103	99	96	106
1854	109	109	107	112
1855	114	115	123	124
1856	128	119	116	125
1857	129	134	139	120
1858	98	102	101	109
1859	107	112	107	104
1860	106	103	101	104
1861	95	92	93	118
1862	132	125	140	176

TABLE 58. — UNWEIGHTED INDEX OF FOREIGN
WHOLESALE COMMODITY PRICES: QUARTERLY, 1825-62
(Base: 1834-42)

	January	April	July	October
1825	140	152	158	152
1826	143	136	132	126
1827	123	132	133	127
1828	129	122	115	116
1829	119	122	114	113
1830	110	111	110	109
1831	109	111	114	123
1832	126	113	110	116
1833	116	106	102	108
1834	102	96	91	97
1835	97	103	107	104
1836	106	114	108	113
1837	118	111	98	101
1838	110	102	101	109
1839	109	112	104	104
1840	98	91	88	93
1841	101	95	96	101
1842	95	78	75	76
1843	78	78	76	82
1844	82	84	88	88
1845	87	95	90	91
1846	89	91	88	85
1847	87	94	89	92
1848	89	86	79	79
1849	74	77	74	78
1850	81	83	79	85
1851	84	83	80	79
1852	77	77	81	88
1853	92	97	93	105
1854	110	114	108	110
1855	100	103	102	112
1856	115	116	117	119
1857	118	128	125	120
1858	100	105	103	107
1859	103	108	105	104
1860	108	110	106	108
1861	99	100	95	111
1862	124	128	126	138

APPENDIX C

SOURCES OF DATA AND STATISTICAL METHODS USED IN THE CONSTRUCTION OF MONTHLY INDICES OF SECURITY PRICES, 1795-1862

SECURITY PRICES, 1795-1820

Data and their sources: The quotations of the prices of United States three per cent "Stock" and of bank-stock prices used in this section were compiled from the *Boston Gazette* and other sources mentioned on page 144. These data were taken from the same newspapers and for the same dates as the data on

commodity prices used in the earlier sections. In a table below (Table 60) are listed some of the more important security-price series which are available for the years 1795-1820. The series marked with an asterisk are those used in computing the index hereafter presented.

TABLE 59. — ACTUAL PRICES OF UNITED STATES 3% STOCK IN BOSTON: MONTHLY, 1795-1820*

(Unit: dollars per share)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1795.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55	50½
1796.....	50½	50½	50½	50½	50	50	50½	51¼	50½	51¼	50½	49½
1797.....	45½	45½	46½	47½	49½	50	50	50	50½	50½	50½	51½
1798.....	51½	51½	51	50	49½	48¾	46½	45	42½	44½	48¾	48½
1799.....	50	47½	49½	49	49	47½	46¼	45	45	45	46¼	47½
1800.....	47½	47¼	49½	50	50	51½	51¼	51½	53	53	53½	55
1801.....	52½	52½	52½	52½	54	55	56¼	56½	56½	56¾	57½	59
1802.....	60	59¾	60	59	59	61½	65	65½	65½	65	62½	62
1803.....	61½	60	59½	59½	57½	60	57¾	58½	58¾	58	58¾	59½
1804.....	59	59	59	57¾	57¾	57¾	57½	57¾	57¾	57½	57½	57½
1805.....	56¾	57	57	56	56½	56½	55½	54¾	56	55½	56	57½
1806.....	57	57¾	59¾	59¾	60	61¼	61½	63	63½	62¾	62¾	62¾
1807.....	61¾	62½	63	63¼	63¾	63¾	.....	64	64¼	63¾	64½	64½
1808.....	64	63¾	64	64	64¾	64¾	64½	65¼	65½	65	65½	65½
1809.....	65	65½	65½	65¼	65¼	65¼	65¼	65¼	65¼	65¼	66	66¾
1810.....	66¼	66¼	66¼	65¾	65¾	65¾	65¾	65¾	66	65¼	65½	65½
1811.....	65¼	65¾	65¾	65½	65½	65½	65½	60	59½	58	58¼	61¼
1812.....	61¼	61¼	62½	61	60½	59½	57½	58¾	58¾	57¾	57¾	57¾
1813.....	57½	57¼	56½	52½	53¼	53¼	53½	53	53	52¾	53¾	.....
1814.....	.....	.....	.....	.....	52¼	52¼	52¼	51¼	51	.....	.....	.....
1815.....	.....	.....	50	50½	50¾	50¾	44½	.....	.....	.....	.....	.....
1816.....	49½	50½	51½	54	53¾	54¾	55¼	54	54	56	57	60½
1817.....	62½	62	63	63	64½	65	65	65½	65	66	68¾	.....
1818.....	.....	.....	71	69½	69	69	68	68	68	67	65	65
1819.....	64½	64¼	64¼	63½	62½	62	61½	64½	64½	63½	63¾	.....
1820.....	65½	66	65	65	66	66	68¾	69	69½	69½	70

* See sources described at top of Table 34, p. 143.

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Construction of indices: The index number of bank-stock prices (see Table 61) was made of the series marked with an asterisk in Table 60. Seven bank-stock prices were used — the prices of three important Boston banks as quoted in Boston, two

important New York banks as quoted in New York, and two important Philadelphia banks as quoted in Philadelphia. 1802 was used as the base year. The index number is an unweighted aggregative index.

TABLE 60. — SERIES OF SECURITY PRICES TRANSCRIBED, 1795-1820*

*(Series used in the construction of the bank-stock index are marked by an asterisk)

Series ¹	Period	Market	Source ²
<i>Government Issues</i>			
United States 3%.....	Most of these securities were listed in the papers from date of issue.	Boston New York Philadelphia Baltimore	See Boston newspapers listed at top of Table 34, p. 143, and sources listed below. ³
United States 6%.....			
United States 6% deferred.....			
United States 8%.....			
War Loan (1812).....			
War Loan (1813).....			
War Loan (1814).....			
War Loan (1815).....			
Treasury Notes.....			
Louisiana Stock.....			
<i>Municipal and State Issues</i>			
Massachusetts State Notes 5%.....	1805-20	Boston	Boston Gazette
New York State Notes 6%.....	1818-19	New York	N. Y. S. L.
City Loan (Philadelphia).....	1809-20	Philadelphia	Hope, Scott, Grotjan
<i>Bank Stocks</i>			
U. S. Bank Stock (1st).....	1795-1812	All markets	Sources same as for Government Issues above.
U. S. Bank Stock (2nd).....	1817-20	All markets	
*Boston Bank.....	1803-20	Boston	Boston Gazette
Manufacturers and Mechanics Bank...	1815-20	Boston	Boston Gazette
*Massachusetts Bank.....	1803-20	Boston	Boston Gazette
State Bank.....	1813-20	Boston	Boston Gazette
*Union Bank.....	1795-1820	Boston	Boston Gazette
City Bank.....	1818-19	New York	N. Y. S. L.
Jersey Bank.....	1806-11	New York	N. Y. P. C. & N. Y. S. L.
Mechanics Bank.....	1818-19	New York	N. Y. S. L.
Merchants Bank.....	1803-20	New York	N. Y. P. C. & N. Y. S. L.
*Manhattan Bank.....	1799-1820	New York	N. Y. P. C. & N. Y. S. L.
*New York Bank.....	1797-1820	New York	N. Y. P. C. & N. Y. S. L.
Union Bank.....	1818-19	New York	N. Y. S. L.
Farmers and Mechanics Bank.....	1808-20	Philadelphia	Hope, Scott, Grotjan
*Bank of North America.....	1802-20	Philadelphia	Hope, Scott, Grotjan
Bank of Pennsylvania.....	1802-20	Philadelphia	Hope, Scott, Grotjan
*Bank of Philadelphia.....	1803-20	Philadelphia	Hope, Scott, Grotjan
The Bank of Baltimore.....	1803-20	Baltimore	B. P. C.
The Bank of Maryland.....	1803-20	Baltimore	B. P. C.
Union Bank of Maryland.....	1804-20	Baltimore	B. P. C.
<i>Insurance Stocks</i>			
Columbian Insurance Co.....	1801-12	New York	N. Y. P. C. & N. Y. S. L.
Marine Insurance Co.....	1807-10	New York	N. Y. P. C. & N. Y. S. L.
New York Insurance Co.....	1799-1820	New York	N. Y. P. C. & N. Y. S. L.
United Insurance Co.....	1801-20	New York	N. Y. P. C. & N. Y. S. L.

TABLE 60. — *Continued*

Series	Period	Market	Source
<i>Insurance Stocks (continued)</i>			
Insurance Co. of Pennsylvania.....	1808-20	Philadelphia	Hope, Scott, Grotjan
Insurance Co. of North America.....	1808-20	Philadelphia	Hope, Scott, Grotjan
Phoenix Insurance Co.....	1812-15	Philadelphia	Hope, Scott, Grotjan
Baltimore Insurance Co.....	1803-20	Baltimore	B. P. C.
Maryland Insurance Co.....	1803-20	Baltimore	B. P. C.
<i>Bridge and Turnpike Shares</i>			
Delaware Bridge Co.....	1812-17	Philadelphia	Hope, Scott, Grotjan
Germantown Turnpike Co.....	1812-17	Philadelphia	Hope, Scott, Grotjan
Lancaster Turnpike Co.....	1812-17	Philadelphia	Hope, Scott, Grotjan
Schuylkill Bridge Co.....	1808-20	Philadelphia	Hope, Scott, Grotjan
Fredericktown Road.....	1808-20	Baltimore	B. P. C.
<i>Miscellaneous</i>			
New York Manufacturing Co.....	1813-17	New York	N. Y. P. C. & N. Y. S. L.
Water Loan.....	1812-14	Philadelphia	Hope, Scott, Grotjan
Water Company.....	1805-20	Baltimore	B. P. C.

¹ This list does not give all of the stock-price series that are available, nor does it indicate in every case the entire period for which the quotations are available. It is a list of the series that were transcribed. These items are given in the table in order that the record may show the extent to which stock-price quotations were given in the public press.

² The abbreviations used above have the following meaning: N.Y.P.C. is the *New York Price Current* (up to 1815); N.Y.S.L. the *New York Shipping and Commercial List* (1815 ff.); Hope is *Hope's Philadelphia Price-Current* (to 1813); Scott is *Scott's Philadelphia Price-Current* (1813); and Grotjan is *Grotjan's Public-Sale Report* (1813 ff.); and B.P.C. is the *Baltimore Price Current*.

