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PROBLEMS IN BUSINESS ECONOMICS

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GEORGE F. BAKER FOUNDATION
HARVARD UNIVERSITY

FIRST EDITION
THIRD IMPRESSION

McGRAW-HILL BOOK COMPANY, INC.
NEW YORK AND LONDON
1941

PROBLEMS IN BUSINESS ECONOMICS

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THE MAPLE PRESS COMPANY, YORK, PA.

PREFACE

This book is designed primarily for use in the first-year course in Business Economics in the Harvard Business School. The purpose of this course is a dual one: the course is intended primarily to bridge the gap between the usual college course in economics and the business management courses of the professional business school; in the case of some individuals the course also must provide a partial introduction to economics for those who have had no previous acquaintance with the subject. It is to serve the first of these purposes that this book has been made a casebook and not a textbook. To facilitate the second purpose is the function of the introductory notes to each section.

The course is planned for prospective business executives. The book therefore frankly takes the point of view of business management: what does the business executive need to know about economics that will assist him in the successful management of his business? It is freely conceded that economics does not embrace the whole science and art of business management. The system of economic thought is simply one of the conceptual schemes which, along with other systematic ways of thought, such as accounting, engineering, industrial management, finance, marketing, and statistics, should have its place in the broad conceptual framework of business administration as a profession.

Business economics, as the authors see it, consists of the use of economic modes of thought to analyze business situations. Business economics is useful to the businessman primarily in two ways: first, in helping him to make decisions in the everyday conduct of his business with respect to such problems as price, rate of operation, investment, expansion or contraction, and so on; second, in enabling him better to understand the significant external forces that affect his business and thus to develop an intelligent opinion on the economic aspects of public policy problems.

Hence the first four sections of this book deal, for the most part, with internal short-run business management problems centering on the concepts of profits and risk, demand, cost, and supply and demand analysis. In the remaining two sections, attention is

turned to external factors, with consideration devoted to business cycle problems and to current problems of public policy.

It is important to understand that the primary purpose of this book is training in analysis of the economic aspects of business situations. The authors believe that a course in business economics should be concerned primarily with entrepreneurial decisions, and that value theory consequently is of more importance than distribution theory. Thus in this book no effort at all is made either to cover the entire field of economic thought or to present topics in their traditional order. The reader will find, for instance, that the book begins with a section on profits and risk, because the profit and loss system is the central fact in an economy of free enterprise. But he will not find any section on rent, and he will find that interest and wages are dealt with somewhat incidentally in the section on business cycles. The arrangement of the book is not a logical one according to subject matter; rather it is a pedagogical one according to the sequence of ideas which teaching experience with this and similar case material over the last ten years has indicated to be most effective.

This book is frankly based on the postulates of a modern competitive system of free enterprise. By the accident of events it appears at a time when considerations of national safety and well being may, for a period, dictate some abridgment of a competitive free economy. Nevertheless it is the basic principles of such an economy which the nation is striving to defend and to perpetuate.

Grateful thanks for encouragement, suggestions, and assistance are due to many persons: first, to Dean Wallace B. Donham, who has long cherished the project of a casebook in business economics; then to our immediate colleagues, Professors Joseph L. Snider, Charles A. Bliss, and Cecil L. Burrill, who not only have contributed, respectively, the Notes on Forecasting the Price of a Commodity, the Notes on Business Cycles, and the Notes on Accounting for Manufacturing Costs, but have discussed with us from day to day throughout the period of manuscript preparation the content of the materials going into the book. In the years when the course in Business Economics was first offered at the Harvard Business School, Professors Charles I. Gragg and J. Philip Wernette contributed much. Other past and present members of the Business School staff who have been directly concerned with the development of the course include Arthur R. Tebbutt, now Professor of Business Statistics at Northwestern University, W. Rupert Maclaurin, now Professor of Economics at the Massachusetts Institute of Technology,

and James W. Culliton, Instructor in Business Economics at the Harvard Business School.

The necessary editorial and mechanical work on this book has been substantially aided by Professor Howard T. Lewis, Director of Research in the Business School, who has put numerous facilities at our disposal. Especial thanks are due also to Mr. R. F. Bingham, of the Department of Statistics, who has drawn a great majority of the charts. Mrs. LeRoy M. Hersum was responsible for editing and preparing the manuscript and reading the proofs. Miss Esther M. Love assisted in checking and proofreading.

MALCOLM P. MCNAIR,
RICHARD S. MERIAM.

SOLDIERS FIELD,
BOSTON, MASSACHUSETTS
August, 1940.

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I. PROFITS AND RISK

SOME NOTES ON PROFITS

Economics, being a study of people in the ordinary business of life, uses in its treatises many words which are commonplace in everyday language. Because the economist seeks to examine his subject in a scientific manner, he must necessarily attempt to define accurately the terms which he uses. He therefore narrows the definitions of commonplace words; and as a result, many of the tenets of economics are misunderstood because the participants in discussions do not have identical concepts of the meaning of the words.

Profits are variously described by businessmen, accountants, and economists; but there is almost universal agreement with the general definition[1] that they are "primarily a residue or surplus of prices over expenses of production" or "leavings above costs." The real difference of opinion, especially between accountants and economists, arises when the attempt is made to arrive at a figure with which to represent profits or a formula for measuring the profits of a given enterprise for a given period. At this point, the difficulty comes (1) in agreeing upon a definition of the terms which enter into the definition of profits, namely, "prices," "expenses of production," "cost," and so on, and (2) in measuring the values under the definitions agreed upon.

Consider, for example, the statement that "profits enter into cost." According to his usual definitions of the words, the accountant would say, "No. The two items, profits and costs, are quite distinct." An economist might say, "This is a rough way of expressing the important fact that profits are a necessary incentive to long-continued business operation in the world as we see it about us. Costs are the necessary outlays to keep production going, and profits are necessary sooner or later." Among themselves, the economists might argue whether only normal profits entered into cost, what "normal" profits meant, whether there were any profits "in the long run," what "in the long run" meant, and so on. Neither the accountant nor the economist would deny that a company may

[1] RICHARD T. ELY, *Outlines of Economics*, 5th ed. (New York, Macmillan, 1931), p. 483.

continue its operations for a while, even though its profit and loss statement shows it to be "in the red."

Some of the confusion in the use of terms will be avoided if we keep in mind the different objectives of the people involved, the different purposes of their discussions, and the different uses to which their conclusions and results are going to be put. The interest of economists frequently is in the theoretical analysis of the nature of profits. The interest of accountants almost invariably is in defining profits for the purpose of measuring quantitatively the income, i.e., the profits, which a business is yielding its owners. The accountant's job is one of exhaustive classification; he must put each dollar and cent in its proper compartment. He has to arrive at a definite figure for the "proprietary claim to an excess of values received over values given up";[1] and because of the purpose of his task, he is little interested in the theoretical nature of profits. The economist, on the other hand, might (and frequently does) say that the profits of a corporation as figured by the accountant are a mixture of business profits and interest on the investment. It is well to note, however, that when accountants are seeking profit figures for purposes other than the measurement of proprietary claims their definitions may be changed to meet the requirements. (For instance, contrast profit figures arrived at for tax purposes, for establishing the most economical rate of operation, and for measuring the earning power of assets.) The interest of statisticians is in defining profits for the purpose of arriving at figures which are comparable among businesses operating under different conditions.

The practical requirements of accounting have led to the establishment of rather definite and generally accepted rules of procedure for arriving at a profit figure. Among economists, however, there is no complete agreement on the nature of business profits; and different schools of thought have arisen. Professor Taussig has summarized the situation as follows:

> On the theory of business profits there are two main trends of thought. One considers profits to be in essentials analogous to wages, and would reject any attempt at differentiation of business profits from the earnings of farmers, lawyers, physicians. Business profits are but one of the many forms of the remuneration of independent workers. Profits are, indeed, a peculiar kind of wages, and some special things are to be said about them; but they are not *sui generis*. Therefore, but three rubrics in distribution are to be set up—rent, interest, and wages. The other line of analysis separates profits from wages, and treats profits as a thing by itself; hence

[1] CHARLES H. PORTER and WYMAN P. FISKE, *Accounting* (New York, Holt, 1934), p. 37.

would consider distribution not under three heads, but under four—rent, interest, wages, and profits. . . . The differences between the two sets, no doubt, are largely in the way of emphasis and exposition; they are different modes of exposition rather than different explanations of the substance of things. But they are none the less marked.

The first school, while lumping all the net earnings together in case of the individual or partnership, would separate them—carve them up, so to speak—in case of a corporation. The "business profits" of a corporation are received partly by the stockholders, partly by the executives. What the stockholders get over and above interest (that is, dividends greater than what they could have got by merely lending their capital to others)—this is in the nature of profits. But the salaries of the executive managers are also a part of the "profits"—that is, they are part of the earnings of enterprise as well as of management. The fact that owners and managers are different persons is but an incidental circumstance; the two combine in earning a joint return which, though divided between them, is homogeneous in character.

The second school, on the other hand, would separate the total earnings in all cases, for individuals and firms as well as for corporations. Its adherents would distinguish throughout between earnings of management proper, which are simply wages, and the earnings or rewards of enterprise; the latter only are business profits. The salaries of corporate executives are wages, like any other wages. They are of the same nature and are determined by the same causes as the wages of superintendents, accountants, lawyers, engineers. The business profits of corporations are received by the stockholders and these only. Their dividends (so far as the rate is in excess of the interest rate) are alone the rewards of enterprise, risk, judgment. In the case of a firm, it happens, both wages of management and earnings of enterprise go to the same person, and the whole of the lump sum seems to be a homogeneous thing. But it is not so. The proper differentiation—that consonant with sound economic analysis—appears in the case of the corporation. There the essentially heterogeneous character of the earnings becomes plain. The executives receive wages; the business profits go to the stockholders.[1]

When business income is classified into the four categories rent, interest, wages, and profits, in accordance with the second school of thought mentioned above (i.e., when wages of management are excluded from profits), profit may be termed a "pure" profit, representing that portion of business income which is left after deduction of rent, interest, ordinary wages, and wages of management. "Interest," as here used, includes interest on all capital employed in the business, whether owned or borrowed. "Rent" includes payment for use of both owned and leased property. Therefore a pure profit figure is to be understood as including neither interest on investment

[1] "American Corporations and Their Executives: A Statistical Inquiry," *Quarterly Journal of Economics*, November, 1925, pp. 40–42.

nor wages of management.[1] It should be pointed out that although the economist holds a concept of profits which excludes interest thus defined, the businessman ordinarily does not accept this concept at all, but uses the term "profits" to designate a mixture of pure profits, interest, and possibly some rent. Most businessmen, on the other hand, particularly those working under the corporate form of organization, do not question at all the idea that wages of management are simply one category of wages and not to be included with profits; whereas among economists, as indicated in the above quotation from Professor Taussig, the question whether wages of management are to be regarded as wages or as profits is one of the principal points of dispute.

From one theoretical standpoint, wages of management are essentially different from other wages. The wages of management are payments for the coordinating function of business supervision and for the exercise of business judgment. The function and the judgment are needed only in a dynamic changing society which presents business problems, the same sort of society which brings about business uncertainties and the opportunities for pure profits. According to this view, there is more similarity between wages of management and pure profits than between wages of management and ordinary wages, which would appear in an unchanging economic world as surely as in our existing economic society. Against this view, it may be urged that both wages of management and ordinary wages are compensation for personal services, whereas pure profits appear to be bound up with the provision of capital. But while it is not denied that wages of management and pure profits have some dissimilarities, it seems more important to stress the basic similarities in that both are rewards for the exercise of judgment on the business problems in an uncertain situation. Of course, neither pure profits nor wages of management are entirely the reward of judgment; luck and monopoly may enter into both, and are, perhaps, more important than judgment in pure profits, which have more clearly a residual character. It should also be said that the practice of many business concerns in paying executives bonuses based on profits (as determined by accountants) lends color to the contention that wages of management and profits are essentially the same kind of income.

[1] In the series of operating cost studies made by the Harvard Bureau of Business Research, rent, interest, and wages of management (all imputed, if not actually paid), as well as the wages of labor, are included in expenses, and the net profit figure is in some degree an approximation of pure profits; how close an approximation it is depends in part on the propriety of the rate of interest used.

Practical reasons strongly suggest, however, that the question whether wages of management should be grouped with wages or with profits had better be left to the specialists in economic theory. For one thing, statistics indicate clearly that, in the United States, wages of management and business profits move quite differently under the impact of changing economic forces. J. C. Baker and W. L. Crum, for instance, as a result of a study of compensation of corporation executives, write as follows:

> The study discloses: (1) an amazing steadiness in the employment of executives; (2) an equally amazing steadiness in their straight salary income; (3) a much more widespread use of the bonus than was generally supposed; (4) wide fluctuations in bonus payments, but not sufficiently wide to cause total compensation to decline as sharply as wages or dividends. . . . [1]

Certainly in typical modern corporate practice the wages of management are paid to executives, and the pure profits, if any, go to those who have provided capital for the business and who therefore typically receive a mixture of interest and pure profits (and possibly some rent).[2] This mixture constitutes what is ordinarily known as "net business profits."

Net business profits may be considered as a residual sum. Land, labor, and capital frequently are used under contracts—agreements whereby they receive a predetermined return, e.g., leases, wage rates, bonds. Net business profits are a sum over and above the ordinary costs of the business, including such contractual outlays. It is to be emphasized that whereas a landlord may enjoy a contract with respect to rent, an executive with respect to salary, and a bondholder or a bank with respect to capital made available to the business, nobody contracts to pay the entrepreneur the residual sum which constitutes net business profits. Business profits are therefore especially contingent upon successful management of risk. The changes in our dynamic society produce business uncertainties, and the entrepreneur receives a reward for combining the factors of production to meet the economic needs of a changing world. He takes a risk which others are unwilling to bear, and if he successfully manages the risk he receives profits. This means that the businessman, in order to earn profits, has to do two things: (1) select the risks which he wishes to bear and (2) manage them successfully. The

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[1] "Compensation of Corporation Executives—The 1928–1932 Record," *Harvard Business Review*, Vol. XIII, No. 3, Spring, 1935, p. 333.