TABLE 61. — INDEX OF BANK-STOCK PRICES: MONTHLY, 1802-20¹
(Base: 1802)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1802.....	97	98	98	98	99	99	99	100	101	102	104	104
1803.....	103	101	100	99	93	94	94	94	93	94	95	94
1804.....	93	92	92	91	91	92	91	91	90	90	91	90
1805.....	89	89	90	89	88	87	85	85	85	84	85	86
1806.....	85	86	87	87	87	88	89	89	90	90	90	90
1807.....	90	89	89	88	89	90	90	91	92	92	92	94
1808.....	86	87	87	88	89	90	90	91	92	92	92	94
1809.....	93	93	93	93	93	95	94	94	94	94	95	95
1810.....	94	94	92	93	93	94	94	94	94	94	94	93
1811.....	92	92	92	92	93	93	91	89	89	86	86	86
1812.....	85	85	86	85	85	85	83	83	86	86	88	89
1813.....	89	90	90	89	90	89	89	89	89	89	89	90
1814.....	87	87	88	85	85	86	85	84	81	79	76	75
1815.....	76	78	85	84	83	83	84	84	83	83	80	80
1816.....	79	80	80	77	78	78	76	76	76	76	76	78
1817.....	77	78	78	79	80	81	81	83	86	87	87	87
1818.....	87	87	88	87	87	88	87	88	88	87	85	84
1819.....	84	84	84	83	81	80	77	78	79	77	78	79
1820.....	79	80	79	79	78	80	78	79	80	80	79	79

¹ For series used in the construction of this index, see items marked with an asterisk in Table 60.

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STOCK-PRICE INDICES, 1815-62.

Data and their sources: For the period before 1853, most of the quotations of stock prices were transcribed from newspapers, while after 1852 the greater part of the data was found in the *Bankers' Magazine*. The accompanying list gives the stocks for which quotations were copied, the period covered, and the markets.

Construction of indices: There are two main di-

visions in the construction of the stock-price indices. The first concerns the so-called "bank-stock index." It covers the years 1815-45 and was constructed from quotations of six bank stocks and one insurance stock. (The names of these stocks are marked by a double dagger in Table 63.) A simple aggregative index was found and relatives were derived based on the average monthly value for the period 1834-42.

TABLE 62. — INDEX OF BANK- AND INSURANCE-STOCK PRICES: MONTHLY, 1815-45¹

(Base: 1834-42)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1815.....	...	100	100	98	97	98	98	99	99	100	96	95
1816.....	95	95	96	94	92	92	89	88	88	89	90	90
1817.....	91	90	94	94	93	96	96	99	101	104	103	101
1818.....	103	102	104	103	102	105	104	104	104	104	99	98
1819.....	99	98	98	97	92	91	87	90	89	88	89	89
1820.....	90	92	90	92	90	94	93	94	97	97	97	98
1821.....	98	99	101	102	102	104	105	105	105	105	106	104
1822.....	104	105	106	104	100	100	99	98	99	99	98	99
1823.....	96	97	96	96	96	96	96	97	98	99	98	99
1824.....	99	101	102	102	103	105	102	103	104	105	105	104
1825.....	105	105	104	105	104	104	102	102	100	101	100	98
1826.....	98	98	100	100	99	100	96	96	95	97	97	98
1827.....	97	97	98	97	97	98	97	97	99	99	97	95
1828.....	94	94	95	95	95	95	94	93	94	94	94	95
1829.....	93	94	94	93	92	90	90	93	93	92	93	94
1830.....	98	97	97	98	97	98	99	99	100	101	100	101
1831.....	100	102	103	102	103	105	107	105	104	105	103	104
1832.....	104	105	105	106	104	107	106	106	106	109	110	109
1833.....	108	107	108	109	110	110	109	110	108	111	108	108
1834.....	104	100	102	106	107	106	106	107	110	111	112	112
1835.....	111	109	113	113	115	116	114	116	113	113	111	112
1836.....	110	113	114	113	111	109	113	112	112	112	110	111
1837.....	113	112	109	97	83	84	93	97	98	97	101	103
1838.....	103	102	103	100	102	104	106	107	107	108	109	109
1839.....	108	106	104	104	105	106	102	100	97	91	91	94
1840.....	96	94	92	91	94	96	97	98	98	99	98	98
1841.....	95	95	90	90	93	93	94	92	92	90	87	83
1842.....	79	79	77	75	78	79	77	75	75	77	77	77
1843.....	77	82	82	84	90	91	91	92	92	93	93	97
1844.....	94	95	97	97	96	97	96	97	98	98	96	95
1845.....	95	96	98	97	96	98	97	97	98	99	98	97

¹ For list of stocks used in constructing this index see items marked with a double dagger in Table 63, below.

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TABLE 63.—SERIES OF STOCK PRICES TRANSCRIBED, 1815-66

‡ Series used in the Bank and Insurance Stock Index, 1815-45.

* Stocks from which were chosen the series for Railroad Index I, 1834-53.

† Stocks from which were chosen the series for Railroad Indices IIa, IIb, and IIc.

Whole list of railroad stocks used for the All-inclusive Railroad Index.

Name of Company	Period Covered	Market
<i>Bank Stocks</i>		
Bank of America.....	Feb. 1815-Dec. 1845	New York
Bank of Baltimore.....	Jan. 1830-Dec. 1853	Baltimore
†Bank of the Manhattan Company.....	Feb. 1815-April 1852	New York
†Bank of New York.....	Feb. 1815-Dec. 1845	New York
Chemical Bank.....	Aug. 1824-Dec. 1840	New York
†City Bank.....	Feb. 1815-Dec. 1845	New York
Dry Dock Bank.....	June 1825-Dec. 1840	New York
Farmers' Loan & Trust Company.....	July 1822-Dec. 1840	New York
Franklin Bank.....	July 1818-June 1828	New York
Girards Bank.....	Aug. 1832-June 1859	Philadelphia
†Mechanics Bank.....	Feb. 1815-Dec. 1845	New York
†Merchants Bank.....	Feb. 1815-Dec. 1845	New York
North River Bank.....	Oct. 1821-Dec. 1840	New York
Phenix Bank.....	July 1817-Dec. 1845	New York
Tradesmens Bank.....	May 1823-Dec. 1840	New York
†Union Bank.....	Feb. 1815-Dec. 1845	New York
United States Bank.....	Aug. 1817-April 1845	New York and Philadelphia
<i>Canal Stocks</i>		
Chesapeake & Delaware.....	Feb. 1844-July 1853	Philadelphia
Delaware & Hudson.....	Jan. 1830-Dec. 1866	New York
Lehigh Coal & Navigation.....	Jan. 1825-Dec. 1860	Philadelphia
Morris Canal & Banking.....	May 1825-Dec. 1854	New York
Schuylkill Navigation.....	Jan. 1825-Dec. 1860	Philadelphia
<i>Gas-Light Stocks</i>		
Baltimore Gas.....	Jan. 1830-Dec. 1853	Baltimore
Manhattan Gas Light.....	May 1833-Dec. 1850	New York
New York Gas Light.....	Jan. 1825-Dec. 1845	New York
<i>Insurance Stocks</i>		
Aetna Fire.....	Aug. 1824-Dec. 1841	New York
American Marine.....	Feb. 1815-Feb. 1844	New York
Atlantic Marine.....	Mar. 1824-Dec. 1840	New York
Chatham Fire.....	April 1823-Oct. 1829	New York
Eagle Fire.....	Feb. 1815-Dec. 1840	New York
Equitable.....	Sept. 1823-Dec. 1841	New York
Franklin Fire.....	May 1818-Dec. 1835	New York
Fulton Fire.....	Aug. 1819-Sept. 1833	New York
Globe Fire.....	Feb. 1815-Dec. 1835	New York
Life Insurance & Trust.....	Jan. 1831-Oct. 1836	New York
Mercantile.....	May 1818-Nov. 1827	New York
Merchants Fire.....	Aug. 1819-Dec. 1840	New York
Mutual Fire.....	Feb. 1815-Dec. 1840	New York
National Marine.....	April 1817-Nov. 1835	New York
Neptune.....	May 1825-Dec. 1840	New York
†New York Marine.....	Feb. 1815-Nov. 1845	New York
Ocean Marine.....	Feb. 1815-April 1843	New York
Union Marine.....	May 1818-Dec. 1840	New York
Washington Fire.....	Feb. 1815-Dec. 1835	New York

TABLE 63. — *Continued*

Name of Company	Period Covered	Market
<i>Railroad Stocks</i>		
*†Baltimore & Ohio	Mar. 1830-Dec. 1849 Jan. 1850-Aug. 1855 Sept. 1855-Dec. 1866	Baltimore Baltimore and New York Baltimore
*†Boston & Lowell	Jan. 1836-Dec. 1866	Boston
*†Boston & Providence	Jan. 1832-Dec. 1852 Jan. 1853-Dec. 1866	Boston Boston and New York
*†Boston & Worcester	Nov. 1833-Dec. 1866	Boston
*†Camden & Amboy	May 1833-Dec. 1837 Jan. 1838-Dec. 1866	New York Philadelphia
†Chicago & Rock Island	Jan. 1855-Dec. 1866	New York
†Chicago, Burlington & Quincy	Jan. 1858-Dec. 1866	New York
†Cleveland & Toledo	Jan. 1854-Dec. 1866	New York
*†Eastern of Massachusetts	June 1838-Dec. 1852 Jan. 1853-Dec. 1866	Boston Boston and New York
*†Hudson River	Jan. 1848-Dec. 1866	New York
†Illinois Central	April 1853-Dec. 1866	New York
*Long Island	June 1835-April 1857	New York
†Michigan Central	Jan. 1851-Dec. 1866	New York
†Michigan Southern	Jan. 1852-Dec. 1866	New York
*Mohawk & Hudson	Oct. 1830-April 1851	New York
*†New York & Erie	Nov. 1843-Dec. 1866	New York
*†New York & Harlem	July 1831-April 1864	New York
New York & New Haven	Dec. 1847-July 1854	New York
†New York Central	July 1853-Dec. 1866	New York
*Norwich & Worcester	Sept. 1843-Dec. 1856	New York
†Panama	Jan. 1853-Dec. 1866	New York
*Paterson	Mar. 1831-Aug. 1849	New York
*†Philadelphia & Reading	Jan. 1839-Dec. 1843 Jan. 1844-Dec. 1866	Philadelphia New York
*†Philadelphia, Wilmington & Baltimore	Oct. 1839-Dec. 1844 Jan. 1845-Dec. 1845 Jan. 1846-Sept. 1850 Oct. 1850-Dec. 1866	Philadelphia Boston Philadelphia Boston
*Providence & Stonington	April 1833-Dec. 1856	New York
*Utica & Schenectady	Aug. 1833-June 1853	New York
*†Western of Massachusetts	Aug. 1838-Dec. 1866	Boston
<i>Miscellaneous Stocks</i>		
Canton Company	April 1835-Dec. 1866	New York
Cumberland Coal	Jan. 1853-Dec. 1866	New York
Merchants Exchange	April 1826-Dec. 1845	New York
New York & Schuylkill Coal	Jan. 1830-Dec. 1835	New York
Pennsylvania Coal	July 1852-Nov. 1866	New York
Union Manufacturing	Jan. 1830-Oct. 1853	New York and Baltimore
<i>Boston Bank Stocks</i>		
Atlantic Bank	June 1834-Dec. 1843	Boston
Bank of Boston	Mar. 1815-Dec. 1824	Boston
City Bank	Sept. 1823-Dec. 1824 Jan. 1834-Dec. 1843	Boston Boston
Columbia Bank	Sept. 1823-Dec. 1824	Boston
Eagle Bank	Sept. 1823-Dec. 1824	Boston
Globe Bank	Mar. 1834-Sept. 1843	Boston
Manufacturers & Mechanics Bank	May 1815-Dec. 1824	Boston
Market Bank	June 1834-Nov. 1843	Boston

TABLE 63. — *Continued*

Name of Company	Period Covered	Market
<i>Boston Bank Stocks (continued)</i>		
Massachusetts Bank.....	Mar. 1815–Dec. 1824	Boston
	June 1834–Dec. 1843	Boston
Merchants Bank.....	Mar. 1834–Dec. 1843	Boston
New England Bank.....	Mar. 1815–Dec. 1824	Boston
State Bank.....	Jan. 1816–Dec. 1824	Boston
	Jan. 1834–Dec. 1843	Boston
Suffolk Bank.....	Jan. 1819–Dec. 1824	Boston
Traders Bank.....	June 1834–Nov. 1843	Boston
Tremont Bank.....	June 1834–Oct. 1843	Boston
Union Bank.....	Mar. 1815–Dec. 1824	Boston
Washington Bank.....	June 1834–July 1843	Boston

Sources:

Baltimore:	<i>The Baltimore Patriot.</i>
Boston:	<i>The Boston Daily Advertiser</i> , with the <i>Boston Transcript</i> and the <i>Boston Commercial Gazette.</i>
New York: 1815–52	<i>The New York Shipping & Commercial List</i> , with the <i>New York Tribune</i> and <i>New York Herald</i> ;
1853–66	<i>Bankers' Magazine</i> , with the <i>American Railway Journal</i> and <i>Hunt's Merchants' Magazine.</i>
Philadelphia:	<i>The Daily National Gazette</i> , with the <i>Philadelphia Gazette</i> , <i>Daily Chronicle</i> , <i>Philadelphia Commercial List</i> , and the <i>North American & United States Gazette.</i>

The second part, relating mainly to railroad-stock prices from 1834 to 1862, involved more complicated procedure. After a study of the individual charts, the first conclusion was the desirability of breaking the period into two sections for separate consideration, making the break at the year 1853. For this conclusion there were three reasons: (1) only very fragmentary data could be secured for the stocks of western railroads prior to 1853, but thereafter such securities were well represented on the list of available series; (2) the stocks of a number of eastern roads were inflexible in their price fluctuations prior to 1853, so that the quotations for such securities in this period were of little value in constructing an index designed particularly to picture speculative tendencies — although after 1853 several of these series exhibited clearcut cyclical movements; and (3) in so far as any general or typical speculative movements appeared in the price fluctuations of the various stocks up to 1853, these tendencies were shared by all of the securities except such as exhibited individualistic or erratic fluctuations; while after 1853 the available series very clearly could be divided into two distinct groups, the constituents of which behaved quite differently, especially during the years 1853–61.

SELECTED LIST: RAILROAD-STOCK INDEX I, 1834–53.

After discarding certain fragmentary data,¹ it was

possible to compile a list of 18 stocks for which monthly prices had been secured for all or part of the period 1834–53. (The names of these stocks have been marked with an asterisk in Table 63 above.)

A detailed examination of the charts of the monthly data for these 18 series indicated that certain of the stocks were clearly unsuited for inclusion in an index whose purpose was to measure *speculative* movements and, further, was to measure general or *typical* tendencies in such speculative movements. Six stocks were discarded for the reason that their fluctuations were highly inflexible or showed only slight or occasional response to speculative influences.² Furthermore, quotations for four securities were discarded in whole or in part for the reason that the fluctuations of such quotations were highly erratic and individualistic, and were quite obviously non-typical. In two of these four cases, the stocks were dropped from the list for the entire period in which they were available (up to 1853);³ and in the

¹ Quotations for New York & New Haven, for which data had been collected only over the short interval, December 1847 to July 1854; and the fragmentary figures available for western stocks prior to 1853, i.e., quotations for Michigan Central beginning January 1851, and for Michigan Southern beginning January 1852.

² Boston & Lowell, Boston & Providence, Boston & Worcester, Eastern of Massachusetts, Western of Massachusetts, Utica & Schenectady.

³ Norwich & Worcester and New York & Erie.

other two cases the stock quotations were discarded only in part.⁴

After inflexible and erratic quotations had been eliminated, there remained 10 stocks on the list of available securities. Among these 10 series there was considerable diversity as to short-time movements, and each series exhibited some individual irregularities and peculiarities. Furthermore, there were appreciable differences among the various stocks as to amplitude of fluctuation. On the other hand, however, there were certain general tendencies which were clearly apparent, and with reference to these (as well as to many of the short-time fluctuations) it is quite proper to speak of a typical movement among the 10 stocks: there was a moderate rise between 1834 and the earlier part of 1835; following this a very considerable but somewhat broken downward movement to a low point in 1842 or 1843; thereafter a sharp rise until the earlier months of 1844, followed by a slow and irregular upward tendency during the remainder of the period to 1853.

Although, as has been said, each of the 10 series showed some individual peculiarities and irregular deviations from the general tendency, nevertheless it appeared that the fluctuations of each series conformed closely enough to the typical movements described above to justify its inclusion in the index. The decision was, therefore, to base the index for 1834-53 upon these 10 series of stock prices. Some of the 10 series, however, extended over only a part of the period 1834-53; consequently, it was possible to form only 8 continuous series of price quotations, and even in these 8 cases there were some small gaps which had later to be filled by extrapolation.⁵

It will be observed that in two cases the continuous series was formed by "splicing" the prices for a pair of stocks. This practice of welding together fragmentary data is a statistical device which is probably in general one of questionable value. In the present case, however, the employment of this device seemed clearly justified by the paucity of

⁴ The quotations for Long Island, 1845-53, were excluded for the reason that such quotations fell very rapidly after 1844, at a time when the general movement was clearly upward. The prices for Philadelphia, Wilmington & Baltimore prior to 1844 were discarded for the reason that their fluctuations were much more violent than those shown by the other stocks. From these two series, one continuous series was formed by multiplying the quotations for Long Island by the ratio of the average price of Philadelphia, Wilmington & Baltimore to the average price of Long Island over the common period, January-December 1845. Similarly the two series for Paterson and for Hudson River were adjusted to form one series, using the overlapping year 1848.

⁵ See Table 8, page 48, and also footnote 9 on page 179.

available data and the consequent desire to take into account all of the usable evidence which could be obtained.

Another question regarding the selection of stocks to be included in the index deserves attention at this point. The procedure which was followed involved the use of discretionary judgment on the part of the persons making the selection — that is discretionary judgment in deciding just what the typical movement was and in deciding which stocks should be classified as "inflexible" or "erratic," and which should be classified as "typical."⁶ However, this question has been discussed above and need not be reconsidered here.⁷

In the present study, as has already been indicated, every attempt was made to secure a fair selection of data, uninfluenced by personal bias or preconceived ideas; and it is believed unlikely that another investigator, having in mind the same object, would have arrived at results essentially different from those which have been secured and which are presented in this book. Nevertheless, as a check upon these results, there was prepared an "all-inclusive" index number based upon *all* of the price quotations which had been collected for railroad stocks, and involving therefore no arbitrary selection of data from among the series for which figures were available. Later there will appear a description of

⁶ For example, it was perhaps open to question whether New York & Harlem should be included in the "typical" or the "erratic" group. On the whole, however, it seemed better to give this security the former classification; for its quotations showed the same general tendencies as did those for the other stocks included in the index, even though the amplitude of fluctuation for this particular stock was somewhat more extreme than that for the other securities. It was decided, however, that in order to prevent the extreme fluctuations of this stock from having undue influence at certain periods, its quotations should be excluded in the making of extrapolations for missing data. (See footnote 9 on page 179.)

A test computation carried out monthly for the entire period, 1834-53, showed that the exclusion of New York & Harlem would have brought about only very slight alterations in the index; in general even the month-to-month and other short-time movements of the index would have remained practically unchanged. One possible exception might be made to this latter statement: the index including New York & Harlem showed a slightly higher figure for February 1843 than for March 1842 (Chart 9); the index excluding New York & Harlem registered a slightly lower value in February 1843 than in March 1842. The practical conclusion to be drawn from this fact is that in the interpretation of the index no particular importance should be attached to the slight difference in the relative heights of the curve as between the two dates, but that rather these two points should be thought of as standing at approximately the same level.

⁷ See footnotes, 3 and 4 above.

the method by which this index was calculated, and a discussion of its validity and value.⁸

After a decision had been reached as to the series which were to be included, the index was computed by (1) averaging the 8 series month by month over the interval 1834-53, employing the unweighted geometric mean; and then (2) reducing these averages to relatives with the year 1853 as the base.⁹ The geometric mean was used as being in the present case theoretically preferable to the arithmetic mean or to an index of the aggregative type, for we were interested in the average percentage of change in prices over a period of time rather than in changes in the aggregate money cost of a given set of securities; however, had the arithmetic mean been used instead of the geometric, the index obtained would not have given an essentially different picture of the

⁸ See pp. 182, 183 below.

⁹ In the computation of the index it was necessary, owing to incomplete data, to extrapolate in three series in order to fill a gap — in each case covering a comparatively short interval of time. These extrapolations were made by assuming that had the stock in question been quoted during this interval, its price would have shown the same month-to-month percentage changes as were actually exhibited by the average (unweighted geometric) of the stocks (excluding New York & Harlem, as indicated in footnote 6, p. 178 above) for which actual quotations were available during the interval.

speculative movements occurring during the interval under examination.¹⁰ The index was unweighted, since there appeared to be no reasonable basis for determining the relative values of the various stocks as indicators of speculative conditions, and in any case it would have been difficult to secure data which were sufficiently accurate to serve as measures for precise weighting; furthermore, it does not appear likely that any reasonably chosen set of weights would have yielded an essentially different index, at least so far as the broad general movements were concerned.¹¹ The year 1853 was selected as base, since this year was the only time-interval common to both of these periods (1834-53 and 1853-66) into which our study had previously been divided; the index, however, can readily be shifted to any chosen base within the interval 1834-53, should such shift of base be desired.

The index for 1834-53, computed by the methods just described, has been designated as Index I, and is presented in Charts 9 and 38 and Tables 64 and 65.

¹⁰ The small number of series entering the index made the use of the median obviously impracticable.

¹¹ For a more extended discussion of the points considered in this paragraph, see "An Index of Industrial Stock Prices" by Edwin Frickey in the *Review of Economic Statistics*, Preliminary Volume III (1921), p. 273.