[2] An exception is to be noted in the case of closely held companies which pay their officers large salaries in lieu of returning a profit.

selection of risks is made at almost every step of a businessman's career. His most important problem is the selection of a business in which he wishes to engage. But even thereafter many risks arise. Some of them he may have to bear even though he would rather not; others he may transfer to people more willing to bear them (or unable to escape them); still others he may shift by insurance.[1]

The greater the risk and uncertainty in a business, the greater the opportunities for large profits. That all entrepreneurs do not make profits is a point too frequently overlooked. Some businessmen, of course, make high profits, and usually these cases are the ones that receive greatest public attention; but many businessmen make no profits, and a great many more incur substantial losses. The rate of business profits enjoyed by American corporations is not large; in analyzing corporate income returns for 1926, W. L. Crum found that the rate of profits[2] roughly approximated the yield received from an investment in good long-term bonds for that year.[3] Some observers therefore suggest that it is not the existence of profits in excess of an average return on capital but the prospect or even the illusion of such profits that is the important motivating force in the present economic system. There is, in fact, much doubt whether pure profits do exist over a period of many years, inasmuch as the gains of good years are offset by the losses of bad years.

Since risks and therefore profits (or losses) appear because of changes and uncertainties in a dynamic society, profits vary considerably from year to year; and this movement corresponds closely to that of the business cycle. There are conflicting theories in regard to the relationship between profits and the business cycle. Obviously, profits are greatly affected by cyclical fluctuations in business, but there may also be a causal relation running in the opposite direction. In fact there are two almost diametrically opposed theories that suggest an active role played by profits in bringing about business depressions. The first of these views is that when profits are too small the unfavorable outlook reduces risk-taking by businessmen, causes a decline in their long-term commitments, and

[1] Ely says, "The essential basis of the institution of insurance is cooperation in the bearing of losses which may occur to any one of a large group of persons, but will actually fall upon but few members of the group."

Insurable risk is an evil which is a matter of chance. The insured are grouped by classes within which the chances are reasonably uniform so that the same premium will be charged to those whose chances are the same.

Economists justify insurance on the grounds that a sum of money received in one payment after a loss has been incurred is of more utility than the disutility of paying an equivalent amount in small payments (premiums) before the loss occurred.

[2] "Rate of profits" is defined as net income after taxes divided by invested capital.

[3] *Corporate Earning Power* (Stanford University Press, 1929), especially pp. 174–176.

so leads to contraction, stagnation, and unemployment. The second view is that when business profits become too large, consumer spending is thereby restricted, with the result that orders fall off, industry slackens, and depression ensues.

APPENDIX

SELECTED STATISTICS ON CORPORATE PROFITS IN THE UNITED STATES

I

TOTAL NUMBER OF CONCERNS IN BUSINESS, AND NUMBER, ASSETS, AND LIABILITIES OF CONCERNS WHICH FAILED, 1926–1937

(Dollar figures in thousands)

Year	Total Number of Concerns in Business	Concerns Which Failed		
		Number	Assets	Liabilities
1926	2,158,457	21,773	$202,345	$409,232
1927	2,171,688	23,146	256,740	520,104
1928	2,199,049	23,842	255,478	489,560
1929	2,212,779	22,909	226,028	483,250
1930	2,183,008	26,355	442,800	668,284
1931	2,125,288	28,285	434,939	736,309
1932	2,076,580	31,822	509,135	928,313
1933*	1,960,701	19,859	251,875	457,520
1934	1,973,900	11,724	143,675	230,198
1935	1,982,905	11,510	94,867	183,013
1936	2,009,935	9,185	77,108	147,253
1937	2,056,598	9,017	67,537	115,594

* Figures for 1933 and subsequent years are on a revised basis and are not fully comparable with figures for earlier years.

Source: *Statistical Abstract of the United States, 1938*, p. 298.

II

Number of Corporation Income Tax Returns Showing Net Income and Number Showing No Net Income, 1927–1937

(Returns of inactive corporations excluded)

Year	Number of Returns			Percentage Showing No Net Income
	Total	Showing Net Income	Showing No Net Income	
1927	425,675	259,849	165,826	38.96%
1928	443,611	268,783	174,828	39.41
1929	456,021	269,430	186,591	40.92
1930	463,036	221,420	241,616	52.18
1931	459,704	175,898	283,806	61.74
1932	451,884	82,646	369,238	81.71
1933	446,842	109,786	337,056	75.43
1934	469,804	145,101	324,703	69.11
1935	477,113	164,231	312,882	65.58
1936	478,857	203,161	275,696	57.57
1937*	477,839	192,029	285,810	59.81

* Preliminary.

Source: U.S. Bureau of Internal Revenue, *Statistics of Income for 1936*, Preliminary Report of Corporation Income and Excess-Profits Tax Returns, p. 10, and *Statistics of Income for 1937*, Preliminary Report of Corporation Income and Excess-Profits Tax Returns, p. 6.

III

Analysis of Corporate Income Tax Returns for 1936

(Dollar figures in thousands)

		All Corporations	Corporations Reporting Net Income	Corporations Reporting No Net Income
1	Number of returns	478,857	203,161	275,696
	Receipts, taxable income:			
2	Gross sales	$100,585,887	$ 82,971,345	$17,614,542
3	Gross receipts from operations	22,886,173	15,385,996	7,500,177
4	Interest	2,543,148	1,496,757	1,046,391
5	Rents	1,517,573	731,088	786,485
6	Net capital gain	581,185	481,771	99,414
7	Dividends from domestic corporations	2,676,598	2,503,922	172,676
8	Other receipts	1,207,743	952,426	255,317
	Receipts, tax-exempt and taxable income: Interest on Government obligations:			
9	Subject to excess-profits tax	279,628	240,451	39,177
10	Wholly tax-exempt	444,669	247,938	196,731
11	Total compiled receipts	$132,722,602	$105,011,693	$27,710,909
	Deductions:			
12	Cost of goods sold	$ 78,023,107	$ 63,515,315	$14,507,792
13	Cost of operations	10,859,118	6,628,216	4,230,902
14	Compensation of officers	2,712,589	1,937,790	774,800
15	Rent paid on business property	1,529,991	1,061,220	468,771
16	Bad debts	901,433	482,108	419,325
17	Interest paid	3,080,723	1,705,593	1,375,130
18	Taxes paid, other than income and excess-profits taxes	2,957,986	2,101,475	856,511
19	Contributions or gifts	29,968	26,655	3,314
20	Depreciation	3,286,426	2,342,115	944,311
21	Depletion	437,028	331,864	105,164
22	Net capital loss	142,432	24,056	118,375
23	Other deductions	20,990,915	15,129,107	5,861,808
24	Total compiled deductions	$124,951,715	$ 95,285,514	$29,666,202
25	Compiled net profit or net loss (11 less 24)	$ 7,770,887	$ 9,726,179	$ 1,955,292 Loss
26	Net income or deficit (25 less 10)	7,326,218*	9,478,241	2,152,024 Deficit
27	Normal tax	$ 1,024,793	$ 1,024,793	
28	Surtax on undistributed profits	144,972	144,972	
29	Excess-profits tax	21,613	21,613	
30	Total tax	$ 1,191,378	$ 1,191,378	
31	Compiled net profit less total tax (25 less 30)	$ 6,579,509	$ 8,534,801	
32	Cash dividends paid	7,379,333	7,179,220	$ 200,112
33	Stock dividends paid	344,972	335,319	9,653

* Editors' Note: The Revenue Act of 1936 imposed taxes on dividends received by corporations from domestic corporations. Under earlier revenue acts, all dividends received from such domestic corporations were exempt from the corporate income tax. In order to avoid double counting of income in 1936, it is necessary to deduct from the reported taxable income in 1936 dividends received from domestic corporations made taxable by the Act of 1936. When these corrections are made, the reported taxable income less deficits for 1936 is reduced from 7,320 million dollars to 4,640 million dollars. Deducting from this figure corporate income tax payments of 1,191 million dollars and adding 476 million dollars for tax-exempt interest received by the reporting corporations gives total net earnings of 3,928.5 million dollars.

Source: U.S. Bureau of Internal Revenue, *Statistics of Income for 1936*, Part 2, pp. 70, 74, 78.

A. THE MEANING OF PROFITS

1. Roscoe Langdell

DEFINITIONS OF PROFITS

Early in 1928, Roscoe Langdell submitted to the Harvard Bureau of Business Research the following profit and loss statement for his retail jewelry store:

PROFIT AND LOSS STATEMENT FOR YEAR ENDING DECEMBER 31, 1927

Gross sales	$34,950.16	
Returns and allowances to customers	1,500.00	
Net sales		$33,450.16
Net inventory of merchandise at beginning of year	$16,752.93	
Purchases of merchandise at billed cost	24,920.89	
Inward freight, express, and parcel postage	142.87	
Gross cost of merchandise handled	$41,816.69	
Cash discounts taken	425.65	
Net cost of merchandise handled	$41,391.04	
Net inventory of merchandise at end of year	18,415.28	
Net cost of merchandise sold		22,975.76
Gross margin		$10,474.40
Total salaries and wages	$ 3,160.13	
Advertising	567.52	
Boxes and wrappings	185.47	
Office supplies and postage	406.91	
Taxes, insurance, repairs, and depreciation of real estate	872.10	
Heat, light, and power	171.93	
Taxes	114.00	
Insurance	287.77	
Depreciation of store equipment	220.00	
Interest on borrowed capital	59.60	
Miscellaneous expense	511.21	
Income taxes	375.10	
Total expense		6,931.74
Net profit		$ 3,542.66

On writing to Mr. Langdell for supplementary information, the Bureau learned that of the net profit of $3,542.66 shown on his statement Mr. Langdell had withdrawn $3,300. He did not make a charge for his own services as manager, but up to 1926 he had been employed in a similar capacity in another store at a salary of $1,800 a year. Mr. Langdell stated that he owned his store building, which had a rental value of $1,300 a year. From the balance sheets submitted for this firm, the Bureau computed the net worth of the business exclusive of real estate to be $32,892.66. Interest on this sum at 6%, which Mr. Langdell stated to be the local rate on reasonably secure long-time investments, amounted to $1,973.56.

EXHIBIT 1

ROSCOE LANGDELL

Profit and Loss Statement for Year Ending December 31, 1927

MERCHANDISE STATEMENT				
Gross Sales		$34,950.16		
Less Returns and Allowances to Customers		1,500.00		
Net Sales			$33,450.16	100.00%
Net Inventory of Merchandise at Beginning of Year	$16,752.93			
Plus Purchases of Merchandise at Billed Cost	24,920.89			
Plus Inward Freight, Express, and Parcel Postage	142.87			
Gross Cost of Merchandise Handled		$41,816.69		
Less Cash Discounts Taken		425.65		
Net Cost of Merchandise Handled		$41,391.04		
Less Net Inventory of Merchandise at End of Year		18,415.28		
Net Cost of Merchandise Sold			22,975.76	68.69
Gross Margin			$10,474.40	31.31%
EXPENSE STATEMENT				
Proprietor's Salary	$ 1,800.00			5.38%
All Other Salaries and Wages	3,160.13			9.45
Total Salaries and Wages		$ 4,960.13		14.83%
Advertising		567.52		1.70
Boxes and Wrappings		185.47		0.55
Office Supplies and Postage		406.91		1.21
Rent		1,300.00		3.89
Heat, Light, and Power		171.93		0.51
Taxes		114.00		0.34
Insurance		287.77		0.86
Depreciation of Store Equipment		220.00		0.66
Interest on Borrowed Capital	$ 59.60			
Interest on Owned Capital Invested in the Business	1,973.56			
Total Interest		2,033.16		6.08
Miscellaneous Expense		511.21		1.53
Total Expense			$10,758.10	32.16%
NET GAIN STATEMENT				
Net Loss			$ 283.70	0.85%
Interest and Rentals Earned:				
Interest on Owned Capital Invested in the Business		$ 1,973.56		
Rent of Owned Store Building	$ 1,300.00			
Less Expense on Owned Store Building (including taxes, insurance, repairs, depreciation, and interest on mortgages)	872.10	427.90	2,401.46	
Total Net Gain			$ 2,117.76	
Provision for Federal and State Income Taxes		$ 375.10		
Withdrawals		1,500.00	1,875.10	
Surplus for the Year			$ 242.66	

On the basis of these additional data, the Bureau adjusted the profit and loss statement for the Langdell store and sent it back as shown in Exhibit 1.

After receiving this adjusted profit and loss statement, Mr. Langdell wrote the following letter to the Bureau:

July 13, 1928

Harvard Bureau of Business Research
Cambridge, Massachusetts

DEAR SIRS:

I have received a copy of my 1927 profit and loss statement as adjusted by you, and I am at a loss to understand some of the changes you have made.

For instance, the statement which I sent you showed a net profit of $3,542.66, but the copy which you have returned to me shows a net loss of $283.70. I notice that you have charged $1,800 as my salary. I do not draw any regular salary from the business, and since I am in business for myself I consider that I am not working for a salary but for profits. Also you have shown a rental expense of $1,300. Since I own the building, I consider that the item of rent is adequately taken care of by the expenses incurred in connection with the building, such as taxes, insurance, and so on. Furthermore, you have shown an expense of $1,973.56 for interest on owned capital. I have worked hard to put this business in a position where I would not have to borrow money, but if I have to charge interest on my own capital, I do not see where I am any better off, according to your version of affairs, than if I were continually in debt to banks and wholesalers.

In short, it seems to me that your adjustment of my statement amounts merely to shifting money from one pocket to another and calling it salary, rent, or interest, as the case may be; whereas what I am really interested in is the profit that I make by being in business for myself rather than working for somebody else.

An explanation from you will be appreciated.

Yours very truly,
ROSCOE LANGDELL

How may the difference between Mr. Langdell's computation of profits and that of the Bureau of Business Research be explained?

Which, if any, of the figures given should be defined as "profits" from the point of view of (*a*) economics, (*b*) business practice?

Should Mr. Langdell have got out of this jewelry business? Was he a successful businessman? What economic functions did he perform?

2. F. R. Woodberry

PURCHASE OF STOCK IN AN OIL COMPANY

In March, 1938, F. R. Woodberry, a Chicago businessman, was advised by a friend to purchase some of the common stock of the Southern New Mexico Oil Company, then selling at $4 a share.

Mr. Woodberry was the principal executive officer of a large corporation. His salary from this position was more than sufficient to meet his current needs, and he was interested in investing his surplus funds for appreciation rather than for immediate income.

A number of Mr. Woodberry's friends had made investments in small speculative oil companies with varying degrees of success. The ones who had been successful had made such large profits that Mr. Woodberry had resolved not to dismiss without careful consideration any opportunity which might be presented to him to invest in the stock of such a company. The fact that his friend knew the officials of the Southern New Mexico Oil Company and presumably could obtain complete information about it made this seem to Mr. Woodberry a good opportunity.

Mr. Woodberry learned that the Southern New Mexico Oil Company was a partly owned subsidiary of the Warren and Batson Oil Company, whose stock was listed on the Chicago Stock Exchange. The Warren and Batson Oil Company was a relatively new concern, having been formed early in 1936. Within the brief period of its existence it had already found two new oil fields.

In May, 1937, geologists employed by the Warren and Batson Oil Company mapped out an extensive underground structure in southern New Mexico which they believed contained oil. On the basis of the geological survey, the company leased 1,500 acres of land in the area. Engineers estimated at approximately $100,000 the cost of drilling the initial well to the required depth of 8,500 feet. Additional wells would cost about $75,000 each; if the first well was successful, these would be numerous. The financial commitment involved was so great that the company decided to seek outside capital. Accordingly the Southern New Mexico Oil Company was formed, to hold the leases covering the prospective oil field. In return for the leases, the Warren and Batson Oil Company received 500,000 of the 1,000,000 shares of capital stock issued by the new company. The other 500,000 shares were set aside under option to a Chicago syndicate, of which Mr. Woodberry's friend was a member. The syndicate agreed to pay cash for 100,000 shares at $1 a share, and

to take up the other 400,000 shares at the same price if oil was discovered.

The well was drilled in the fall of 1937, and a thick oil sand was found at about 8,000 feet; the oil flowed at the rate of 3,000 barrels in 24 hours through a ¼-inch choke. There was every indication that a large oil field had been discovered, but at least 10 more wells would have to be drilled before the limits of the field could be definitely established. By comparisons with other fields producing from similar formations, the geologists estimated that the new field would yield 20,000 barrels of oil to the acre. If 1,000 acres were productive, it followed that a reserve of over 20,000,000 barrels of crude oil had been discovered. The quantity of oil which wells in the state could produce each day and the number of wells which could be drilled in a given area were fixed by state law. At the time of this discovery wells in the vicinity of the Southern New Mexico Oil Company's field were allowed to produce 80 barrels of oil a day. Operators were not permitted to drill more than one well on each 20-acre plot. Pipe-line companies were paying $1.15 a barrel for oil of the grade produced on this lease.

As soon as oil had been discovered, the Chicago syndicate fulfilled its contract and paid for the remaining 400,000 shares of stock at $1 per share, thus supplying the Southern New Mexico Oil Company with sufficient funds to drill about five more wells. Mr. Woodberry sought to learn how the company would obtain the additional money for drilling the number of wells needed fully to exploit the field. He was told that most new oil companies financed such expansion by borrowing from banks and pledging as security the wells which were already drilled but that, if an exceptionally large program was contemplated, additional common stock might be sold. Only rarely did a new company finance the drilling of new wells from earnings, inasmuch as it was believed to be a better policy to pay dividends on the outstanding stock as soon as possible in order to facilitate sales of additional stock at a later date.

Oil engineers reported that, under the existing statutory controls of production, a well such as the one drilled by the Southern New Mexico Oil Company would probably flow at the rate of 80 barrels a day for about 8 years. Royalties would amount to 20 cents a barrel; and other costs, excluding exploration expense, depreciation, and depletion, would be between 15 and 20 cents a barrel. After 8 years it was probable that the well would flow at a slightly declining rate for 3 or 4 years, after which the remaining oil would be pumped for perhaps 8 more years at an additional cost of at least 10 cents a

barrel. Since pipe-line companies accepted oil at their posted prices, there were no selling expenses involved.

When the potential importance of the discovery became apparent, stock of the Southern New Mexico Oil Company rapidly increased in price. The syndicate sold 175,000 shares from its holdings for an average price of $3. The members planned to keep the remaining shares themselves. They had already sold enough shares to clear their original investment, and they reasoned that they had nothing to lose by keeping the rest of their holdings until there were further developments.

With shares selling at $4, the company, in March, 1938, had an indicated valuation of $4,000,000. On the basis of money actually put into the company, the value had already been written up eight times. Mr. Woodberry was of the opinion that further drilling would, at best, merely substantiate this value. Concluding that he had learned about the company in the wrong stage of its operations, Mr. Woodberry decided not to invest.

Was Mr. Woodberry's decision sound?

How did Mr. Woodberry's point of view differ from Mr. Langdell's?

B. RISK AND INSURANCE

3. Atlantic Fisheries Company

INSURANCE OF VESSELS

In 1925, a fleet of fishing vessels was operated, through a subsidiary, by the Atlantic Fisheries Company, manufacturers of fish products. For many years the company had insured its boats against partial and total loss. At the close of the fiscal year, March 31, 1925, however, the treasurer of the company recommended that the payment of premiums to an insurance company should be discontinued and instead a reserve should be set aside each year in the same amount from which to meet marine losses.

About 20% of the fish processed were obtained by the company from its own fishing operations, the remainder being purchased. The company had had very steady earnings. Exhibit 1 shows its income statement for the year ending March 28, 1925.

The company had been reorganized in August, 1923; following that date, it had paid preferred dividends regularly but had paid no

EXHIBIT 1

ATLANTIC FISHERIES COMPANY

Income Statement for Year Ending March 28, 1925

Net Sales	$2,099,296
Total manufacturing cost of sales	1,603,826
Trading profit	$ 495,470
Expense	350,051
Profit	$ 145,419

common dividends, although earnings during the year ending March 28, 1925, had amounted almost to $14 per share of no par common stock. The consolidated balance sheet of the Atlantic Fisheries Company as of March 28, 1925, is shown in Exhibit 2.

EXHIBIT 2

ATLANTIC FISHERIES COMPANY

Consolidated Balance Sheet, March 28, 1925

Assets		Liabilities	
Cash	$ 166,652	Accounts Payable	$ 42,931
Notes and Accounts Receivable (less reserve for losses)	169,342	Accrued Expenses	8,403
Merchandise and Supplies	324,328	First Mortgage Bonds 6%, 1933	108,200
Fishing Gear	22,058	Capital Stock—Preferred (7% cumulative, par $25)	187,050
Investments	14,122	Common (no par)	747,011
Prepaid Expenses	25,461	Surplus	175,476
Mortgage Note Receivable	8,400		
First Mortgage Bonds in Treasury (face value = $6,200)	5,641		
Vessels (pledged to secure first mortgage bonds, less reserve for depreciation)	195,801		
Plant and Equipment (pledged to secure first mortgage bonds, less reserve for depreciation)	337,266		
	$1,269,071		$1,269,071

Each of the 15 fishing schooners was operated under an agreement known as a "lay," which provided for the division of the proceeds of a fishing voyage among the captain, the crew, and the company. The lay customarily stipulated that the company should receive one-fourth of the profits, the captain one-fourth, and the crew one-half, each member of the crew having one share in the half interest except

the engineer and the cook, who usually had two or three shares apiece. With the exception of fuel oil, which was paid for by the company, the cost of supplies for the voyage was divided equally among the crew.

The skill and reputation of the captain of a fishing vessel were important factors. It was he who hired the crew and decided where to fish. The captain himself had no continuous contract with the Atlantic Fisheries Company but merely signed up for one voyage at a time. Depending on weather, kind of fish sought, and fishing location, a voyage might last from a few days to three weeks. Company officials reported that good captains were not easy to find. It had been several decades since there had been many Yankee skippers, and latterly most of the available captains were naturalized American citizens from Nova Scotia, Newfoundland, and Portugal. Masterful men, they were independent in their dealings; and a skipper who found the company, the boat, or its equipment unsatisfactory refused to sign up for another voyage. The reputation of the skipper was important also, because if a crew thought that a captain could get fish they were willing to go with him. A captain in whom fishermen lacked confidence could not get a crew.

As shown in Exhibit 3, the ages of the company's 18 vessels varied from 7 to 22 years, with an average age of 16 years. The life of a fishing vessel was estimated by company officers at about 20 years, but many well-built fishing vessels actually were used considerably longer.

EXHIBIT 3

ATLANTIC FISHERIES COMPANY

Ages of Vessels Operated in 1925

No. of Vessels	Date Built	Age in 1925 (Years)
3	1903	22
3	1904	21
3	1905	20
1	1908	17
2	1910	15
1	1913	12
1	1915	10
3	1917	8
1	1918	7

In June, 1924, the Atlantic Fisheries Company had had 20 vessels, valued in the aggregate at about $325,000. Until that time, the insurance rate had been 5%. Because the company had suffered a total loss on two vessels in the year just ended, the insurance company in June, 1924, had increased the premium rate to 7%; hence the Atlantic Fisheries Company had paid about $23,000 for protection during the year ending June, 1925. In that year, the company had lost two more vessels, for which it had collected $34,000; in addition, it had collected about $1,800 for partial losses on other vessels, making a total for the year of about $35,800. Two of the boats lost had run aground and had been broken up by heavy seas before the insurance company could send out tugs to save them. The other two had sunk after collisions in foggy weather. One of these had been struck without warning by a big coasting schooner. It was the experience of the Atlantic Fisheries Company, however, that such accidents as this were infrequent. A summary of the insurance premiums paid and the losses incurred on fishing vessels by the Atlantic Fisheries Company from June, 1921, to June, 1925, is given in Exhibit 4.

EXHIBIT 4

ATLANTIC FISHERIES COMPANY

Rate of Insurance, Premiums Paid, and Losses Incurred on Fishing Vessels, June 3, 1921, to June 3, 1925

Year	Rate of Insurance	Insurance Premiums Paid	Total Losses	Partial Losses	Sum of Total and Partial Losses
1921–22	5%	$27,960.00	$ 6,000	$ 8,263.05	$ 14,263.05
1922–23	5	21,052.53	20,000	7,646.19	27,646.19
1923–24	5	21,811.71	33,500	7,155.21	40,655.21
1924–25	7	22,737.89	34,000	1,844.78	35,844.78
		$93,562.13	$93,500	$24,909.23	$118,409.23
Four-year Average.....		23,390.53	23,375	6,227.31	29,602.31

In June, 1925, the insurance company advanced the premium rate for Atlantic Fisheries vessels to 9%. The 18 vessels in the fleet at that time were valued for insurance purposes at about $250,000, on which sum the premiums for the year ending June, 1926, would amount to $22,500.

The treasurer of the Atlantic Fisheries Company was opposed to paying this increased rate; he considered it excessive, in spite of the large losses which the company had suffered and for which it had

collected. He contended that since the company's losses in the two years prior to June, 1925, had been unusually large, it was reasonable to suppose that the losses in the next year or two would be small. The treasurer believed, furthermore, that marine insurance was not on a very scientific basis and that, although the Atlantic Fisheries Company received a slightly lower premium rate than did many other owners because of the excellent condition in which its boats and equipment were kept, the rate was still too high.

The treasurer proposed, therefore, that the company set aside $20,000 a year as a reserve for self-insurance against loss of its vessels. If the company lost no vessels during the first year, and if partial losses amounted to only $6,200, which was approximately the average for the four preceding years, the company would, at the beginning of the second year, have a fund of $33,800, a sum more than sufficient to take care of the total loss of one vessel. If the company escaped the total loss of any vessel during the second year, and again suffered a partial loss of only $6,200, at the beginning of the third year the fund would amount to $47,600. The treasurer believed that, if a reserve of this amount once was attained, the yearly contribution of $20,000 would be more than sufficient to meet yearly losses. His program contemplated that the reserve fund would be built up each year until finally the company could reduce or discontinue the annual contribution.

The treasurer pointed out that each of the company's 18 vessels was a separate risk; that is, since the vessels ordinarily operated independently of one another, the company was unlikely to lose more than one in the same collision or storm.

The manager of the subsidiary company opposed the treasurer's plan for protecting the vessels. He thought it unwise to let the boats go to sea not fully insured by an insurance company. Until a large reserve fund had been built up, unusual losses in any year would have to be charged against operations for that year. These losses might amount to $40,000 or $50,000. The manager contended that insurance companies, by spreading their risks over large numbers of vessels, were able to offer policies at premiums which in the long run were certain to be lower than the costs of self-insurance by the Atlantic Fisheries Company. Insurance of vessels, he believed, called for a high degree of specialized ability and keenness of observation, in which long experience was of great importance. He argued, therefore, that the loss of ships should continue to be guarded against by marine insurance policies placed with well-established insurance corporations.

Should the Atlantic Fisheries Company have undertaken self-insurance?

Which of the risks incurred by the Atlantic Fisheries Company were business risks? Which were insurable risks? What is the distinction? What bearing does it have on profit?

4. Brice, Meffert & Company

INSURANCE OF ACCOUNTS RECEIVABLE

Brice, Meffert & Company was incorporated in the fall of 1924 to act as a selling agent in marketing the products of several cotton mills. Shortly thereafter, the treasurer suggested that the company insure its accounts receivable. The treasurer formerly had been associated with a similar firm which had carried insurance against losses from bad accounts.

Most of the mills whose output the new corporation sold were located in the South. These mills previously had marketed their products through another selling agent. Brice, Meffert & Company had no financial interest in the mills.

Brice, Meffert & Company sold a wide variety of cotton goods, ranging from plain sheetings to fancy prints. Slightly more than half the sales were of staple goods. The customers were for the most part dry goods wholesalers and garment manufacturers; a few customers were large retail stores. Credit terms were 2%, 10 days, 60 days extra, so that payment was due 70 days from the date of shipment. For its services, the company received commissions which varied from 2% to 5% of the selling price, depending upon the type of product. The commission was lower on staple goods than on fancy goods, since the risk of losses from style changes was less for staples. Commissions were expected to average about 3.63% of sales. The company anticipated sales of about $20,000,000 in the first year.

The selling company guaranteed to the mills the payment of all accounts receivable and had to pay the mills upon the due dates, whether or not the customers had paid. In performing this service, the selling agent kept the mills' accounts with the customers and made all collections. The expense of this work had to be met from the sales commissions. To know the condition of the accounts, the company kept a monthly record in which it listed receivables according to the percentage which were from 1 day to 30 days overdue, the

percentage which were doubtful, and the percentage which seemed to be uncollectible. The treasurer was of the opinion that the accounts past due would vary during the year from about 2% to 10% of outstanding receivables, and that during most of the time the overdue accounts would be nearer the lower than the higher amount. The company set aside each month against doubtful accounts an amount equal to 1/10 of 1% of the month's sales. In his experience with the other selling company with which he had worked, the treasurer had found this percentage sufficient to meet ordinary losses in a normal year. In a bad year, losses might go as high as 1/4 of 1%.