TABLE 64. — RAILROAD-STOCK-PRICE INDEX I: MONTHLY, 1834-45

(Base: 1834-42)¹

8 Selected Stocks

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1834.....	112	103	107	122	124	119	119	125	122	128	133	137
1835.....	146	143	155	160	182	179	176	181	173	166	152	145
1836.....	148	167	163	155	154	155	143	136	128	116	110	113
1837.....	131	130	113	101	93	87	106	101	100	103	104	99
1838.....	94	91	84	82	90	96	99	103	107	96	96	87
1839.....	94	100	94	94	97	91	85	82	79	73	67	70
1840.....	73	73	70	73	72	70	72	70	73	82	81	76
1841.....	72	72	63	67	72	70	73	73	66	66	66	63
1842.....	52	48	45	46	54	55	55	51	55	51	51	51
1843.....	49	48	49	51	60	67	66	69	70	69	75	87
1844.....	87	88	94	103	112	104	104	104	107	106	99	97
1845.....	94	103	101	100	101	93	94	93	93	96	104	103

¹ For index numbers on the base of average values for 1853, see *Review of Economic Statistics*, vol. 10 (1928), p. 129. The base, 1834-42, for the above index was obtained by dividing the index numbers as originally constructed on 1853 as a base by the average monthly index number for the years 1834-42. To put this index again on 1853 as a base, multiply each number by the coefficient 0.67.

For the list of stocks employed in this index, see Table 8, p. 48.

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TABLE 65. — RAILROAD-STOCK-PRICE INDEX I: MONTHLY, 1843-53

(Base: 1853)¹

8 Selected Stocks

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843.....	33	32	33	34	40	45	44	46	47	46	50	58
1844.....	58	59	63	69	75	70	70	70	72	71	66	65
1845.....	63	69	68	67	68	62	63	62	62	64	70	69
1846.....	66	70	74	66	69	72	71	72	69	68	67	67
1847.....	67	72	70	72	74	81	83	84	83	78	72	67
1848.....	68	72	71	71	69	69	67	66	66	64	63	67
1849.....	67	68	73	71	72	76	75	72	72	71	70	70
1850.....	71	72	75	72	76	80	77	80	79	88	87	91
1851.....	90	89	88	90	88	90	89	84	84	83	86	87
1852.....	86	87	90	93	95	97	100	103	104	107	107	110
1853.....	108	104	103	101	103	102	101	99	96	97	88	99

¹ For list of stocks employed in the construction of this index, see Table 8, p. 48 and footnote 4, p. 178.

SELECTED LISTS: RAILROAD-STOCK INDICES IIa, IIb,
IIc, 1853-62

The methods used in the construction of indices for the period 1853-62 follow very closely those employed for the period 1834-53. As before, certain fragmentary data were discarded¹² and then there was compiled a list of stocks for which monthly prices had been secured for all or a considerable part of the period under examination. There were 20 stocks on this list. (The names of these stocks are marked with a dagger in Table 63.) The next step was, as in the preceding case, a careful study of the charts of the monthly data to determine whether there were any series which should be dropped from the list because of inflexibility or of erratic behavior. This graphic examination led to the discarding of two stocks as inflexible;¹³ there were no eliminations, however, on the ground of erratic fluctuations.

The elimination of the two inflexible series reduced the list of stocks to 18. Examination of the charts of the monthly figures for these 18 series indicated that they might very definitely be divided into two groups exhibiting quite different tendencies over the interval 1853-61. It was decided, therefore, to compute separate indices for these two sets of stocks. These two groups were designated as Groups IIa and IIb, and the corresponding indices,

¹² Quotations for Utica & Schenectady, January 1853-June 1853; New York & New Haven, January 1853-July 1854; Norwich & Worcester, January 1853-December 1856; Providence & Stonington, January 1853-December 1856; Long Island, January 1853-April 1857.

¹³ Boston & Worcester and Western of Massachusetts.

originally constructed to cover 1853-66, will be referred to as Indices IIa and IIb, respectively.

While the differences among the short-time fluctuations of the various stocks (in each of the two groups) during the interval 1853-66 were not nearly so marked as such differences had been in 1834-53, it was nevertheless true that for each group the constituent series exhibited certain individual peculiarities and irregular deviations from the general or typical tendencies described above. Each of the individual series, however, conformed closely enough to the typical movements for one of the two groups to justify its inclusion in the index for that group.¹⁴

¹⁴ There were three stocks — New York & Harlem (entering Group IIa), and New York & Erie and Michigan Southern (entering Group IIb) — whose prices showed the same general movements as did those for the other securities included in their respective groups, but with a considerably wider range of variation. Following the practice employed in the construction of Index I (see footnote 9, p. 179), these three stocks were included in Index IIa or Index IIb, but were not used in the making of extrapolations for missing data.

Test computations showed that the exclusion of New York & Harlem from Index IIa would have had practically no effect upon that Index other than to reduce somewhat the amplitude of fluctuation. The exclusion of New York & Erie and Michigan Southern from Index IIb would have brought about little change in the Index except to raise the low point of 1859-60 to a level slightly above (instead of slightly below) that of the low points of 1857 and 1861 (cf. Chart 39). In view of this latter result, it would seem better not to attach any particular importance to the differences in the height of Index IIb at the minima of 1857, 1859-60, and 1861, but rather to think of these three low points as being at approximately the same level.

Index numbers were calculated for Groups IIa and IIb, 1853-66, following the methods which had previously been employed for Index I, 1834-53. That is, Indices IIa and IIb were computed monthly, 1853-66, each as an unweighted geometric mean of monthly prices, reduced to the base 1853 as 100. Furthermore, there was computed a combined index for the same interval, based upon the 18 series ob-

tained by consolidating the two lists of stocks which had entered Indices IIa and IIb, respectively. This combined index (designated as Index IIc) was also an unweighted geometric mean of monthly prices, reduced to the base 1853 as 100. In interpreting the movements of this combined index, it should be remembered that its fluctuations represent an average of two divergent sets of tendencies.

TABLE 66. — RAILROAD-STOCK-PRICE INDEX IIa: MONTHLY, 1853-62¹

(Base: 1853)

8 Selected Stocks

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1853.....	109	108	106	104	106	105	104	101	99	98	94	102
1854.....	96	96	98	96	94	95	88	81	74	75	71	64
1855.....	66	73	74	73	72	72	72	70	70	67	59	58
1856.....	58	58	61	61	62	58	60	57	55	54	54	55
1857.....	56	56	58	55	56	51	50	51	47	41	42	47
1858.....	46	48	58	57	61	61	59	61	60	62	66	67
1859.....	68	68	67	67	68	65	66	66	68	68	70	72
1860.....	71	72	72	76	80	82	83	86	87	93	86	77
1861.....	76	77	79	79	68	67	66	68	66	66	73	72
1862.....	73	74	76	74	78	81	83	82	88	98	105	104

¹ For the list of stocks used in constructing this index, see Table 30, p. 109.

TABLE 67. — RAILROAD-STOCK-PRICE INDEX IIb: MONTHLY, 1853-62¹

(Base: 1853)

10 Selected Stocks

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1853.....	113	107	108	106	108	107	105	95	91	90	81	88
1854.....	89	90	95	93	90	90	81	74	69	75	71	66
1855.....	65	71	73	75	76	78	84	83	84	82	71	76
1856.....	77	76	81	81	82	80	82	84	82	84	80	86
1857.....	86	85	84	80	77	71	62	69	51	33	38	47
1858.....	48	51	61	50	53	49	46	48	47	45	46	45
1859.....	44	42	42	38	36	33	32	33	34	33	31	33
1860.....	32	31	32	38	42	44	44	52	56	60	50	41
1861.....	43	48	48	48	36	36	36	37	38	39	44	41
1862.....	43	45	49	50	50	54	56	53	59	71	77	71

¹ For the list of stocks used in constructing this index, see Table 30, p. 109.

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TABLE 68. — RAILROAD-STOCK-PRICE INDEX IIc: MONTHLY, 1853-62

(Base: 1853)

18 Selected Stocks¹

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1853.....	110	106	106	104	105	105	103	97	93	92	86	93
1854.....	91	91	95	93	91	91	83	76	70	74	70	64
1855.....	65	71	73	73	73	74	78	76	76	74	65	67
1856.....	68	66	70	71	71	69	70	70	68	68	66	70
1857.....	70	70	70	67	66	61	56	60	49	36	39	46
1858.....	46	49	59	52	56	54	50	53	52	51	54	53
1859.....	53	51	51	48	47	44	44	44	46	45	44	46
1860.....	45	45	46	51	55	58	58	64	67	72	63	54
1861.....	54	59	59	59	47	47	46	48	48	48	54	52
1862.....	54	56	59	59	60	64	66	64	69	81	87	83

¹ Stocks included in Index IIa plus those in Index IIb (Table 30, p. 109).

THE ALL-INCLUSIVE INDEX, 1834-62.

As has been stated on an earlier page, the all-inclusive index was calculated as a check upon the selected list indices whose construction has just been described.¹⁵ In the computation of the all-inclusive index the desire was to secure a set of relative figures which were based upon *all* of the prices which had been collected for railroad stocks, and which involved therefore no arbitrary selection of data from among the available series.

An examination of these available series (Table 63) showed that the list of stocks for which monthly quotations had been obtained, 1834-66, changed at very frequent intervals; there were in all 26 such changes scattered throughout the period, due either to the introduction of a new stock or to the disappearance of quotations for a security previously listed. Consequently, it appeared that the only feasible procedure for the construction of an index which was to be based upon *all* of the available data was to secure a chain index. The methods by which this chain index was computed will be described in succeeding paragraphs.

The first step was to obtain link indices; that is, an index was found for each month, February 1834 to December 1866, compared with the *preceding month* in each case as base. In each month-to-month comparison, there were included all the stocks for which prices had been secured for both of the two months in question.

The unweighted geometric mean was employed in

¹⁵ See p. 178. As in the cases of Indices IIa and IIb, this index as originally constructed covered the years 1834-66.

the computation of these link indices. The reasons for the use of this type of average have been set forth on a preceding page, in connection with the discussion of the fixed-base indices. In the present case, however, there was an additional argument for the selection of the geometric, as opposed to the arithmetic, mean: if an unweighted arithmetic mean be employed in the construction of a chain index, this chain index will tend to show a definite upward bias; no such bias will appear if the unweighted geometric mean be used.