Brice, Meffert & Company could obtain a one-year insurance policy which provided in part:

> [The insurance company] upon payment of $6,500 premium, guarantees, under the Conditions and subject to the Stipulations set forth, Brice, Meffert & Company, engaged in the business of general commission merchant and selling agent, against loss, to an amount not exceeding $150,000, due to insolvency, as hereinafter defined, of debtors, which insolvency shall occur within the year and which loss shall result from the Indemnified's bona fide sales of cotton goods shipped and delivered during said term in the usual course of business to individuals, firms, copartnerships, or corporations in the United States of America, or any Territory thereof, and in the Dominion of Canada, and which loss is covered, proven, and allowed, as is hereinafter stipulated. From the aggregate net loss, ascertained in adjustment as hereinafter provided, there shall be deducted first, 10% thereof as coinsurance, and from the remainder an agreed Normal Loss of 1/8 of 1% to be borne by the Indemnified, upon the total gross sales made during said term; but such Normal Loss so to be deducted shall be not less than $25,000; and the remainder, if any, not exceeding the amount of this Bond, shall be the loss payable by the Company.

To ascertain the net loss under any adjustment there were to be deducted from each gross loss covered and proven: all amounts already collected thereon; the invoiced amount of goods returned or replevined, when such goods were in the undisputed possession of the indemnified; and all amounts mutually agreed upon as thereafter obtainable.

Besides carefully defining insolvency for the purposes of the bond, the conditions and stipulation provided that protection applied to no loss unless the debtor had certain specified capital and credit ratings as stated in Dun's and Bradstreet's rating books. The gross amount to be collected on losses occasioned by any one debtor was not to exceed the amount owed by the debtor or the amount of the rating allowed the debtor by the insurance company. Although the usual form of policy stipulated that the insurance company should make collections from debtors, Brice, Meffert & Company insisted that it

should be allowed to collect its own past-due accounts. At the end of the year, the selling company was to file with the insurance company a final statement of claims as the basis for adjustment of losses.

The premium for the insurance policy amounted to $6,500. In addition, the selling company had to pay as coinsurance one-tenth of all the losses. Moreover, the insurance company would not be liable until the policyholder had absorbed a normal loss of $25,000. Even if it insured its accounts receivable, the selling company could not dispense with its credit department. An efficient credit department enabled the company to keep losses at a minimum and to obtain a favorable insurance rate. The existence of a bond to cover losses might tend to make the credit department less strict in investigating the credit position of customers before shipments were made than it was in the absence of such protection. If the company should happen to lose an excessive amount in any year, the insurance company probably would raise the rate in the contract for the following year. The treasurer's experience had been that about 90% of losses resulted from sales to firms with credit ratings of $10,000 or less. The likelihood of any one large loss, therefore, was minimized.

In 1921 and 1922, the selling firm with which the treasurer of Brice, Meffert & Company then had been connected had collected $60,000 and $10,000, respectively, under the insurance on its accounts receivable, although in 1922 the insurance company had raised to $75,000 the normal loss which the selling company had to absorb. This experience illustrated the advantage of having credit insurance during a period of business depression. The insurance also had protected the firm against unusual loss from the failure of a large wholesale dry goods firm in the Middle West. In the opinion of the treasurer, these two instances indicated the value of credit insurance in providing protection against unexpected and unpredictable losses.

If Brice, Meffert & Company insured its accounts receivable, it would be able to obtain more liberal credit terms from its bank. Accounts receivable were the company's principal assets. With these insured, the bank would have full confidence in the safety of its loans to the company.

A representative of the insurance company pointed out that lack of capital had caused only about one-third of the "business deaths," as compiled by Bradstreet's, in 1923 and 1924. Two-thirds of the failures had been caused by incompetence, inexperience, fraud, and other conditions which could not be discovered in advance. Even when the customer was solvent at the time goods were shipped, the

selling company could not be sure that the customer would be able to meet the bill when due.

Should Brice, Meffert & Company have insured its accounts receivable?

C. SELECTION OF RISKS BY MANAGEMENT

5. Golden Canning Company (B)

FORWARD SELLING

On July 12, 1938, the Golden Canning Company received from the Glendale Wholesale Grocery Company an offer to buy on a future contract 50,000 cases[1] of fancy Maine Golden Bantam corn to be delivered at the buyer's option at any time before April 1, 1939. The price offered by the Glendale Company would give the Golden Canning Company a net sales return of about 90 cents per dozen cans after all discounts, and the company had to decide whether or not to accept the contract.

In the entire canning industry, but even more so in the packing of vegetables, it was the custom of canners to contract with farmers in the early spring for their requirements for the fall pack. Canners ordinarily furnished the seed, and their field agents supervised the planting and cultivation and decided when the crop should be harvested and sent to the canning factories.

The canner contracted to pay a fixed price for the corn. This price was established in the early spring although the corn would not be packed until late in the summer.[2] The custom therefore had grown up of selling futures to wholesalers and to chain store companies during the early spring. In general, Maine canners not only attempted to sell their entire pack before it was ready for delivery but sought, by the sale of futures, to determine the size of their pack even before they contracted for the necessary acreage. If they succeeded, both their selling price and a large proportion of their costs were fixed, and they were able to minimize the risk from price fluctuations. Sales were commonly handled by brokers, who received a commission which was a constant percentage of the selling price. In 1937, the

[1] A case contained 24 No. 2 cans which were $4\frac{9}{16}$ inches high and $3\frac{7}{16}$ inches in diameter and had a capacity of 20.55 fluid ounces.

[2] The corn-packing season in Maine was from August 25 to September 15.

commission rate had averaged 2.5%. Almost every canner packed a small part of his output under his own brand and the remainder under brands designated by the purchasers.

The future contracts with wholesalers usually set the price which would be charged for delivery at any date up to the time when contracts for the following year's pack were being made. In other words, although the corn was sold in early spring and packed in September, it might remain in the canner's warehouse until the buyer "ordered it out." The usual contract did not require that corn be ordered out at any specific time; and until it was delivered, the carrying charges were borne by the canners.

In seasons when there was a large pack, some buyers failed to order out the corn which they had contracted to take. This corn then became part of the carry-over. In some respects, therefore, the future contracts were one-way agreements; they protected the buyer if the price advanced, but they frequently were not fulfilled by the buyer if the price declined. Even though buyers accepted delivery, they found divers ways of forcing a price reduction; one device, for instance, was to enter a claim that the quality was below the specified grade; and the canner, rather than pay transportation charges on a new lot, might make a price adjustment on the shipment already delivered.

Individual canners were reluctant to insist that buyers fulfill their contracts. They reasoned that it was better to overlook the nonfulfillment of a contract than to jeopardize good will and alienate customers by forcing compliance. As a result of abuses, the practice had developed of writing into contracts between canners and buyers clauses stipulating that disputes be settled by arbitration. These provisions were helpful in instances in which the buyer objected to quality or delivery dates; but when the buyer did not order out the goods for which he had contracted, arbitration, from the point of view of customer relations, was not expedient.

Sometimes, in order to hasten the movement of stock sold on future contracts but not ordered out, canners voluntarily reduced the price which had been established. Early in 1938, for instance, canners in other sections of the country had given price concessions on the future contracts for the 1937 pack; but the Maine canners as a whole had maintained the future prices which had been established in the spring of 1937.

In seasons when the pack of a canner exceeded the quantity for which he had sold futures, he had to dispose of the remainder of the pack at spot prices during the year. When there was a short crop,

it was the practice of canners to prorate their total pack among the buyers with whom they had future contracts. There was a temptation during such seasons not to allocate the entire pack to the future contracts, but to withhold a part for sale at advantageous spot prices.

Canners found that the failure of buyers to order out the corn for which they had contracted was greatest in years when crops were very large. In such years, of course, customers could buy corn at the low spot prices which prevailed during the months after a large crop had been packed, and were unwilling to pay the higher prices stipulated in their future contracts. As a consequence, canners were left with large carry-overs of corn, and they had difficulty selling futures in the spring of the year following a large pack inasmuch as buyers believed that corn would be cheaper at spot than under future contracts.[1]

In 1926 and for about seven seasons thereafter, the amount of future buying by wholesalers and chain store companies declined. There were differences of opinion about whether this was a long-time trend or the result of the exceptionally large carry-over during these years. Several Maine canners believed it was the latter and, to prove their point, cited their sales experience in 1936 and 1937, when, the carry-over being small, they sold all of their pack on a future basis. In 1938, on the other hand, when there was a large carry-over, there were few buyers willing to contract for futures.

During 1936, 14,621,000 cases of corn were packed in the United States. Of this number, the states of Maine, New Hampshire, and Vermont packed 2,129,000; and only two other producing districts exceeded this record. They were Illinois, and Maryland and Delaware together, which packed approximately 2,500,000 cases each. In 1937, the total pack of corn in the United States rose to 23,541,000 cases; but the pack in the states of Maine, Vermont, and New Hampshire declined slightly to 2,054,000; Maryland and Delaware together, Indiana, Illinois, Minnesota, and Iowa and Nebraska together, each packed more than the New England states, and the total 1937 pack in those districts exceeded the 1936 pack of the entire United States by more than 1,500,000 cases.

[1] To a certain extent, large packs and large carry-overs in the United States as a whole did not affect the canners in Maine so seriously as in other parts of the country because Maine canners had specialized in packing high-quality Golden Bantam corn and had developed a preferential demand for their product, especially in New England. The fact that consumers were willing to pay a higher price for Maine Golden Bantam corn explained the higher price per ton (shown in Exhibit 1) for Maine, Vermont, and New Hampshire. Maine prices, although always higher than those in the rest of the country, actually were set on a differential basis and, being related to the national prices, were indirectly affected by the size of the national crop and carry-over.

Exhibit 1 gives selected statistics on the canning of sweet corn for Maine and the United States from 1929 through 1937.

EXHIBIT 1

SELECTED STATISTICS ON CANNING OF SWEET CORN, 1929–1937

	Acreage (Thous. acres)		Yield per Acre* (Tons)		Production* (Thous. tons)		Av. Price per Ton Received by Growers* (Dollars)		Pack of Corn (Thous. cases)	
	Me.	U.S.	Me.	U.S.	Me.	U.S.	Me.	U.S.	Me.†	U.S.
1929	14.9	357.3	3.1	1.97	46.0	704.4	$24.70	$13.14	1,668	17,487
1930	13.2	375.6	3.7	1.76	48.8	659.6	26.30	13.21	1,930	15,692
1931	10.2	358.6	3.5	2.19	35.7	785.1	19.30	11.06	1,245	19,415
1932	8.6	165.1	3.4	2.34	29.2	387.2	11.40	7.50	1,071	9,358
1933	8.8	199.7	3.4	1.97	29.9	394.3	12.80	8.01	1,055	10,193
1934	11.2	287.6	3.6	1.73	40.3	498.0	14.90	8.46	1,547	11,268
1935	14.8	401.6	3.4	2.14	50.3	859.9	16.50	9.31	1,931	21,471
1936	15.8	372.4	3.9	1.63	61.6	607.5	16.60	10.21	2,130	14,622
1937	18.2	430.0	3.5	2.21	63.7	952.1	16.40	11.65	2,054	23,541

* Corn in the husk.

† Figures for Maine include the pack in Vermont and New Hampshire. Production for these two states was as follows (thousands of tons):

1929	9.5	1931	5.8	1933	3.8	1935	5.5	1937	6.0
1930	8.0	1932	3.4	1934	4 8	1936	5.9		

Source: *Almanac of the Canning Industry.*

In 1937, the Golden Canning Company had packed approximately 236,500 cases of canned corn,[1] of which 97% had been sold on future contract during the spring before the planting season had begun, at a price of $1 per dozen cans before discounts. The remaining 3% had been sold at spot during the year. On March 31, 1938, however, the company still had in its warehouse about 25,000 cases which had been sold on future contract but had not been ordered out by the buyers. The Golden Canning Company, adhering to the policy adopted by Maine canners, had not reduced the price to hasten the movement of this corn.

In the spring of 1938, when the Golden Canning Company would normally have made its sales of futures, there had been no offers. As a result it had been forced, contrary to its long-established policy,

[1] This amounted to approximately 11% of the corn packed in the states of Maine, Vermont, and New Hampshire.

to contract with farmers to deliver corn to its cannery without having first sold the canned corn on a future basis. The offer of the Glendale Company was the first that the Golden Canning Company received during the 1938 season. At the time the offer was received, the Golden Canning Company had disposed of substantially all its carry-over; and best estimates indicated that the quantity available for sale in 1938 would be slightly lower than in 1937.

The president believed that the offer of the Glendale Company was at a fair price; but as a result of the inability to sell futures for the 1938 pack in the spring, he had been considering the adoption of a policy of selling only at spot at all times. He reasoned as follows: Although the Golden Canning Company had been willing to sell futures in April, 1938, at about 91 cents net, it had been unable to find any buyers because prospective buyers had expected the price to decline. The company, therefore, if it contracted to purchase any corn from the farmers, had to accept the risk of a price decline. But the president had observed that in those seasons when the buyers expected a price increase they hastened to buy futures in the spring and thus took from the Golden Canning Company any possibility of benefiting from a rise in price. The president believed that, since the company had to take the price risk when it was unfavorable, sound policy demanded that the company should also take the price risk when it was favorable, thereby placing itself in a position to offset losses with profits. He was of the opinion that either policy, selling at spot or selling futures, would be satisfactory to the canners if it could be maintained consistently; but he did not think that it was wise for the industry to be shifting from one policy to the other at the whim of the buyers.

Other officers argued that the president's proposal was technically sound but questioned the ability of one canner no larger than the Golden Canning Company to effect the change. They argued that the existing policy might be ill-advised but that the Golden Canning Company was not in a position to correct it. They were also somewhat worried about the possible effect of a change in policy on the attitude of the bankers toward the company's borrowings for financing seasonal loads, inasmuch as bankers frequently expressed the general opinion that loans to canners were more desirable when the pack had been sold on a future basis.

The Golden Canning Company had been a borrower at the bank from June 1, 1937, to March 15, 1938, and its peak debt immediately after the canning season had been $182,000. A balance sheet of the company as of April 30, 1938, is shown in Exhibit 2.

EXHIBIT 2

GOLDEN CANNING COMPANY

Balance Sheet, April 30, 1938

Assets			
Current Assets			
Cash		$ 43,884	
Accounts and Notes Receivable (net)			
Customers	$14,883		
Planters	2,382	17,265	
Inventories			
Finished Goods, at Cost	$30,912		
Manufacturing Supplies	21,266		
Planters' Supplies	14,357	66,535	
Investments		6,966	
Total			$134,650
Other Assets			
Other Accounts Receivable (net)		$ 14,627	
Other Investments		3,867	
Advances, 1938 Operations		5,845	
Total			24,339
Fixed Assets			
Land		$ 7,452	
Buildings (net)		56,413	
Machinery (net)		52,904	
Automobiles (net)		1,247	
Miscellaneous Equipment		1,258	
Total			119,274
Deferred Charges			7,813
Total Assets			$286,076
Liabilities			
Current Liabilities			
Accounts Payable		$ 22	
Taxes Accrued		121	
Total			$ 143
Reserves			
Federal Taxes		$ 3,645	
Contingencies		1,064	
Total			4,709
Capital and Surplus			
Preferred Stock		$ 72,500	
Common Stock		118,750	
Surplus		89,974	
Total			281,224
Total Liabilities			$286,076

Should the Golden Canning Company have continued the policy of selling canned-corn futures?

6. Organized Speculation in Grain

HEDGING TRANSACTIONS

A. CARDIGAN COMPANY

The Cardigan Company, of Kansas City, was engaged in the flour-milling business, selling to chain stores and wholesalers a high-grade blended flour both under its own brand and under distributors' brands, as well as making large sales in bulk to baking concerns. To obtain wheat of the proper protein content the company frequently sent representatives into the field to purchase grain from dealers at country points.

EXHIBIT 1

WHEAT PRICES, SEPTEMBER 9–14, 1936

(Dollars per bushel)

Date		Futures—Chicago				Cash Prices—Kansas City* (No. 2 Hard Wheat)	
		Open	High	Low	Close	Low	High
September 9, 1936	Sept.	1.12 3/8	1.12 3/8	1.11 1/8	1.11 1/4	1.17 1/2	1.26
	Dec.	1.11 5/8	1.11 7/8	1.10 1/4	1.10 3/8		
	May	1.10	1.10 1/4	1.09	1.09 1/4		
September 10, 1936	Sept.	1.11 1/2	1.12	1.11 1/8	1.11 5/8	1.17	1.25 1/2
	Dec.	1.10 5/8	1.11 1/4	1.10 1/4	1.10 5/8		
	May	1.09 1/4	1.09 3/4	1.09	1.09 3/8		
September 11, 1936	Sept.	1.11 3/8	1.12 3/4	1.11 3/8	1.12 3/4	1.17 1/2	1.26
	Dec.	1.10 3/8	1.12	1.10 1/4	1.11 7/8		
	May	1.09 3/8	1.10 3/4	1.09 1/8	1.10 5/8		
September 12, 1936	Sept.	1.13	1.13 1/4	1.12 5/8	1.12 3/4	1.18 1/2	1.27
	Dec.	1.12 1/2	1.12 5/8	1.12	1.12 1/8		
	May	1.11 1/4	1.11 1/4	1.10 3/4	1.10 7/8		
September 14, 1936	Sept.	1.13 1/4	1.13 1/2	1.12 3/4	1.12 7/8	1.19	1.27
	Dec.	1.12 1/4	1.12 3/4	1.11 1/2	1.11 5/8		
	May	1.11 3/8	1.11 1/2	1.10 1/2	1.10 5/8		

* Width of range attributable primarily to variations in quality.

The flour-milling business was highly competitive. The company's selling price per barrel of flour was based on the cost of the wheat required plus an allowance of $1 a barrel for manufacturing cost plus 10 cents per barrel for profit. Thus for a type of flour

requiring 4½ bushels of wheat per barrel a price of $5.15 represented a cost per bushel of 90 cents. Flour price quotations were changed constantly. Wholesalers, chain stores, and large commercial bakeries not infrequently placed orders for delivery several weeks or months in advance.

At the conclusion of business on September 9, 1936, the Cardigan Company had bought during the day 10,000 bushels of wheat and had sold 3,000 barrels of flour, the equivalent on a 4½ to 1 yield basis of 13,500 bushels of wheat. On the following day, at the close of business, the sales of flour totaled 2,500 barrels, and wheat purchases were 6,000 bushels. On September 11, 500 barrels of flour were sold and 2,250 bushels of wheat bought. On the following day, Saturday, September 12, sales of flour were 600 barrels, and purchases of wheat totaled 15,000 bushels. Some of the orders taken over this period were for December delivery; others were for delivery in later months. Wheat prices for the period covered by these transactions were as shown in Exhibit 1.

On the assumption that the Cardigan Company wished to hedge, what futures transactions should it have made, at what times, in connection with these sales of flour and purchases of wheat?

B. SPENCER & HIBBARD

The firm of Spencer & Hibbard operated a local grain elevator in a small town in the wheat-growing region in the Middle West. The capacity of the elevator was approximately 30,000 bushels, but in the course of a year the quantity of grain handled might be eight or nine times as great as that capacity. Spencer & Hibbard ordinarily made purchases outright from farmers, mostly at the time of delivery of the grain to the elevator. Occasionally some grain was stored at the risk of the farmers.

Sales were made on three bases, "on track," "to arrive," and "on consignment." When grain was sold on track, the price was agreed upon before shipment. The seller guaranteed weight and grade, and the buyer paid the freight. In the case of grain sold to arrive, the seller paid the freight, agreed to deliver the grain within a specified time at the mill or terminal market, and guaranteed weight and grade at the time of delivery. Grain sold on consignment was sent to a commission merchant at a terminal market. On arrival, the grain was inspected and sold by the commission merchant for a commission determined by the rules of the local trade organization of which the commission merchant was a member.

EXHIBIT 2

WHEAT PRICES, SEPTEMBER 7–17, 1937

(Dollars per bushel)

Date		Futures—Chicago				Cash Prices—Kansas City* (No. 2 Hard Wheat)	
		Open	High	Low	Close	Low	High
September 7, 1937	Sept.	1.06 5/8	1.09 3/4	1.06 5/8	1.08 5/8	1.10 1/4	1.18 3/4
	Dec.	1.08 7/8	1.11 1/8	1.08 7/8	1.10 1/8		
	May	1.11 1/2	1.13 7/8	1.11 1/2	1.12 1/4		
September 8, 1937	Sept.	1.08 3/4	1.10 5/8	1.08 1/2	1.08 1/2	1.10 1/4	1.20
	Dec.	1.10 1/4	1.12 3/8	1.10	1.10 1/8		
	May	1.12 1/8	1.14 1/2	1.12 1/8	1.12 1/4		
September 9, 1937	Sept.	1.08 1/4	1.08 1/2	1.07 3/8	1.07 5/8	1.10	1.17 3/4
	Dec.	1.09 5/8	1.10 1/4	1.09 1/4	1.09 5/8		
	May	1.12 1/4	1.12 5/8	1.11 1/2	1.11 7/8		
September 10, 1937	Sept.	1.07 1/8	1.07 1/4	1.05 1/2	1.05 3/4	1.07 3/4	1.16 1/2
	Dec.	1.09	1.09 1/4	1.07 1/4	1.07 5/8		
	May	1.11 3/8	1.11 1/2	1.09 3/8	1.09 3/4		
September 11, 1937	Sept.	1.04 1/2	1.04 1/2	1.02 1/4	1.03 1/8	1.04 1/2	1.14
	Dec.	1.06 1/2	1.06 1/2	1.03 3/4	1.04 1/8		
	May	1.08 3/4	1.08 3/4	1.06 1/4	1.07		
September 13, 1937	Sept.	1.03 1/2	1.04 1/2	1.01	1.01	1.02	1.13 1/4
	Dec.	1.05 1/4	1.06 1/8	1.02 1/4	1.02 1/4		
	May	1.07 3/8	1.08 3/8	1.04 1/2	1.04 1/2		
September 14, 1937	Sept.	1.03 3/4	1.04	1.02 3/4	1.03 1/2	1.04 1/2	1.12 1/2
	Dec.	1.04 3/4	1.05 3/4	1.04 1/4	1.04 7/8		
	May	1.07	1.07 5/8	1.06 3/8	1.06 7/8		
September 15, 1937	Sept.	1.03 3/4	1.04	1.02 1/2	1.02 7/8	1.04 3/4	1.13 1/2
	Dec.	1.05 1/4	1.05 5/8	1.03 7/8	1.04 1/4		
	May	1.07 3/8	1.07 5/8	1.06	1.06 1/4		
September 16, 1937	Sept.	1.01	1.02 1/2	1.00 5/8	1.02	1.03 1/4	1.13 1/2
	Dec.	1.03 1/4	1.03 5/8	1.02 1/8	1.03 1/4		
	May	1.05 5/8	1.05 3/4	1.04 1/8	1.05 3/8		
September 17, 1937	Sept.	1.02	1.04 1/2	1.01 7/8	1.03 3/8	1.04 1/4	1.16 1/4
	Dec.	1.03 1/2	1.05	1.02 7/8	1.04 3/8		
	May	1.05 1/4	1.07 1/8	1.05	1.06 3/8		

* Width of range attributable primarily to variations in quality.

Grain from the area in which Spencer & Hibbard operated usually went to Kansas City, a period of four to eight days being required to move the grain to market. Most of the sales of Spencer & Hibbard were made either on consignment or on track. The proportion-

ate volume sold by the two methods varied with the condition of the market.

In selling on consignment, Spencer & Hibbard usually consigned grain to a commission merchant in Kansas City, James Dealy & Company. This concern also handled purchases and sales of futures through its main office in Chicago. The commission for either a sale or a purchase of 1,000 bushels was $2.50. There was also a Federal tax of 5 cents per 100 bushels on all futures transactions.

The "spread" or margin of gross profit for Spencer & Hibbard was approximately 4 cents a bushel on wheat. This figure did not include transportation costs to the terminal market. There were two other grain elevators in the same town, one belonging to a concern operating a chain of elevators in several states and the other being a farmers' cooperative enterprise. Competition served to keep the spread relatively narrow.

On September 7, 1937, Spencer & Hibbard bought from farmers 6,000 bushels of wheat at prices which, in comparison with quoted cash prices of wheat on that date, after allowing for transportation costs, assured the firm of its normal spread. On the same day, Spencer & Hibbard sold 2,000 bushels of wheat on track. On the next two days, the purchases amounted to 3,000 and 5,000 bushels, respectively, and no sales were made. On September 10, Spencer & Hibbard bought 2,000 bushels and consigned 10,000 to James Dealy & Company. On the morning of September 17, notification was received by wire that these 10,000 bushels had been sold on the Kansas City market.

Futures prices for this period on the Chicago Board of Trade and cash prices at Kansas City were as shown in Exhibit 2.

On the assumption that Spencer & Hibbard wished to hedge, what futures transactions should it have made, at what times, in connection with these sales and purchases of wheat?

Appendix

Some Notes on Organized Speculation

The Chicago Board of Trade[1] began as a voluntary association of businessmen interested in commercial and financial matters, and

[1] This statement regarding the Chicago Board of Trade is adapted, by permission, from the case of the Chicago Board of Trade in Edmund P. Learned, *Problems in Marketing* (New York, McGraw-Hill, 1936).

gradually developed into a market place in which trading was carried on in flour, grain, salt, pork, lard, short ribs, and other provisions. The Board of Trade is a corporation holding a charter from the State of Illinois. It does no trading on its own account but furnishes its members with market information and with a place to trade, subject to the rules of the Board. The individual members trade with one another either as principals or as agents for outsiders. In 1935, there were 1,549 individual members representing 491 firms and corporations. The main business interests of the firms represented in the membership were as follows:

General commission merchants	177
Cash grain sales agencies	85
Grain elevator companies	49
Beef and pork packers	22
Flour mills	20
Export houses	20
Food processors	15
Import houses	15
Cotton merchants	13
Railroads, steamship lines, and forwarders	17
Banks	11
Cooperatives	6
Miscellaneous	41
Total	491

Only 143 of these firms were local Chicago companies; the others had main offices in 28 states and 8 foreign countries. Correspondent offices of the 491 firms numbered over 2,700; they were located in every state in the United States and in many foreign countries.

Both cash grain and futures are sold on the same floor at the Chicago Board of Trade, and many members of the Board customarily make deals on both cash and futures markets. The rate of commission on the cash grain business is substantially the same on all markets, 1% of the value of the grain, or at least 1 cent a bushel. The commission on future trades for nonmembers, as fixed by the rules, is one-fourth cent a bushel for what is known as the "round turn," that is, both buying and selling; on orders executed by one member for another member, the commission is one-eighth cent a bushel for the round turn. A large part of the trading in futures is carried on by members for themselves.

The Chicago Board of Trade is the predominating market in the United States for organized future trading in grain; the volume of future trading at Chicago is much greater than at any other grain exchange in the United States. The futures contract is made upon

the basis of a specified grade of grain, known as "contract" or "basis" grade. The contract provides for delivery either on the buyer's demand or at the seller's pleasure at any time within a specified month at the price fixed in the contract. Provision is made in the rules of the Board of Trade whereby other grades may be delivered on the basis contract with stipulated adjustments in price. In general, the basis grade for all grains is No. 2; for instance, No. 2 mixed corn, No. 2 white oats, No. 2 rye, and No. 2 barley are the bases of delivery on contracts. In the case of wheat, No. 1 Hard Winter, No. 2 Hard Winter, No. 1 Yellow Hard Winter, No. 2 Yellow Hard Winter, No. 1 Red Winter, No. 2 Red Winter, No. 1 Northern Spring are basis grades deliverable on the contract at the contract price. No. 1 Hard Spring may be delivered at a fixed premium of 2 cents a bushel; No. 1 Dark Hard Winter, at 1½ cents a bushel; No. 1 Dark Northern Spring, at 1 cent a bushel; and No. Dark Hard Winter, at one-half cent a bushel. The actual grad delivered at any time on a futures contract must be one of the foregoing grades. Of the grades of wheat tenderable on a futures contract, the one available in sufficient quantities and having the lowest price in the cash market is called "basic" wheat and is the one delivered on a futures contract. Cash prices quoted for Chicago wheat are prices of basic wheat unless otherwise stated.

Most futures contracts made on the Chicago Board of Trade and other speculative markets are settled by the payment of differences rather than by delivery of grain. Although a futures contract is valid in the eyes of the law, and actual delivery of the commodity legally can be insisted upon, few futures contracts entered into on the Chicago Board of Trade are consummated by actual delivery of the grain. At the time of settlement, if the cash price is higher than the price named in the contract, the buyer pays the difference. To facilitate the settlement of differences the Chicago Board of Trade maintains a clearinghouse, and at the close of each business day each member reports amounts due him from all other members and due from him to all other members. The operation of this clearinghouse is essentially similar to that of a bank clearinghouse.

Although trading in cash grain and transactions in contracts for future delivery are carried on simultaneously on the same floor, the two kinds of business are sharply differentiated in purpose.