The next step in the calculation was to chain together the successive link indices. The first month of the period, January 1834, was provisionally taken as the base; that is, the chain index for January 1834 was taken as 100. Next, this chain index for January 1834 (100) was multiplied by the link index for February 1834 ÷ January 1834 (93.8), thus obtaining 93.8 as the chain index for February 1834. This index was in turn multiplied by the link index for March 1834 ÷ February 1834 (103.4) giving 97.0 as the chain index for March 1834; and so on, until monthly chain indices on the base January 1834 had been secured for the entire period, January 1834-December 1866. The final step was to shift the chain index to the base 1853, in order that it might be compared conveniently with the fixed-base indices previously calculated. The all-inclusive chain index which has been computed is presented neither as a desirable form of index number nor as being, necessarily, a reliable guide in the study of speculative movements during the period under examination. The reason for its calculation, as has been indicated, was the wish to obtain an index based upon a list of

stocks into whose selection, from among all of the data available, no discretionary judgment had entered, in order that this index might be compared with the indices, previously computed, based upon selected lists of securities.

In Charts 9 and 38, the all-inclusive chain-index number is compared, 1834-62, with selected list indices (Index I for 1834-52 and Index IIc for 1853-62). This comparison may be made with reference to (1) the short-time movements, (2) the general form of the longer speculative swings, and (3) the amplitude of fluctuation. With respect to (1) the short-time movements, and (2) the general form of the longer speculative swings, the all-inclusive index agrees very closely indeed with the selected list indices; there are few points of divergence, and these are of minor importance.¹⁶ When the two curves are compared with reference to (3) amplitude of fluctuation, it appears that there is almost perfect agreement during the interval 1853-62, but that during the years 1834-52 there is a moderate difference.¹⁷ This

¹⁶ The two indices differ as to the exact dating of the low point of 1842-43. This fact merely confirms the conclusion previously stated (see footnote 6, p. 178) that no particular importance should be attached to the slight difference in level between the low points of 1842 and 1843, shown by Index I.

¹⁷ From the high of 1835 to the low of 1842-43, the selected list on the base 1853 falls 92 points (from 122 to 30), while the

discrepancy is due to a circumstance to which allusion has already been made: that is, the presence, implicitly, of variable weighting in the all-inclusive index, such variable weighting being occasioned by the fluctuations in the proportion which the number of "inflexible" stocks included bore to the total number of stocks entering the index.¹⁸ In any event, however, the difference in amplitude of fluctuation of the two indices, 1834-52, is not a considerable one, nor does it affect in any material way the conclusions which one would form as to the nature of the speculative fluctuation occurring prior to 1853. The graphic comparison, then, indicates that — except for a moderate difference in amplitude of fluctuation during the earlier part of the period, which is ascribable to the defective weighting system implicit in the all-inclusive index — this index checks up very closely with the selected list Indices I and IIc.

all-inclusive index drops 76 points (from 121 to 45); from the trough of 1842-43 to the peak of 1852, the selected list index rises 80 points (from 30 to 110), while the all-inclusive index rises 65 points (from 45 to 110). In looking at Charts 9 and 38, the reader should note the fact that these charts are drawn on a logarithmic scale; otherwise, he will obtain an exaggerated impression as to the amount of the spread between the two curves prior to 1853. (See also Table 69, footnote 2.)

¹⁸ This proportion stood at approximately one-third in 1834-35, rose to almost one-half in 1838-39, and then fell gradually to about one-third for the years 1848-52 (Table 63).

TABLE 69. — ALL-INCLUSIVE INDEX OF RAILROAD-STOCK PRICES: MONTHLY, 1834-45¹

(Base: 1834-42)²

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1834.....	101	95	97	112	113	108	106	113	112	115	119	122
1835.....	128	126	135	140	155	153	151	154	146	142	131	127
1836.....	129	142	141	135	135	135	127	122	117	108	104	108
1837.....	118	118	108	99	95	91	104	100	100	103	103	99
1838.....	96	92	87	86	92	99	97	103	105	97	97	94
1839.....	99	104	99	100	103	99	95	92	90	86	81	83
1840.....	87	86	83	86	85	85	85	83	86	92	91	88
1841.....	86	85	78	81	85	85	86	85	81	79	81	77
1842.....	64	62	59	60	65	68	65	63	65	63	60	60
1843.....	58	60	60	60	69	74	73	76	77	76	81	92
1844.....	91	95	96	104	113	113	110	114	115	118	114	112
1845.....	106	115	114	113	115	110	110	108	109	112	118	123

¹ For list of stocks included in the construction of this index, see Table 63 above.

² The base 1834-42 for the above index was obtained by dividing the index numbers, originally constructed using 1853 as a base, by the average monthly index number for the years 1834-42. To put this index again on 1853 as a base, multiply each number by the coefficient 0.78.

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TABLE 70. — ALL-INCLUSIVE INDEX OF RAILROAD-STOCK PRICES: MONTHLY, 1843-62¹

(Base: 1853)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1843.....	45	47	47	47	54	58	57	59	60	59	63	72
1844.....	71	74	75	81	88	88	86	89	90	92	89	87
1845.....	83	90	89	88	90	86	86	84	85	87	92	96
1846.....	87	90	93	84	84	89	86	87	85	84	84	82
1847.....	82	87	86	87	89	95	96	97	95	91	86	83
1848.....	82	85	86	84	82	82	80	79	79	76	75	80
1849.....	80	80	83	81	83	85	84	81	81	80	80	80
1850.....	80	79	82	81	84	86	83	84	85	90	91	95
1851.....	94	95	94	96	95	96	93	87	88	89	91	92
1852.....	89	89	94	96	98	98	99	101	102	103	106	110
1853.....	105	104	103	102	105	104	103	98	96	95	89	96
1854.....	94	94	98	96	93	93	85	79	74	77	74	67
1855.....	67	74	76	76	76	77	80	79	78	75	66	68
1856.....	68	68	72	73	72	70	71	71	68	68	68	71
1857.....	71	71	71	68	68	63	58	61	52	39	42	49
1858.....	49	52	61	55	58	56	53	56	55	54	56	56
1859.....	56	54	54	51	50	47	47	48	49	48	47	50
1860.....	48	48	50	55	59	61	61	67	70	74	66	57
1861.....	58	62	62	63	50	50	50	51	51	52	58	56
1862.....	57	59	62	62	64	67	70	68	73	84	90	87

¹ For list of stocks included in this index, see Table 63 above.

THE INDICES FOR GEOGRAPHICAL GROUPS

The indices for the stocks of railroads situated in three geographical sections of the country (pp. 49-51 and pp. 112-14 above) were obtained by dividing the available series into three groups¹⁰ — New Eng-

¹⁰ There were, however, certain omissions. (1) Fragmentary quotations were, as before, eliminated. (2) Long Island, Norwich & Worcester, and Providence & Stonington were excluded. As already indicated, the first two moved erratically over the greater part of the period for which we have quotations. The third was eliminated with somewhat greater arbitrariness. By reason, apparently, of the New York connections of the Company, the railroad lying between the terminus of New York boats at Stonington, Connecticut, and the City of Providence, the course of the stock differed markedly from that typical of the New England securities as a whole. (3) Utica & Schenectady was omitted from the central-Atlantic group, for the reason that this stock (unlike the other constituent stocks falling in this geographical classification) showed very little price variation, and its inclusion would therefore have had no effect other than to reduce somewhat the range of fluctuation of the group index (see p. 177 above). (4) Three stocks — New York & Harlem, New York & Erie, and Michigan Southern — which in whole or in part had been included in Indices I, IIa or IIb, and IIc were excluded in the computation of the geographical group indices. The reason for this exclusion was that these

land, central-Atlantic, and western — and then for these groups computing indices following the methods previously employed for Indices I, IIa, IIb, and IIc.

It should be pointed out that the index for the New England group, during the first four and one-half years for which it was computed, is based upon quite scanty data; the group comprises only two stocks during 1834-35 and only three stocks from January 1836 to the middle of 1838. Attention should also be called to the fact that the index for the western group is based upon rather fragmentary and incomplete data during the year 1853. Such deficiencies in data should be kept in mind in interpreting the movements of these two indices in the periods mentioned. (For a diagram of the movements of the three indices, see Charts 11 and 40.)

securities, as has been previously pointed out (footnote 14, p. 180, and footnote 6, p. 178), showed fluctuations which were very violent and of considerable amplitude; and it was feared that in an index based upon a small number of series (such as these geographical group indices) the violent price fluctuation of these three stocks would have too great an influence, and would perhaps distort the movements of the indices at certain points.

APPENDIX E

MONTHLY FINANCIAL DATA, 1795-1862; AND MONTHLY GOLD SHIPMENTS FROM CALIFORNIA, 1849-62.

DATA ON NEW YORK CITY BANKS

These data are complicated by the variety of sources from which they have been derived and also by variations of descriptions, the exact meaning of which is sometimes uncertain.

The material relating to clearings alone is simple. These figures were compiled by the New York Clearing House after its establishment in 1853, and were published on a weekly basis in the *Bankers' Magazine* for the period 1853-56 and in the Tuesday issues of the *New York Tribune* from 1856 on. There is nothing to indicate that they do not form a homogeneous series.

The data on the condition of the New York City banking institutions are ultimately of two sorts — those on a quarterly and those on a weekly basis. The former, as suggested above, extend on a fairly regular basis from 1843 to the Civil War. They are procurable from the annual reports of the New York State Bank Commissioners, although at times — especially to secure a differentiation of New York City banks from the aggregate of New York State banking institutions — it is necessary to have recourse to the statements of the New York City banks which were published in a fairly detailed form in *Hunt's Merchants' Magazine* or the *Bankers' Magazine*. The weekly data, on the other hand, became available only in the middle of 1853. Thereafter they are published sometimes in *Hunt's* and sometimes in *Bankers' Magazine*; while a transcription of certain of these series through August 1858 is to be located in J. S. Gibbons' *The Banks of New York and the Panic of 1857* (1858), pp. 330-36.

One major problem in connection with these data, especially as regards the quarterly series, was to obtain consistent, homogeneous material. The classifications employed by the Bank Commissioners were not always uniform from year to year, either with respect to loans and discounts or with respect to deposits. In the former case, the item "loans to brokers and directors" was sometimes included and sometimes not. In the latter, the situation was complicated by changing nomenclature and by the existence of a breakdown of "total deposits" into the subheadings of "due depositors," "due banks," and "due" the State and Federal Governments and the Canal Fund. Again, sometimes the report for a given quarterly interval was entirely lacking in the State Documents, and in *Hunt's* and *Bankers'* was

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given in a form insufficiently detailed to be of use; and the appropriate figures had to be constructed from the returns of the individual banks of the City; while after all research had failed to produce acceptable data, reliance was occasionally necessary on judicious interpolation. In the end, however, fairly adequate data were secured, and the more satisfactory among the quarterly series, i.e., "total loans" and "due depositors," were employed in the statistical treatment the results of which are presented in Chart 41.

Another major problem pertained to the relationship of the weekly data to the quarterly. Here the identification of the two "deposits" series of weekly material proved simple. The data on "total deposits" there presented followed closely the course of "total deposits" as revealed in the quarterly material — "total deposits" in the latter being made up of the sum of "due depositors" plus "due banks;" while the curve of weekly "actual deposits" — sometimes called "net deposits" and sometimes merely "deposits" — approximated that of "due depositors" derived from the quarterly figures. Only in the periods before the middle of 1854, and from January 1858 through the middle of 1859 are there significant variations in the two latter curves.