In the case of commodities in which there is future trading, it is possible for those owning the actual commodity to relieve themselves of the risk of loss from price fluctuations by utilizing the machinery of future trading. This result is accomplished by hedging. Hedg-

ing, in general terms, is the offsetting of one transaction in the cash commodity, or its products, by another transaction in the futures market, so that protection against loss from price changes is secured on commitments made at current market prices, and at the same time any speculative profits that might have been secured by a price change in the opposite direction are foregone.

The feasibility of insuring against loss by means of hedging is dependent upon the constancy of the spread between the cash and future prices. Normally, future prices for a specified month range above cash prices in earlier months by the amount of the carrying charges to the month, that is, interest, insurance, and storage. As the delivery month approaches, this spread, of course, narrows until it is practically nonexistent at the time of maturity of futures contracts for that month. The maintenance of a constant spread between future and cash prices means that whenever the price of cash grain increases or decreases, the price of futures contracts increases or decreases at the same time by a like amount.

Organized trading in futures on the commodity exchanges is further described in the following excerpts from F. E. Clark and L. D. H. Weld, *Marketing Agricultural Products in the United States:*[1]

The commodities traded on the futures' market of exchanges have certain common characteristics. They conform to definite standards or they can be assorted to conform to such standards, so that sales can be made by description or by merely naming the grades. Although no two units may be exactly the same, different lots can be graded so closely that buyers and sellers will know within sufficient limits what quality they are buying. The products must also be so homogeneous that various units are interchangeable.

. . . . . .

Products in which futures are most commonly bought and sold are: wheat, corn, oats, barley, rye, rice, flax seed, grass seed, cotton, coffee, cocoa, sugar, butter and eggs, pork products (mess pork, lard, and short ribs), hides, cotton oil, certain metals (tin, copper, spelter or zinc, lead), rubber, and raw silk. On the other hand, tea, wool, and coal, products that are not perishable, but each of which represents a large volume, are not the subjects of future trading, chiefly because of the difficulties encountered in arriving at a minimum of satisfactory grades.[2] A product may, however, answer all the requirements for future trading, but if the dealers are not willing or have not the ability to purchase contracts for the future, there may be no future trading. Naturally it would be necessary

[1] New York, 1932. Reprinted (from pp. 418–419, 419–420, 430) by permission of The Macmillan Company, publishers.

[2] Editors' Note: At the time *Marketing Agricultural Products in the United States* was published, the Wool Top Futures Exchange had not been established.

to overcome prejudice to start future trading on products that have always been handled on a spot basis.

It is possible that future trading will in time come to be much more common than it is today because of the protection it affords to dealers and manufacturers of products the prices of which fluctuate. Or, because of public opposition, it may become less important. Laws to abolish future trading are frequently introduced in our state and Federal legislatures and Federal supervision of both cotton and grain exchanges has developed rapidly in recent years.

. . . . . .

The first function of speculation as manifested in future trading is to make hedging possible. There are opponents of future trading who realize that hedging is of economic benefit, and who would so restrict future trading as to allow hedging to continue and at the same time prohibit pure speculation. But successful hedging operations are dependent upon a general speculative market. It will be remembered that by pure speculation in futures is meant buying or selling, not for the purpose of protecting actual transactions in commodities, but merely for the purpose of gaining profits out of price fluctuations. A trade for future delivery involves both a buyer and a seller. It may be that in any single transaction both buyer and seller are hedging; or that both buyer and seller are speculating; or that either buyer or seller is hedging while the other is speculating. If we prohibit pure speculation, both buyer and seller in every transaction would have to be hedging.

Among the commonly cited advantages of organized speculation are the following:

1. Organized speculative markets forecast prices, thereby facilitating the exercise of business judgment on the part of manufacturers and merchants.
2. Organized speculative markets lessen the violence of price fluctuations.
3. Organized speculative markets make possible the transference of risks through hedging, thereby reducing the spread of prices between producers and consumers.

The following discussion of organized speculation in cotton has been adapted from unpublished studies made by Melvin T. Copeland:

It is necessary to distinguish between new crop futures and old crop futures. By new crop futures are meant the future prices that are quoted on the Cotton Exchange prior to the harvesting of the crop to which the futures apply. October, December, and March futures are new crop futures prior to October. Old crop futures include quotations of prices for future deliveries of cotton subsequent to the harvesting of the crop. Thus, March and May futures are designated as old crop futures subsequently to October. This distinction is fundamental and probably of much greater significance than near month and far month futures. New

crop futures for the several months for which transactions are quoted tend to move together. Old crop futures for different months likewise tend to correlate closely. The fact that the various new crop futures, for example, move together warrants the use of quotations for any single new crop month for purposes of comparison. Likewise, the use of the prices quoted for old crop futures for any one month's delivery also serves as a satisfactory working index for all old crop futures during the same period.

During the period from 1903 to 1923, new crop futures in ordinary years were sold at a substantial discount during the spring preceding the harvesting of the crop. Figures for this period were compiled by taking the average spot price in October for a given year as equal to 100% and computing prices for new crop futures during the preceding months as percentages of the October spot price. In 1923, for example, the average price of spot cotton in October was 30.06 cents. On January 3 the average price of new crop futures was 24.76 cents. This was 82.4% of the October price of spot cotton. The index numbers for the other months were figured in the same way. By using this method of comparison, figures for the entire period from 1903 to 1923 were placed on a comparable basis. These figures are summarized in the following table.

DISCOUNT OF NEW CROP FUTURES BELOW OCTOBER SPOT PRICES

(Expressed as a percentage of the average spot prices in October)

	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
1903	15	15	14	9	2	2	0	2	3
1904	(Corner)	....	....	....	6	7	2	+3	2
1905	27	26	27	21	14	+6	+4	+2	2
1906	5	5	4	2	4	4	11	15	0
1907	13	13	13	4	+1	+4	+6	+3	6
1908	+8	+4	4	3	+1	0	3	6	6
1909	33	33	30	24	21	13	13	10	2
1910	13	13	14	13	15	11	6	9	4
1911	+34	+30	+33	+36	+38	+30	+17	+15	1
1912	7	4	+3	+3	+4	+11	+3	+4	3
1913	18	19	20	21	19	19	19	7	4
1914	(War declaration)								
1915	25	21	13	19	18	22	20	9	+3
1916	32	32	31	27	26	26	20	11	0
1917	44	34	33	29	11	11	14	23	5
1918	12	6	10	25	26	25	5	0	8
1919	46	47	34	24	13	3	10	13	2
1920	(Crisis)								
1921	23	32	28	27	30	29	26	+3	4
1922	29	27	24	15	7	4	5	8	0
1923	16	14	17	22	20	23	21	9	3

+ Above October spot price.

For purposes of illustration this table covers quotations of new crop futures only from February to October. The figures for 1914 and 1920 are omitted. In the former year the declaration of war in Europe in August upset the cotton market and thereby invalidated all comparisons, and in 1920 the business crisis that occurred was so severe as to render comparisons of little significance. While it is true that there was substantial evidence to indicate the imminence of a crisis in 1920, those symptoms were not taken into account generally by businessmen and were not discounted by the cotton market. Quotations for the first four months of 1904 are also omitted, since that was a period when the cotton market was subject to a corner.

The practical significance of these facts may be indicated briefly by the following example. Suppose that a cotton merchant bought new crop futures regularly each year in February and held them until maturity. In only two years out of the eighteen for which figures are given in the preceding table would he have lost on his purchases. If this merchant had bought new crop futures in March each year he again would have reaped speculative gains in every year except 1908 and 1911. In April likewise there was a discount in every year except 1911 and 1912.

For the purpose of attempting further verification of the tendencies noted in these figures a study was made of two periods of three years each: one, 1910–1911–1912; the other, 1922–1923–1924. Quotations of cotton futures for each active month were compared with average spot prices during the month of maturity. For instance, the quotations of July futures from September to the subsequent July were compared with the average spot prices during the month of July when the futures matured. The results of this study corroborated the previous one in showing that the most striking characteristic of the quotations of cotton futures was the discount on new crop futures during the spring of each year

The United States Commissioner of Corporations, in his Report on Cotton Exchanges published in 1909, made the following statement:

"One advantage of a well-administered future system is its operation as a brake on violent fluctuations of prices within short periods. The preceding discussion of the actual effect of the existing system on monthly fluctuations suggests that its influence was felt appreciably for many years following the establishment of the system. During the last decade, however, as the tables show, the frequency and the violence of the monthly fluctuations afford ground for the conclusion that the future system as now administered does not result in any such price steadiness as is claimed for it.

"In addition to this influence upon short-time fluctuations, its advocates claim that the future system not only forecasts, but also provides for coming important changes in production and consumption."

In order to test the effect of trading in futures on price fluctuations, the Commissioner of Corporations presented a table in which the annual fluctuation in raw cotton prices was shown as a percentage of the average of the mean prices for all the months in each year. This table covered the periods from 1828 to 1860 and from 1877 to 1909. The years during which cotton prices were rendered abnormal by the Civil War and by the Greenback Period were omitted from this table. By the use of the same

methods as were employed by the Commissioner of Corporations in the preparation of his report, this table was extended by the addition of figures for the years 1910–1924. The complete table from 1828 to 1924 therefore stands as follows:

Crop Year Ended Aug. 31	Fluctuations	Crop Year Ended Aug. 31	Fluctuations	Crop Year Ended July 31	Fluctuations
1828	20.2%	1877	17.2%	1910	21.5%
1829	17.3	1878	9.8	1911	12.0
1830	12.7	1879	33.7	1912	34.2
1831	32.7	1880	22.0	1913	112.3
1832	15.6	1881	11.8	1914	12.9
1833	23.1	1882	13.2	1915	25.0
1834	65.5	1883	22.9	1916	34.7
1835	43.5	1884	14.4	1917	57.2
1836	15.1	1885	9.5	1918	36.9
1837	42.3	1886	9.9	1919	25.0
1838	16.9	1887	20.8	1920	28.0
1839	47.4	1888	10.4	1921	137.5
1840	48.2	1889	16.2	1922	45.0
1841	22.0	1890	19.5	1923	35.0
1842	26.7	1891	24.8	1924	34.6
1843	32.4	1892	25.9		
1844	27.7	1893	28.3		
1845	26.7	1894	18.5		
1846	12.1	1895	34.3		
1847	31.6	1896	27.0		
1848	79.4	1897	12.8		
1849	61.4	1898	22.3		
1850	26.7	1899	17.6		
1851	60.7	1900	47.1		
1852	29.6	1901	27.9		
1853	21.7	1902	24.9		
1854	32.4	1903	53.2		
1855	37.3	1904	44.2		
1856	23.5	1905	43.5		
1857	27.9	1906	17.0		
1858	57.4	1907	34.8		
1859	9.3	1908	24.9		
1860	10.5	1909	35.0		

In order to measure the relative fluctuations in the prices of raw cotton, raw wool, raw silk, and crude rubber, figures were taken for two three-year periods: the first, 1911–1912–1913; and the second, 1922–1923–1924. For each commodity the average yearly price was ascertained, and

then the price for each week was expressed as a percentage of the average yearly price. Study of these data after they had been tabulated led to the following conclusions:

In 1911 the price of raw cotton showed substantially less stability than was shown in the prices of any of the other three commodities. Next to the cotton prices, the rubber prices showed the greatest fluctuation in 1911. Wool and silk prices showed a somewhat smaller range.

In 1912, raw cotton prices also showed the greatest fluctuation, varying from 14.9% above the average to 18.6% below the average. Among the other three commodities there was only slight difference in the degree of instability, with rubber fluctuating slightly more than silk and wool. In 1913, rubber prices were subject to a very heavy decline, particularly during the first four months of the year; and, consequently, rubber prices must be judged as less stable during that year than were cotton prices. Wool prices also showed a slightly wider fluctuation, but they changed with far less frequency. In fact, throughout all these charts the stability of wool prices for several weeks or months at a time is an outstanding characteristic. Cotton and silk prices fluctuated to about the same degree during 1913.

Turning to the post-war period, in 1922, rubber prices showed a somewhat greater fluctuation than the prices of the other three commodities, but the changes of silk, wool, and cotton prices were sufficiently frequent and of so great a magnitude as not to merit the use of the term "stability." In 1923, the cotton prices were the least stable of those for any of the four commodities; and in 1924, the fluctuations in cotton prices were only slightly less intense than the fluctuations of crude rubber prices.

The comparison of the fluctuations of the prices of these four commodities during these two three-year periods shows that in three years out of the six cotton prices fluctuated more than the prices of the three other commodities. In no year, furthermore, were cotton prices more stable than the prices of the other three commodities.

In a paper entitled "The Conditions of Gain from Speculation,"[1] Henry Smith of the University of Liverpool has analyzed the effect of the forces of negative elasticity on speculative markets. He states that "in a well-organized produce market, in which there is little or no amateur speculation and in which attempts to organize 'corners' are infrequent, . . . the 'normal' price will tend to equal the cost of production" and the volume of production will be determined by the forward quotation because all producers will be inclined to protect themselves by selling in advance. A surplus of stocks at any one time, therefore, means that forward prices have been too high in the past, and a shortage of stocks means that they have been too low.

Mr. Smith refers to the common theory that because speculators possess specialized knowledge and skill they are supposed, by their

[1] *The Economic Journal*, June, 1936, pp. 363–367.

buying and selling for their own profit, to keep the forward quotations at a proper level. If, for example, speculators think that the futures price quoted at any time is too low, they will buy futures and the price will rise; the increase in futures prices in turn will inaugurate an increase in production. He points out, however, that the change in the futures price will exert this corrective influence on the volume of production only if the elasticity of supply is positive: "An increase in price stimulates an increased supply, and a decrease in price causes supply to diminish."

Turning to a more realistic situation, this writer warns that

> . . . in an exchange in which an amateur element predominates . . . a fall in price may increase the supply, while a rise in price diminishes it. . . . Thus conditions of negative elasticity of demand, in which the effect of a rise in price is further to increase demand, are as incompatible with the efficient functioning of the market as are those of negative elasticity of supply.

Mr. Smith's conclusion is as follows:

> If the conditions of demand in a speculative market are those of positive elasticity, i.e., if a fall in price has the immediate effect of increasing demand, and if the conditions of supply are those of positive elasticity, i.e., if a rise in price has the immediate effect of increasing supply (or of immediately putting on foot measures for increasing supply), then the existence of the speculative market is a net gain to the economy. On the other hand the longer the period during which the response to a price movement exhibits negative elasticity . . . the less the net gain and the greater the probability of loss.