In the first instance, acceptance of the Clearing House figures for "actual" or "net" deposits as equivalent to sums "due depositors" would give by implication a decline in this element precipitous in quality at a time when external evidence fails to yield corroboration. It was decided to give little weight to the deposit data of this period.

As to the second case, the situation is as follows: — with the commencement of 1858, the Clearing House began to report "actual" or "net" deposits as "total deposits" minus "average clearings;" and in this eighteen-month interval, the data derived from the Clearing House show a rise and fall of somewhat greater magnitude than that presented by the "due depositors" data of the quarterly reports.

With respect to the weekly series on loans and discounts, the picture corresponds in some ways with the first dubious situation regarding deposits. Unquestionably from 1855 onward the figures are identifiable as "total loans and discounts" minus "loans to brokers and directors." For the earlier eighteen-month interval — the middle of 1853 through 1854 — there is conflicting evidence. Possibly these weekly data represent "total loans" and not what

may be called "net loans." In consequence of such doubt, here as in the case of deposits, too great weight ought not to be given the data for this first eighteen-month period.

As a result of research regarding these weekly data, it seemed satisfactory to employ the figures as reported by the Clearing House. Here the curves presented in Chart 45 may be identified as "net

loans" (as contrasted with "total loans" on Chart 41) and as "actual deposits" (which do not differ widely from "due depositors," the series employed in the earlier chart based on the quarterly data). As "net loans" and "total loans" moved together, there is no real loss in shifting from one series to the other; and, accordingly, the data for Charts 41 and 45 are fairly comparable with one another.

TABLE 73. — PRICES OF 60-DAY BILLS ON LONDON AT BOSTON AND NEW YORK: MONTHLY, 1795-62

The rates given below for the years 1795-1824 are drawn from the *Boston Price-Current and Marine Intelligencer*, *Russell's Gazette*, and the *Boston Gazette* for the quotation on the nearest day available to the middle of the month; for 1825-52, from *Bankers' Magazine*, v. 6 (1851-52), pp. 599-600, for the quotation at the time of the first packet each month; for 1853-61, from J. G. Martin's *History of the Boston Stock Market* (1898 ed.), pp. 22-28 and 51, for the quotation "on or about the first of the month;" and for 1862 from Martin also but referring to the high and the low for each month.

These quotations are in terms of per cent premium (advance) or discount on nominal par of \$4.44 4/9 per pound sterling. After May 1834, real par was 109.75, which made the pound sterling equivalent to \$4.8665. For an explanation of nominal par, see J. Q. Adams' *Report on Weights and Measures* (1821), p. 145.

(Per cent of nominal par)

	1795	1796	1797	1798
January.....		5½-6 dis	4-6 dis	3-4 dis
February.....		5-6 dis	2-3 dis	1-2 dis
March.....		3-4 dis	1-2½ ad	1 dis-par
April.....		5-5½ dis	1-2½ ad	1 dis-par
May.....		4-5 dis	3-4 ad	1 dis-par
June.....		1-2 dis	3-3½ ad	par
July.....		1-2 ad	2½-3 ad	1-2 dis
August.....		1 dis-par	1 dis-par	1-2 dis
September.....	par	2-2½ dis	2-2½ dis	3 dis
October.....	par	1 dis-par	2-2½ dis	3-5 dis
November.....	½ dis	par	2-2½ dis	3-5 dis
December.....	1½-2 dis	4 dis	2-3 dis	3-5 dis

	1799	1800	1801	1802
January.....	4-5 dis	2½-3 dis	1-2½ dis	3 dis
February.....	5 dis	1 dis	3 dis	2-3 dis
March.....	5-6 dis	2 dis	6-6½ dis	2½ dis
April.....	5-6 dis	2½ ad	2-2½ dis	2 dis
May.....	6-7½ dis	2 ad	½-1 dis	1-1½ dis
June.....	7-7½ dis	2½ ad	3½-4½ dis	1½-2 dis
July.....	9½ dis	2½-3 ad	4½-5 dis	1 dis-par
August.....	10 dis	par-1 ad	4-4½ dis	1 dis-par
September.....	10 dis	par	1 dis	1 dis-par
October.....	6-7 dis	1-2 ad	1½-2½ dis	1 dis-par
November.....	6-7 dis	2-2½ ad	3-4 dis	par
December.....	7-7½ dis	par-1 ad	1-2½ dis	½-1 ad

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TABLE 73. — *Continued*

	1803	1804	1805	1806
January.....	1 - 1½ ad	2½-3 ad	½-1 dis	2½-3 dis
February.....	1 ad	2 - 2½ ad	½ dis - par	1½-2½ dis
March.....	1 ad	2 - 2½ ad	1 dis - par	1½-2 dis
April.....	1½-2 ad	3 ad	1 - 1½ dis	½ ad
May.....	2 ad	1 ad	1½-2½ dis	1 ad
June.....	3 - 3½ ad	par	3½-4 dis	½ ad
July.....	1 ad	par- ½ ad	5 - 6 dis	½-1 dis
August.....	1½-2 ad	par- ½ ad	5½-6½ dis	1½-2½ dis
September.....	2 ad	par- ½ ad	5 dis	½-1 dis
October.....	½ ad	2½-3 ad	1 dis	1 dis
November.....	4 - 4½ ad	2 - 2½ ad	1½-2 dis	½-1 dis
December.....	4 ad	½ dis	3½-4 dis	2½ dis

	1807	1808	1809	1810
January.....	1 - 1½ dis	4 - 4½ ad	9½-10 ad	3½-4 dis
February.....	½ dis-par	3 ad	7 - 7½ ad	3 - 3½ dis
March.....	½ dis-par	3½ ad	1½-2 ad	2½-3 dis
April.....	1½ dis	4½-5 ad	3 ad	3½-4 dis
May.....	2½-3½ dis	6 - 6½ ad	par - ½ ad	3 dis
June.....	2½-3½ dis	5½-6 ad	par - ½ ad	2½-3 dis
July.....	3½-4 dis	6 ad	1 - 1½ ad	4½ dis
August.....	3½-4 dis	5 - 6 ad	2 - 2½ ad	5 - 5½ dis
September.....	4 - 5 dis	5 ad	1 - 1½ ad	5½-6 dis
October.....	2½-3 dis	4 - 4½ ad	1 ad	6¼-6¾ dis
November.....	1 - 1½ dis	5 ad	par	7 - 7½ dis
December.....	½ dis-par	8 ad	1 - 1½ dis	7½-8 dis

	1811	1812	1813	1814
January.....	8 - 9 dis	17¼-17½ dis	17½-18 dis	3½-4 dis
February.....	10 dis	16½-17 dis	17¾-18 dis	8 dis
March.....	11½-12 dis	17 - 18 dis	16½-17 dis	10½-11 dis
April.....	10 - 10½ dis	21 - 21½ dis	16½-16¾ dis	5½-6 dis
May.....	11 - 11½ dis	19 - 19½ dis	16 dis	10 - 10½ dis
June.....	13½-14 dis	20 - 21 dis	15½ dis	12½-13 dis
July.....	15½-16 dis	24½-25 dis	14¼-14½ dis	12½-13 dis
August.....	20 - 21 dis	21 - 22 dis	15 dis	12¼-12¾ dis
September.....	22 - 23 dis	21½-22½ dis	14¼-14½ dis	12 - 12½ dis
October.....	18 dis	14½-15 dis	14¼-14½ dis	15 dis
November.....	17 - 17½ dis	14½-15½ dis	14 dis	15 - 16 dis
December.....	17½-18 dis	18 - 19 dis	12½-12¾ dis	13 dis

APPENDIX E

TALBE 73. — Continued

	1815	1816	1817	1818
January.....	.....	2 dis	$\frac{1}{4}$ ad	$2\frac{1}{4}$ ad
February.....	16 - 17 dis	$\frac{1}{2}$ ad	$\frac{1}{2}$ dis-par	2 ad
March.....	8 - 9 dis	$2\frac{1}{2}$ ad	$\frac{1}{2}$ -1 ad	par - $\frac{1}{2}$ ad
April.....	$7\frac{1}{2}$ dis	$3\frac{1}{2}$ ad	4 ad	$\frac{1}{2}$ - $\frac{3}{4}$ ad
May.....	$6\frac{1}{2}$ - $6\frac{3}{4}$ dis	$2\frac{1}{2}$ dis	1 - $1\frac{1}{2}$ ad	$\frac{1}{2}$ -1 dis
June.....	6 dis	2 - $2\frac{1}{2}$ dis	$1\frac{1}{4}$ - $1\frac{1}{2}$ ad	$\frac{1}{2}$ dis
July.....	12 - $12\frac{1}{2}$ dis	$\frac{1}{2}$ dis	$1\frac{3}{4}$ -2 ad	$\frac{1}{4}$ dis-par
August.....	$7\frac{1}{2}$ - 8 dis	$\frac{1}{2}$ ad	$\frac{1}{2}$ -1 ad	$\frac{1}{4}$ dis-par
September.....	$1\frac{1}{2}$ - 2 dis	$4\frac{1}{2}$ ad	3 - $3\frac{1}{4}$ ad	par - $\frac{1}{2}$ ad
October.....	$2\frac{1}{4}$ - $2\frac{1}{2}$ dis	4 - $4\frac{1}{2}$ ad	$2\frac{1}{2}$ ad	$\frac{1}{2}$ - $\frac{3}{4}$ ad
November.....	4 - 5 dis	$4\frac{1}{2}$ -5 ad	$1\frac{1}{4}$ - $1\frac{3}{4}$ ad	1 dis
December.....	3 dis	$2\frac{1}{2}$ ad	$1\frac{1}{2}$ - $1\frac{3}{4}$ ad	2 - $2\frac{1}{4}$ dis

	1819	1820	1821	1822
January.....	$1\frac{1}{2}$ dis	1 ad	$3\frac{1}{2}$ ad	$11\frac{1}{4}$ - $11\frac{1}{2}$ ad
February.....	1 dis	1 ad	$4\frac{1}{4}$ - $4\frac{3}{4}$ ad	13 - $13\frac{1}{2}$ ad
March.....	$\frac{1}{2}$ -1 dis	$\frac{1}{2}$ - $\frac{3}{4}$ ad	$5\frac{1}{2}$ - $5\frac{3}{4}$ ad	12 ad
April.....	$\frac{1}{2}$ dis-par	$\frac{1}{2}$ dis-par	7 - $7\frac{1}{2}$ ad	$12\frac{1}{2}$ -13 ad
May.....	$1\frac{1}{2}$ ad	$\frac{1}{2}$ -1 dis	$7\frac{1}{2}$ - $7\frac{3}{4}$ ad	11 - $11\frac{1}{2}$ ad
June.....	par	par	$8\frac{3}{4}$ -9 ad	8 ad
July.....	$\frac{1}{2}$ dis-par	1 - $1\frac{1}{4}$ ad	$8\frac{1}{4}$ ad	$9\frac{1}{2}$ ad
August.....	$2\frac{1}{2}$ ad	$1\frac{1}{2}$ -2 dis	$8\frac{1}{2}$ -9 ad	$10\frac{1}{2}$ - $10\frac{3}{4}$ ad
September.....	$2\frac{1}{4}$ - $2\frac{1}{2}$ ad	$2\frac{1}{2}$ ad	$8\frac{1}{2}$ -9 ad	11 - $11\frac{1}{4}$ ad
October.....	2 ad	2 - $2\frac{1}{4}$ ad	$9\frac{1}{2}$ - $9\frac{3}{4}$ ad	12 ad
November.....	$1\frac{1}{2}$ -2 ad	$2\frac{1}{2}$ ad	10 ad	$12\frac{1}{2}$ ad
December.....	$1\frac{3}{4}$ -2 ad	3 - $3\frac{1}{4}$ ad	$12\frac{1}{4}$ - $12\frac{3}{4}$ ad	12 - $12\frac{1}{4}$ ad

	1823	1824	1825	1826
January.....	$11\frac{1}{2}$ -12 ad	$7\frac{1}{2}$ ad	$9\frac{1}{2}$ ad	$8\frac{1}{2}$ ad
February.....	$9\frac{1}{2}$ -10 ad	$8\frac{1}{2}$ ad	10 ad	$8\frac{1}{2}$ ad
March.....	.....*	$9\frac{1}{4}$ ad	$9\frac{1}{4}$ ad	8 ad
April.....	$5\frac{1}{2}$ -6 ad	9 ad	$9\frac{1}{2}$ ad	$7\frac{1}{2}$ ad
May.....	$4\frac{1}{4}$ -5 ad	$8\frac{3}{4}$ -9 ad	8 ad	10 ad
June.....	$5\frac{1}{2}$ -6 ad	$9\frac{1}{2}$ ad	5 ad	$9\frac{1}{2}$ ad
July.....	$6\frac{1}{4}$ - $6\frac{1}{2}$ ad	9 ad	$5\frac{3}{4}$ ad	$10\frac{1}{4}$ ad
August.....	7 ad	$8\frac{1}{2}$ - $8\frac{3}{4}$ ad	5 ad	10 ad
September.....	$6\frac{1}{4}$ ad	$9\frac{1}{4}$ ad	$7\frac{3}{4}$ ad	11 ad
October.....	$7\frac{1}{2}$ - $7\frac{3}{4}$ ad	$10\frac{3}{4}$ -11 ad	$10\frac{1}{2}$ ad	$12\frac{1}{4}$ ad
November.....	7 - $7\frac{1}{4}$ ad	10 ad	$9\frac{1}{2}$ ad	$11\frac{1}{2}$ ad
December.....	$7\frac{1}{2}$ ad	$9\frac{1}{4}$ ad	9 ad	$11\frac{1}{2}$ ad

* Quotation for March given in Martin as 5 - 6 and in *Bankers' Magazine* as 11 advance.

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 73. — *Continued*

	1827	1828	1829	1830
January.....	11¼ ad	11 ad	8½ ad	9½ ad
February.....	10 ad	10½ ad	8 ad	8½ ad
March.....	10 ad	11¼ ad	8½ ad	8½ ad
April.....	10¼ ad	11 ad	8½ ad	8 ad
May.....	10¼ ad	10½ ad	9¾ ad	7 ad
June.....	11 ad	11 ad	9 ad	7 ad
July.....	10 ad	10½ ad	8½ ad	6 ad
August.....	10 ad	9¾ ad	9½ ad	6¼ ad
September.....	11 ad	10½ ad	9¾ ad	6¼ ad
October.....	11 ad	11¼ ad	9¾ ad	6 ad
November.....	11¼ ad	11 ad	9¾ ad	7 ad
December.....	11¼ ad	9¾ ad	9¾ ad	6¼ ad

	1831	1832	1833	1834	1835
January.....	6½ ad	10 ad	8 ad	2 ad	7 ad
February.....	6½ ad	9¾ ad	8 ad	1 dis	7½ ad
March.....	6¼ ad	9½ ad	8 ad	½ dis	7½ ad
April.....	7 ad	9¾ ad	8 ad	1 ad	8¾ ad
May.....	9¾ ad	10¼ ad	8¼ ad	3½ ad	8¾ ad
June.....	7½ ad	9¾ ad	8¾ ad	2 ad	9½ ad
July.....	10 ad	9¾ ad	8¾ ad	2½ ad	9¼ ad
August.....	10 ad	7 ad	8¼ ad	5 ad	9¼ ad
September.....	10¼ ad	8¼ ad	8¼ ad	6¾ ad	9 ad
October.....	10¾ ad	8 ad	7½ ad	7¼ ad	9½ ad
November.....	10½ ad	8 ad	7½ ad	7 ad	9¾ ad
December.....	10 ad	8½ ad	5½ ad	6 ad	9¾ ad

	1836	1837	1838	1839	1840	1841	1842
January.....	8½ ad	7½ ad	9⅞ ad	9½ ad	8 ad	8½ ad	8¾ ad
February.....	10 ad	9¾ ad	9 ad	9 ad	8½ ad	8 ad	8¼ ad
March.....	9¾ ad	8¾ ad	7½ ad	8¾ ad	8 ad	8 ad	8¼ ad
April.....	7¾ ad	11½ ad	4¾ ad	9½ ad	7¾ ad	7 ad	6½ ad
May.....	7 ad	11 ad	6¾ ad	8¾ ad	8 ad	7½ ad	7¼ ad
June.....	7 ad	13 ad	8 ad	9⅞ ad	7½ ad	8¼ ad	8 ad
July.....	7½ ad	18 ad	8¼ ad	9⅞ ad	7 ad	8½ ad	7½ ad
August.....	7½ ad	19¾ ad	7¼ ad	9½ ad	7 ad	8½ ad	6¼ ad
September.....	7½ ad	21 ad	9¼ ad	9 ad	7 ad	9 ad	7¾ ad
October.....	8¾ ad	14 ad	9⅞ ad	10 ad	8¼ ad	9¾ ad	8¼ ad
November.....	8¾ ad	16 ad	9½ ad	9 ad	8¾ ad	10 ad	6¼ ad
December.....	9½ ad	14 ad	10 ad	9 ad	8¾ ad	9¼ ad	6½ ad

APPENDIX E

TABLE 73. — Continued

	1843	1844	1845	1846	1847	1848	1849
January.....	5½ ad	8½ ad	10 ad	8½ ad	5½ ad	10½ ad	9 ad
February.....	5½ ad	8½ ad	10 ad	8½ ad	6½ ad	10¼ ad	8¾ ad
March.....	6 ad	9 ad	9¾ ad	8½ ad	5¾ ad	10 ad	8 ad
April.....	5¾ ad	8½ ad	9¾ ad	10 ad	4½ ad	10 ad	6½ ad
May.....	7¼ ad	8 ad	9½ ad	10 ad	6½ ad	10½ ad	8½ ad
June.....	8½ ad	8¾ ad	9¾ ad	9¼ ad	7½ ad	10½ ad	9½ ad
July.....	8¾ ad	9¼ ad	10 ad	8¾ ad	6½ ad	10 ad	9¼ ad
August.....	9¼ ad	9½ ad	10 ad	8 ad	6¾ ad	9½ ad	9 ad
September.....	9¼ ad	9½ ad	9¼ ad	9¾ ad	7¾ ad	9¼ ad	10 ad
October.....	9¼ ad	10 ad	9¾ ad	9¾ ad	9 ad	9 ad	10 ad
November.....	8¾ ad	10 ad	9¼ ad	6 ad	10 ad	8¾ ad	10½ ad
December.....	8½ ad	10 ad	8¾ ad	6¾ ad	10¼ ad	8¾ ad	9 ad

	1850	1851	1852	1853	1854	1855	1856
January.....	8¾ ad	10¾ ad	10¼ ad	9¾ ad	9¼ ad	7½ ad	8½ ad
February.....	9 ad	9¾ ad	10½ ad	9¼ ad	9¾ ad	9 ad	8¾ ad
March.....	8¾ ad	10½ ad	10½ ad	10½ ad	8¾ ad	9¾ ad	9½ ad
April.....	8¾ ad	10¾ ad	9¾ ad	9½ ad	8¾ ad	9¾ ad	9½ ad
May.....	9¾ ad	10¾ ad	9 ad	9¾ ad	9¼ ad	10 ad	9¾ ad
June.....	10 ad	10¾ ad	10¾ ad	9¾ ad	9¼ ad	10 ad	9¾ ad
July.....	10½ ad	10½ ad	10¼ ad	9¾ ad	9¼ ad	9¾ ad	10 ad
August.....	10½ ad	10¾ ad	10¼ ad	9¾ ad	9¼ ad	9¾ ad	9¾ ad
September.....	10½ ad	10¼ ad	10¾ ad	9¾ ad	9¼ ad	9¾ ad	9¾ ad
October.....	10½ ad	10¾ ad	10¾ ad	9¼ ad	9¾ ad	9¼ ad	9½ ad
November.....	10¾ ad	10½ ad	9¾ ad	9¾ ad	9¾ ad	8½ ad	9¾ ad
December.....	9¾ ad	10½ ad	10 ad	9½ ad	9¼ ad	8¾ ad	9 ad

	1857	1858	1859	1860	1861	1862*
January.....	8½ ad	9½ ad	9¾ ad	9¾ ad	3½ ad	<i>low high</i> 11 -14½ ad
February.....	8¾ ad	9¼ ad	9½ ad	8¾ ad	6 ad	13 -15¼ ad
March.....	8¾ ad	9 ad	9¾ ad	9 ad	5½ ad	11¾-14¼ ad
April.....	8½ ad	9 ad†	9¾ ad	9 ad	8½ ad	12 -13 ad
May.....	9¼ ad	9¼ ad	10½ ad	9¾ ad	5 ad	12½-14¾ ad
June.....	9½ ad	9¾ ad	10 ad	9¾ ad	5¾ ad	14¾-21 ad
July.....	9¼ ad	9¼ ad	10¼ ad	9¾ ad	6½ ad	20¼-32½ ad
August.....	9½ ad	9¾ ad	10¾ ad	10 ad	7¾ ad	24¾-29 ad
September.....	9 ad	9¾ ad	9¾ ad	9¾ ad	7¼ ad	29 -35 ad
October.....	7½ dis†	10 ad	10¾ ad	9½ ad	7¼ ad	32½-51 ad
November.....	7½ ad	9¾ ad	10 ad	8¾ ad	7¼ ad	42½-47¾ ad
December.....	9¼ ad	9¼ ad	9¾ ad	4 ad	9 ad	42¾-48½ ad

† Good produce bills sold at 10 per cent discount.