7. Stillwater Worsted Mills

Organized Trading in Wool Top Futures

On November 8, 1937, the treasurer of the Stillwater Worsted Mills, Austin T. Levy, went to Boston to buy wool to fulfill the needs of his company, which normally used about 20,000,000 pounds of wool a year and carried an average inventory of 2,000,000 pounds. Having forecast correctly the downward movement of wool prices earlier in 1937, Mr. Levy had refrained from buying, so that at the time of this trip his company had on hand less than a week's supply of raw wool.

The Stillwater Worsted Mills was a worsted manufacturing concern which did its own topmaking; that is, it bought wool in the grease and performed all the manufacturing operations through to

the finished product. The company wished to continue buying wool in the grease instead of buying tops from topmakers; but at this time the quoted spot price for tops was substantially below the cost of tops made from raw wool purchased at the currently quoted spot prices of raw wool. When Mr. Levy arrived in Boston, he learned that the wool top futures price had reached a low of 80 cents on the New York Wool Top Futures Exchange.[1] The quoted spot price for wool tops was 84½ cents. Mr. Levy calculated that the cost of tops made from raw wool purchased at the currently quoted spot prices would be 94 cents or 95 cents. Furthermore, if he bought raw wool and processed it into tops and then into worsted cloth, the finished product would have to compete with cloth made from tops bought at the 80-cent level. Up to that time, the company had never bought any wool except in the greasy state and had never made use of the Wool Top Futures Exchange.

In other words, raw wool prices and tops prices were out of line. Mr. Levy, in his thinking, attributed this condition of the market to the operations of the New York Wool Top Futures Exchange because he believed that the spot price of wool tops was based on the futures quotation rather than on the spot price of raw wool plus the processing cost. Consequently, under the existing circumstances, Mr. Levy considered that in this instance he would have to abandon the company's established practice of buying raw wool in the grease. Therefore he bought wool tops at the quoted spot price. In order to avoid closing his combing plant, however, which employed some 200 people, Mr. Levy purchased the tops on the stipulation that his company be designated as the commission comber.

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[1] The wool top futures prices for November 8, 1937, were reported as follows in the *New York Times* of November 9:

	High	Low	Close
December	83.0	81.0	80.0[b]–81.0[a]
January	80.5	80.5	80.0[n]
February[n]	82.0	80.0	80.0
March[n]	83.5	80.0	80.0[b]–81.2[a]
May[n]	82.6	80.0	79.6[b]–80.0[a]
July[n]	82.9	80.0	80.2[t]
October	83.0	80.1	80.0[b]–81.0[a]

[n] nominal.
[b] bid.
[a] asked.
[t] traded.
Estimated sales—590,000 pounds.
Cash price for wool tops—84½ cents.

Mr. Levy was of the opinion that his company was being forced, by reason of the existence of a futures exchange, to pay the top-maker's profit, unnecessary costs of rehandling the wool, and "tribute" to the futures exchange in the form of brokers' commissions. He estimated that these expenses, if they were to continue, would amount in effect to a sales tax of 2½%. He therefore joined a group of wool growers in a protest against the existence of the New York Wool Top Futures Exchange. The group presented its objections to the United States Senate's Special Committee to Investigate Production, Transportation, and Marketing of Wool.

In his unwillingness to make use of the New York Wool Top Futures Exchange, was Mr. Levy following an unsound policy?

APPENDIX

SOME NOTES ON THE WOOL TRADE[1]

I. RAW WOOL

Geographically, wool is classified on four bases: territory wool grown in the Mountain States of the Far West, fleece wool grown in states east of the Mountain States (except Texas), Texas wool, and California wool. The wool from these four regions varies widely because of differences in the breeds of sheep and differences in the conditions under which it is grown.

Wool moves through trade channels in three forms. The first is greasy shorn wool, that is, wool shorn from living sheep and in the form in which it comes from the sheep, containing the oily materials excreted from the glands of sheep, dirt, sand, and vegetable matter. The second form is greasy pulled wool, which is wool obtained by being pulled from the pelts of sheep slaughtered for meat purposes and in the form in which it is thus obtained. The third form, known as scoured wool, is either greasy pulled or greasy shorn wool from which oily material and foreign substances have been removed by a washing process called scouring. The percentage loss in weight between the greasy state and the scoured state is known as shrinkage, and the percentage of clean wool derived from grease wool in the

[1] These notes were prepared as of 1938. For more detailed information regarding the wool trade, see Alston H. Garside, *Wool and the Wool Trade* (New York, Stokes, 1939).

scouring process is known as the yield. Shrinkages and yields vary greatly, depending on the type of sheep from which the wool is obtained, the region, and any special circumstances under which it is grown.

Wool fiber is classified chiefly in two ways: by length of fiber and by fineness of fiber. Fineness is more important than length. Wools with the longest fiber are designated as "staple," and with medium-length fiber as "French combing." Short wools are called "clothing." There are two systems of grading[1] wool according to the degree of fineness of fiber. They are known as the Blood System and the Count System and have come to be used interchangeably. The terms applied to the grades ranging from the finest to the coarser wools are as follows:

Blood System Grades	Count System Grades
Fine	64s–70s–80s
½ Blood	58s–60s
⅜ Blood	56s
¼ Blood	48s–50s
Low ¼ Blood	46s
Common	44s
Braid	36s–40s

Wool is produced by several hundred thousands of growers in many parts of the country, and the greater portion of it passes from the range or farm into the hands of a dealer. The growers can sell to a country buyer, to an agent of a mill or a topmaker, or to a representative of a dealer from one of the major wool markets. The principal market is Boston, where about 200 dealers are located. Approximately 100 dealers operate in Philadelphia, 25 in Chicago, and 20 in St. Louis.[2] Throughout the year these dealers sell to topmakers and manufacturers of woolen and worsted goods.

Because on the average, over a period of years, consumption of wool in the United States has commonly exceeded domestic production, the shortage has had to be met by imports from abroad. The U. S. Department of Agriculture has estimated that the total world production of wool in 1935, excluding that of the U. S. S. R. and China, was 3,278,000,000 pounds, grease weight. Production in 1935 for the most important countries is estimated as follows:

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[1] The term "grade," as used in the wool trade, indicates only the degree of fineness of the fiber. It does not, as in cotton, indicate the relative amount of impurities. Color is designated by color terms.

[2] Figures as of June, 1937. The number of dealers has since declined slightly.

Grease Wool Production	Millions of pounds
Australia	980.0
United States	429.1*
Argentina	340.0
New Zealand	272.0
Union of South Africa	232.0
United Kingdom and Ireland	127.4
Uruguay	109.0
Fifteen European countries	329.7

* To supplement its domestic production, the United States imported 29,000,000 pounds during 1935.

Source: U. S. Department of Agriculture, *Agricultural Statistics, 1936.*

Because consumption in the United States usually exceeds domestic production, many experts hold the opinion that the price of wool in the United States should equal the world price plus the tariff,[1] less certain small adjustments for the superior quality of foreign wools.

II. WOOL TOPS

Wool tops are a semimanufactured form into which wool is converted in the process of being made into worsted yarns. A wool top is an untwisted strand or loose rope of wool from which the short fibers have been combed out; the strand ordinarily is wound into a ball weighing about nine pounds.

For conversion into tops, the wool is first cleaned and carded and then combed to lay the fibers parallel. Tops are either dry combed or oil combed, and the class of tops required is determined by the spinning process employed. Olive oil is used in making oil-combed tops.

Although wool tops are not used in the production of woolen yarns, they are essential in the manufacture of worsteds. About 45% of the tops made in the United States are produced by the worsted manufacturers who use them in processing their yarns. A smaller but increasing proportion is produced by companies which specialize in making tops for sale to yarn manufacturers. Top-making as a separate business is a development of the last 15 to 20 years, but manufacturers believe that the proportion of tops produced

[1] The Hawley-Smoot Act, which became effective on June 17, 1929, established the following schedule of tariff on wool imported into the United States:

40s and below	24 cents per pound, clean content
Finer than 40s, not finer than 44s	29 cents per pound, clean content
44s and above	34 cents per pound, clean content

in this way will increase in importance. In Europe, topmaking is done almost entirely by specialized topmakers. A few of the specialized topmakers[1] in the United States have their own combing mills where they manufacture tops, but most of these specialists have their product made for them by combing mills on a commission basis.

Consumption of wool in the United States in 1937 totaled approximately 523,000,000 pounds, greasy shorn weight. Of this amount, about 70%, or 365,000,000 pounds, was used by the worsted industry. All the wool used by the worsted industry was necessarily converted into tops, and yielded a total quantity of about 150,000,000 pounds. About 71,000,000 pounds, or 47% of these, were made by market topmakers and sold to spinners. The other 79,000,000 pounds were made by comber spinners for their own use. The total mill cost of the wool used by this country in 1935 was about $195,000,000. The value of the tops sold by topmakers was about $57,000,000.

The most important service rendered by the topmaker is the selection of the wools and the blending of them into the most desirable form of top. The actual mechanical process of manufacturing tops is virtually standardized. There are 14 principal grades of wool tops; but the number of qualities known in the trade, allowing for all quality characteristics, is considerably more than this. Each topmaker has his own standards, to which he gives brand names. Mills using tops tend to buy them on the basis of a brand name rather than on the basis of a standard grade. The wool market includes practically no dealers specializing in tops, and as a general rule one topmaker does not sell to another.

There are approximately 26 topmakers in the United States, 3 of whom have combing plants and 23 of whom have tops made for them on a commission basis. Approximately 80 worsted yarn spinners have combing equipment and make wool tops either for their own use or on a commission basis for topmakers. These spinners do not as a general rule sell tops to other spinners. In addition to these 80 worsted yarn spinners who manufacture tops, there are 6 mills which specialize in processing tops for topmakers but do not spin the tops into yarn.

There are in the United States approximately 175 potential buyers of tops. Between 12 and 15 yarn manufacturers do not have their own combing equipment but rely on the specialized topmakers for their supply of tops. There are some 70 yarn dealers who purchase

[1] The term "topmakers" is used in the trade to apply not only to those who manufacture tops for sale but also to those whose primary business is selling tops which they have had made by commission combers.

tops and then have them spun into yarn on a commission basis by spinning mills. Of the 80 spinners who have their own topmaking equipment, a majority at one time or another purchase some tops if they can obtain them more cheaply in the market than they can manufacture them.

The cost of making tops from grease wool averages about 20% of the value of the top. At any given time it may range from 16 cents to 25 cents per pound, depending on the price of wool, on combing charges, and on labor costs. Changes in wool prices affect the cost of topmaking in two ways: (1) premiums and discounts allowed on the delivery of other than standard tops change with the price of wool; (2) high wool prices make higher waste costs. In January, 1936, the Wool Top Futures Exchange calculated that the cost of making tops from the leading grades of fine and half-blood wool was as follows:

	Cents
Fine Warp Graded Staple Montana & Wyoming	15
Fine Staple Graded Other Territory	16
Fine French Graded Other Territory	19
Fine Clothing Graded	25
Half-Blood Warp Staple Graded Montana & Wyoming	19
Half-Blood Staple Graded Other Territory	20
Half-Blood French Graded and Clothing	24
Original Best Montana & Wyoming	17
Original Good Length Territory	18
Original Fine French Territory, Good Length	21
Original Fine French Territory, Short Length	25
Original Best 12 Months Texas	18
Original Average $^{10}/_{12}$ Months Texas	22
Original Best California Half-Blood and Staple	22
Original Fine French California	25
Original Fed (Bulk Fine French)	25
Best Graded Ohio Delaine and Pennsylvania	16
Other Graded Delaine	18
Graded Fine French Fleece, Good Length	22
Graded Half-Blood Staple Fleece	21
Graded Half-Blood Clothing	25
AA Pulled Wool	16
Fine A Pulled Wool	18

III. WOOL TOP FUTURES

An American futures market for wool tops was established in New York in May, 1931, by the Wool Associates of the New York Cotton Exchange, Inc. Trading is solely in futures, and no cash transactions are conducted on the Exchange. The board of governors decided to employ wool tops as the basis for trading because

tops can be graded more easily than raw wool and because they are used as the basis of trading on one futures market in Belgium and one in France.

The unit of trading on the Exchange is 5,000 pounds of wool tops. The established standard of quality is "an American Fine Top made out of average 64s Merino wools, oil-combed and containing the normal percentage of 3% oil, including natural fat; grown and shorn from living animals in the United States; cleaned, scoured, carded, and combed in accordance with the methods and usages prevailing in the industry; and of average length and color."[1]

Tops which have been certified as not being in excess of 3% superior or 8% inferior to the Wool Top Exchange standard may be delivered at a premium or discount. The premium or discount, expressed as a percentage of the standard grade, is established by three inspectors who are appointed by the Exchange.

EXHIBIT 1

APPROXIMATE WOOL TOP SALES ON NEW YORK WOOL TOP EXCHANGE

(Thousands of pounds)

Month	1932	1933	1934	1935	1936	1937	1938
January	325	415	975	765	1,300	2,270	4,925
February	530	585	1,045	765	745	1,265	8,435
March	305	520	530	950	750	1,715	5,700
April	345	705	935	480	885	3,100	4,360
May	260	1,120	875	2,600	1,165	1,755	4,970
June	360	670	720	1,440	1,010	1,565	8,485
July	285	600	360	660	495	1,495	
August	1,060	415	960	1,125	475	1,330	
September	740	695	925	1,520	1,100	3,235	
October	595	610	535	1,080	740	4,540	
November	285	580	1,005	760	1,940	8,765	
December	360	445	645	1,015	1,400	4,430	

Source: New York Wool Top Exchange.