‡ Sale on March 20 at 7 per cent advance.

* Quotations in currency, not gold.

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 74. — DISCOUNT RATES ON COMMERCIAL PAPER AT BOSTON AND NEW YORK: MONTHLY, 1831-62

The rates given below for the years 1831-60 are drawn from E. B. Bigelow's *Tariff Question* (1862), Appendix 112, pp. 204-5, and are described as "street rates" on first class paper in Boston and New York at the beginning, middle and end of the month;" for 1861-62 from J. G. Martin's *History of the Boston Stock Market* (1898 ed.), p. 43, for "first class three- to six-months bankable paper" indicating the high and low for each month. Martin's figures for the year 1860 run somewhat higher than do Bigelow's.

(Unit: 1 per cent)

	1830	1831	1832	1833	1834
January.....	<i>No data</i>	5½	7	6	15, 18, 24
February.....		5½	6½	5½	
March.....		5½	6	5½	Business unsettled
April.....		5½	6½	6	
May.....		5½	7	6	
June.....		5½	6	6½	
July.....		6	6	8	Rates high and variable
August.....		6½	6	8	
September.....		7	6	8	
October.....		7	6	10	
November.....		7	6	10, 12	
December.....		7	6	12, 15	12, 10, 8

	1835	1836	1837	1838	1839	
January.....	5	10	16, 20, 13	11	6, 9	
February.....	Rates comparatively low	10	15, 21, 18	12	6, 9	
March.....		12	18, 20, 27	12, 18	6, 9	
April.....		12, 15	27, 26, 30	18, 12	6, 9	
May.....		15, 18	27, 32	10, 9, 7	6, 9	
June.....		15, 12	18, 9, 6	7, 6	9	
July.....		15, 18	7½	6	11, 12	
August.....		18, 24	7½	6, 7	12, 15	
September.....		24	7½, 6½	6, 7	15, 18, 21	
October.....		24, 36	6½	6, 7	21, 30	
November.....		24, 30	6, 9	6, 8	20, 33, 36	
December.....		8, 10	24, 30	10	7, 9, 7	18, 15, 9

APPENDIX E

TABLE 74. — Continued

	1840	1841	1842	1843	1844
January.....	9	6, 7	9, 12	6	4
February.....	9, 12	6, 7	9, 12	6, 5	4
March.....	9, 12	6, 7	9, 12	5, 6	4, 5
April.....	12, 7	6, 7	8	5	5
May.....	7	6	8	5, 4½	5
June.....	6, 8	6	8	5, 4½, 3½	5
July.....	8, 5	6	8	4	5
August.....	5, 7½	6	7½	3½, 4	5
September.....	6, 7	6, 7	7	3½, 4	5, 5½
October.....	6, 7	6, 7½	6½, 6	3½, 4	5
November.....	6, 7	6, 9	6, 6½	3½, 4	5, 5½
December.....	6, 7	9, 12	6, 9	3½, 4	5, 5

	1845	1846	1847	1848	1849
January.....	5, 6	8	8, 12	18	12
February.....	5½, 6	8, 9	8, 12	18, 15, 12	9, 12
March.....	5½, 6	8, 7	8, 10	12, 15	12, 15
April.....	5½, 6	9, 12	8, 9	15	12, 15
May.....	5½, 6	8, 12	8	12, 15	9, 11
June.....	5½, 6	8, 12	7, 6	15, 18	7, 9
July.....	5¾, 6	8, 12, 9	7, 6	15, 18	8
August.....	6	8, 9	7, 9	12, 15	7½, 8½
September.....	6	9, 6	9	12, 15	9
October.....	6, 5½	6, 8	9, 12	15, 18	9, 10
November.....	6, 5½, 8	6, 7	12, 15	18, 15	8, 10
December.....	8	6, 7	12, 18	15, 12	9½, 10½

	1850	1851	1852	1853	1854
January.....	9, 10½	6, 7½	9, 8½	6, 7, 8	9, 8
February.....	9, 8	7, 8½	8½, 7½	9, 10	7, 9
March.....	8, 9	7, 8½	7, 6	10, 12	9, 8, 10
April.....	8½, 9	8	6	10½, 10	10, 12
May.....	7½, 8½	7½, 6½	6	7, 8, 9	10, 12
June.....	7½, 8	7, 9	5½, 6	8, 9	9, 11
July.....	6½, 7	9, 11	5½, 6	9	10, 9
August.....	7, 8	11	5½, 6	9, 10	10, 9
September.....	7½, 9	12, 15	6, 7	10, 12	10, 12
October.....	7, 8	15, 16	6	12, 15	12, 10
November.....	7, 8	9, 12	6	15, 18, 12	10, 12
December.....	7, 8	9, 12	6	12, 10, 9	12, 18

FLUCTUATIONS IN AMERICAN BUSINESS

TABLE 74. — Continued

	1855	1856	1857	1858	1859
January.....	15, 10	10, 12	9, 10	9, 8, 7½	5, 5, 5½
February.....	10	10, 9	8½, 9	6, 6, 5½	5½, 6, 6
March.....	7, 9	10	9, 10	5½, 5½, 5	6, 5½, 5½
April.....	8, 10	9, 8	8, 9	5, 5, 4½	5½, 5½, 5½
May.....	6½, 8	7, 8	8, 7	4½, 4½, 4½	6, 6½, 6½
June.....	7, 6	7, 8	7, 8	4½, 4½, 4½	7, 8, 7
July.....	6, 7	7, 8	9, 10	4½, 4½, 4½	7, 6½, 7
August.....	7, 8	7, 8	9, 10	4, 4, 4	7½, 7, 7
September.....	7, 8	8, 9	12, 24, 36	4, 4, 4	6¾, 7, 7½
October.....	7½, 9	9, 10	36, 24, 24	4½, 4½, 4½	7½, 7½, 7½
November.....	10, 12	9, 10	24, 18, 15	4½, 4½, 5	7½, 7, 7
December.....	12, 15	10, 11	15, 12, 9	5, 5, 5	7, 8, 8

	1860	1861	1862
January.....	8, 9, 8½	15-8	6-9
February.....	8, 7, 6½	9-8	9-7
March.....	6, 6, 5	8-6	7-9
April.....	5, 4¾, 4½	6-5	9-7
May.....	4½, 4½, 4½	5-6	7-4
June.....	4½, 5, 5½	5-6	3½-4*
July.....	5½, 5½, 6	5-6	4-5
August.....	6, 6, 6	5-6	5-4
September.....	6, 5½, 5½	5-6	3½-5
October.....	5½, 5½, 6	5-6	4-5
November.....	6, 9, 12	5-6	4-5
December.....	15, 15, 12	5-6	4-5

* "Outside rate."

MOVEMENTS OF GOLD FROM CALIFORNIA:
SHIPMENTS TO ATLANTIC PORTS AND
RECEIPTS AT NEW YORK, 1849-1862

The data on gold movements from California are from scattered sources and not entirely satisfactory. They are offered here, however, as giving some indication of the flow of gold to New York. The figures on "gold shipped"—for the years 1849-52 and 1862—are from ships' manifests. In 1849, however, they cover a single line, and it is doubtful whether they included all lines even in later years. The ships' manifests take no account of gold carried in pas-

senger baggage, which *Hunt's Merchants' Magazine* estimated at \$500 per person. For the year 1850, *Hunt's* (vol. 24, p. 387) gives an estimate of the gold carried by passengers as 3.6 million dollars. On the other hand, "gold dust" was valued for the purposes of the ships' manifests at \$16. per ounce troy, although the mint value in Philadelphia at that time was \$1.50 more per ounce.

The data on gold movements given below in Table 75 are from *Hunt's Merchants' Magazine*, *Bankers' Magazine*, *De Bow's Review*; and, for 1862, from the *Report* of the New York Chamber of Commerce, 1861-62, p. 175.

TABLE 75. — MOVEMENTS OF GOLD FROM CALIFORNIA: MONTHLY, 1849-62¹

(Unit: \$1,000,000)

	1849		1850		1851		1852	
	Gold Shipped to Atlantic Coast	Gold Receipts at New York	Gold Shipped to Atlantic Coast	Gold Receipts at New York	Gold Shipped to Atlantic Coast	Gold Receipts at New York	Gold Shipped to Atlantic Coast	Gold Receipts at New York
January.....			1.3	.3	2.8	2.6	2.9	2.3
February.....			.7	1.7	2.3	1.6	1.8	1.6
March.....			1.1	1.1	2.1	1.8	2.2	1.8
April.....	.2		2.2	1.2	1.2		3.5	2.9
May.....	.3		1.7	.6	2.0		5.5	4.6
June.....	.3		2.8	1.2	2.5		3.6	3.0
July.....	.3		3.3	3.6	3.1		4.1	3.7
August.....	.5		3.5		3.2		3.6	3.0
September.....	.6		3.2		3.5		4.1	3.5
October.....	.3		3.8		4.0		5.1	4.5
November.....	1.3		3.7		4.5		5.3	4.4
December.....	.7		2.8		3.4		4.1	3.7

	1853	1854	1855	1856	1857
	Receipts at New York	Receipts at New York	Receipts at New York	Receipts at New York	Receipts at New York
January.....	3.7	3.5	4.4	3.3	2.7
February.....	5.3	3.8	2.9	3.7	2.6
March.....	4.5	3.4	2.2	2.8	1.6
April.....	4.8	4.5	1.9	3.3	3.2
May.....	4.6	4.5	3.0	3.5	5.5
June.....	4.8	4.9	3.1	4.2	2.1
July.....	4.1	4.2	3.5	3.4	5.1
August.....	4.7	5.3	3.8	2.9	1.2
September.....	4.6	4.3	2.0	3.5	2.1
October.....	5.1	3.4	5.3	3.5	5.4
November.....	5.4	3.8	3.7	2.5	4.8
December.....	4.8	4.4	3.8	3.5	4.8

	1858	1859	1860	1861	1862
	January.....	3.2	2.6	3.5	4.2	2.8
February.....	3.0	2.6	2.9	3.6	3.0
March.....	2.7	1.9	2.7	2.4	2.3
April.....	2.8	3.1	2.6	3.0	2.6
May.....	3.2	3.4	2.9	2.0	3.6
June.....	3.2	3.5	2.9	2.0	2.2
July.....	2.6	3.8	2.2	2.1	4.5
August.....	3.0	4.0	2.8	4.2	4.4
September.....	3.3	5.0	2.9	2.8	3.7
October.....	2.8	3.7	2.8	3.0	3.8
November.....	3.5	3.3	3.2	2.6	4.5
December.....	3.1	3.3	3.1	2.6	4.4

¹ For a description of the quality of these data and for sources, see p. 194.

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