Price changes are registered at 1/10 of 1 cent per pound. The trade follows closely the spreads between prices quoted on the Exchange and prices of clean wool. In the language of the Exchange, the difference between the price of any given quality of clean wool and wool top futures is called the "basis." It is a series of these differences that is plotted on the lower portion of the chart in Exhibit 2. The basis, of course, is made up primarily of the cost of converting

[1] Official definition published by the Wool Associates of the New York Cotton Exchange in a booklet, *How Wool Tops Futures Are Traded in on the Exchange.*

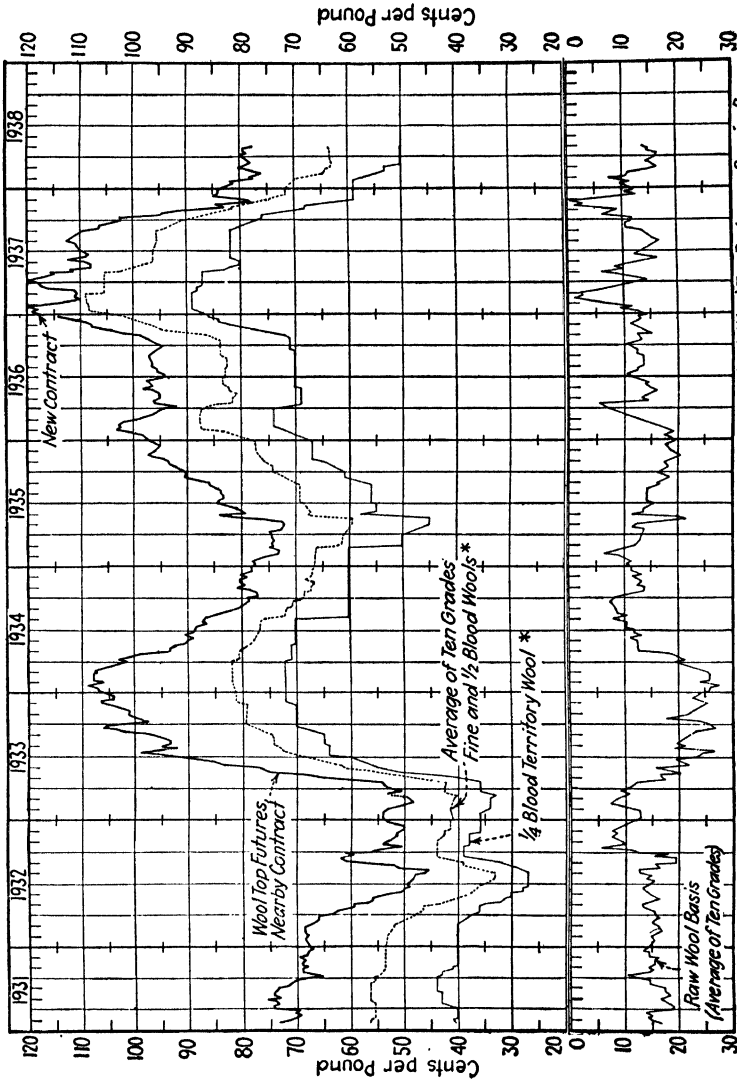


EXHIBIT 2.—Prices of Wool Top Futures and of Raw Wool, May, 1931—May, 1938.

wool into tops. When the basis varies widely from the cost of conversion, criticism of the Exchange, especially on the part of worsted manufacturers, is likely to arise. Trading in the futures market is conducted in deliveries in the current month and the 11 succeeding calendar months. The commission for buying and selling 5,000 pounds is $15 for nonmembers residing in the United States or Canada and $16.25 for nonmembers residing elsewhere. Delivery on a futures contract may be made at the seller's option on any one of a broad list of specified days during the delivery month stated in the contract, from warehouses located in Boston approved by the board of governors of the Exchange.

For the first five years after the founding of the Wool Top Exchange, the volume of trading was light but showed an upward trend. In the summer and fall of 1936, however, there was a decline in trading. This drop was attributed to a weakness in the existing contract, which permitted certain types of tops made from foreign wools to be tendered at large premiums on the contract, even when such tops were not selling in the cash market at like premiums over the standard top on the contract. A purchaser of a futures contract therefore could be forced to pay a large premium for tops made from these foreign wools and to accept delivery of them whether or not there was a corresponding premium in the cash market. It thus became profitable for a seller of a futures contract to tender tops made from these foreign wools. When this possibility for profit became generally known, the price of futures contracts was depressed relative to the price of spot tops of the basic description; and to the extent that the futures price was depressed, this opportunity for profit disappeared. The drop in the futures price relative to the cash price discouraged futures trading, and in order to remedy the difficulty the Wool Associates of the New York Cotton Exchange, Inc., made a change in the contract. After this change was made in the contract, there was a pronounced increase in the volume of trading on the exchange.

The monthly volume of sales on the Wool Top Futures Exchange from January, 1932, through June, 1938, is shown in Exhibit 1.

Exhibit 2 charts the prices of wool top futures and of raw wool, and in addition the clean wool basis from May, 1931, to May, 1938.

D. PROFITS AND SPECULATION

8. Charles Lane

COMMON STOCK THEORY OF INVESTMENT

In March, 1930, Charles Lane, proprietor of a successful bookbinding concern, completed arrangements for its sale to a corporation formed to take over the operation of the business. Mr. Lane received about $150,000 from this transaction. Inasmuch as he had no other business interests, his future income would be dependent entirely upon investments.

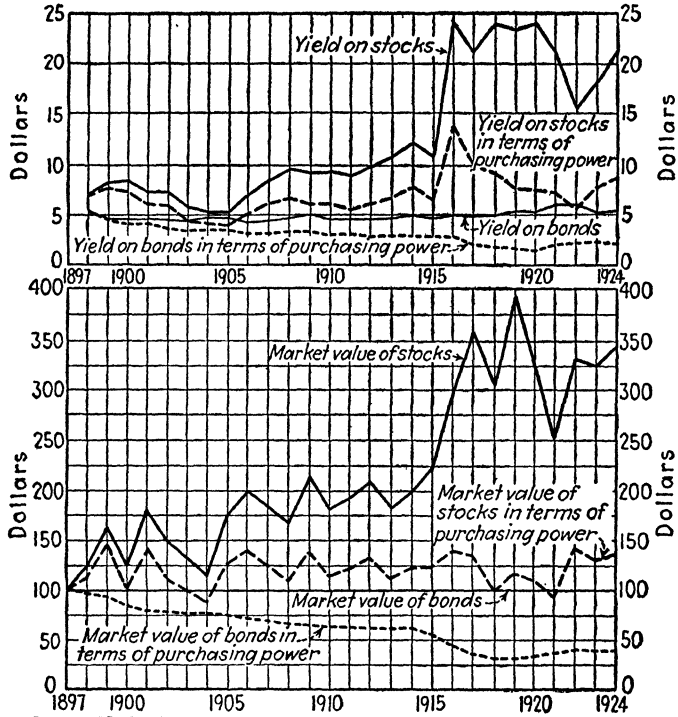
Until 1925, Mr. Lane's estate of approximately $100,000 was invested 25% in bonds, 25% in stock, and 50% in second mortgages on real estate. He usually made loans on real estate up to 40% of the difference between the first mortgage and the appraised value of the property. This method of investing yielded a satisfactory return, and he never had incurred a loss through it. In order to protect these investments, however, it would be necessary in case of default for him to buy the first mortgage and sell the property. Mr. Lane might not have sufficient cash to finance several such actions at the same time. This possibility, together with the fact that he had found it necessary to foreclose one of his mortgages, caused him to lose some of his confidence in real estate investments.

In the spring of 1925, Mr. Lane became interested in common stocks, largely because of the appreciation in the value of his common stock holdings over the previous year. At the same time, Kenneth S. Van Strum published a study of the merits of bonds and stocks as long-term investments.[1] A series of four comparisons showed that, during the period of declining commodity prices from 1873 to 1897, the yearly return, including income and appreciation of principal and expressed both in dollars and in purchasing power, varied little between stocks and bonds. Four more comparisons covered the period from 1883 to 1906. During this time, prices fell until 1897 and then advanced, until in 1906 they were almost at the same level as at the beginning of the period. In each of these comparisons, the stock investments showed decidedly higher returns than those in bonds. A set of five comparisons of stock and bond investments over the period of rising prices from 1897 to 1924 demonstrated the superiority of stocks.

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[1] See K. S. Van Strum, *Investing in Purchasing Power* (Boston, Barron's, 1925). See also E. L. Smith, *Common Stocks as Long Term Investments* (New York, Macmillan, 1925).

Mr. Van Strum also made studies of investments in the common stocks included in the Dow-Jones averages from the time they were started, in 1897, to 1924. These averages were based on a list of diversified shares which were representative of the railroads and industries of the United States. It was assumed that one share of each common stock in the averages was purchased and that, as the



Source: K. S. VAN STRUM, *Investing in Purchasing Power* (Boston, 1925). Reproduced by permission of Barron's, publishers.

EXHIBIT 1.—Comparison of Investment in Stocks in Dow-Jones Industrial Average with Investment in Bonds.

stocks in the averages were changed, new shares were purchased and the old ones sold. Interest at 4% was computed on any hypothetical cash balance.

Previous comparisons had shown that the bonds giving the best results over this period were short-term issues. In order that the bondholder might receive the maximum return, therefore, it was assumed that he could obtain the same return as the average yield of 15 industrial bonds on June 30 of each year and at the same time keep his capital intact.

The results showed that the total gain in 1924, including dividends and appreciation, on each $100 invested in the Dow-Jones list of railroad stocks in 1897 was $278.72, compared with a total gain of $136.12 per $100 invested in bonds. The results from a similar study of investments in the common shares of industrial companies included in the Dow-Jones averages showed that the total income on each $100 invested in these stocks was $348.46, compared with only $136.12 on the bonds, and that the appreciation on the stocks was $243.79, compared with no appreciation on the bonds, as shown in Exhibit 1. The total gain, including dividends and appreciation on each $100 invested in stocks, was $592.25, against $136.12 per $100 invested in bonds, an advantage of $456.13 for stocks for the period, or $16.89 per year. The conclusions of Mr. Van Strum's studies follow:

> While theoretically in an era of declining commodity prices profits should shrink and therefore the money values of common stocks, these studies have demonstrated that the actual experience has been that in such times common stocks of the larger corporations have done practically as well as bonds. The explanation undoubtedly is that the general ability and resourcefulness of the managements of our larger companies have been adequate to cope with the difficulties presented.
>
> In short, the placing of an investment fund in common stocks tends to eliminate speculation as to the future of commodity prices. Moreover, while any given high-grade bond satisfies the requirements of certainty of income and security of principal better than any given common stock, by applying the principle of diversification we have found that on a purely dollar basis, even where there have been substantial losses in both income and principal on specific common stocks included in our list, the insurance provided by diversification is such that over a period of years the income has been fully as certain and the principal fully as secure as an investment in very high-grade bonds.[1]

After careful consideration, Mr. Lane became convinced of the soundness of these studies. In spite of his feeling that the rise in security values during 1924 might have resulted in excessively high prices for certain stocks, he took steps to liquidate investments in other fields and to place the funds in a diversified list of high-grade common stocks. By December, 1925, this process was completed. He relied primarily on diversification for protection against loss. Although the sharp declines in security prices which occurred from time to time during the ensuing years caused him some uneasiness, he held fast to the established policy. Consequently, in 1928 and early in 1929, when stock prices moved to the highest levels in history, his holdings showed large gains.

[1] VAN STRUM, *op. cit.*, pp. 247–248.

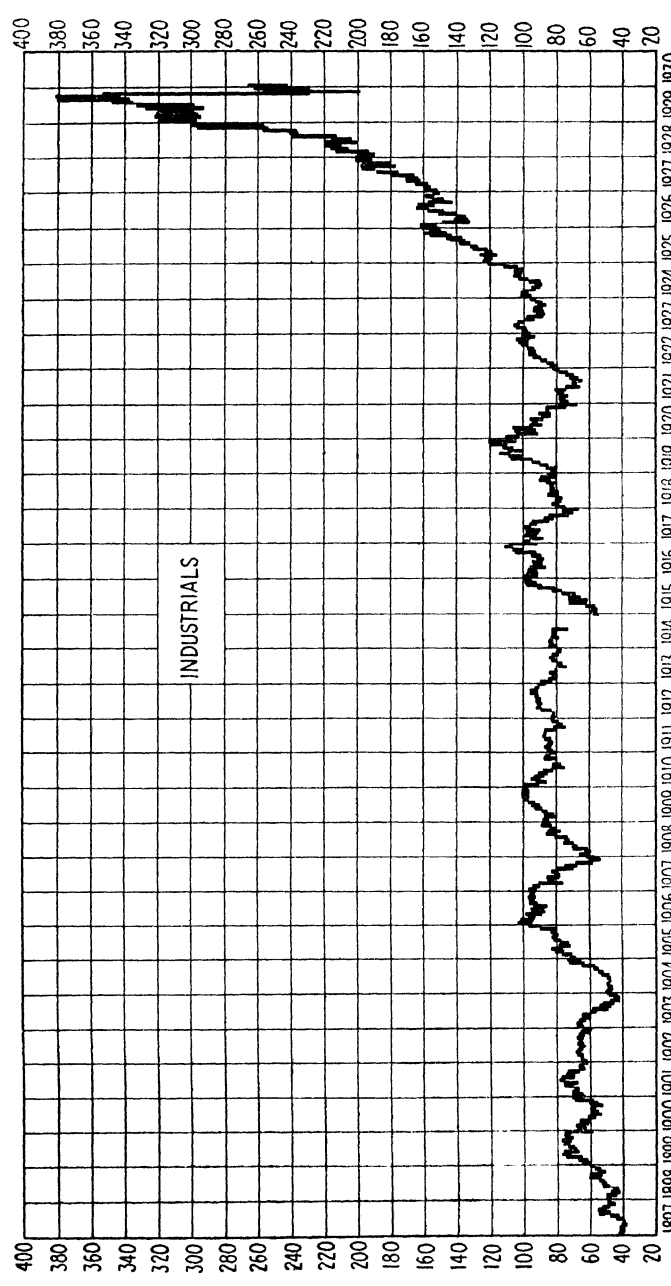


EXHIBIT 2.—Dow-Jones Average of Industrial Stock Prices.

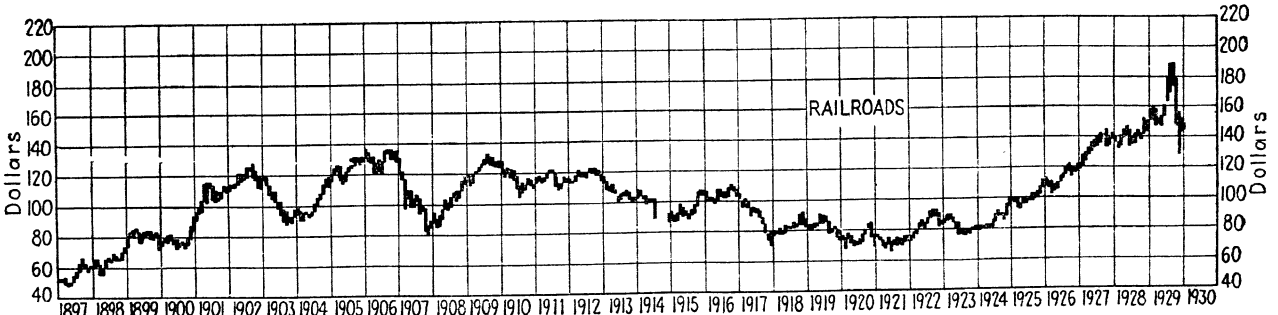
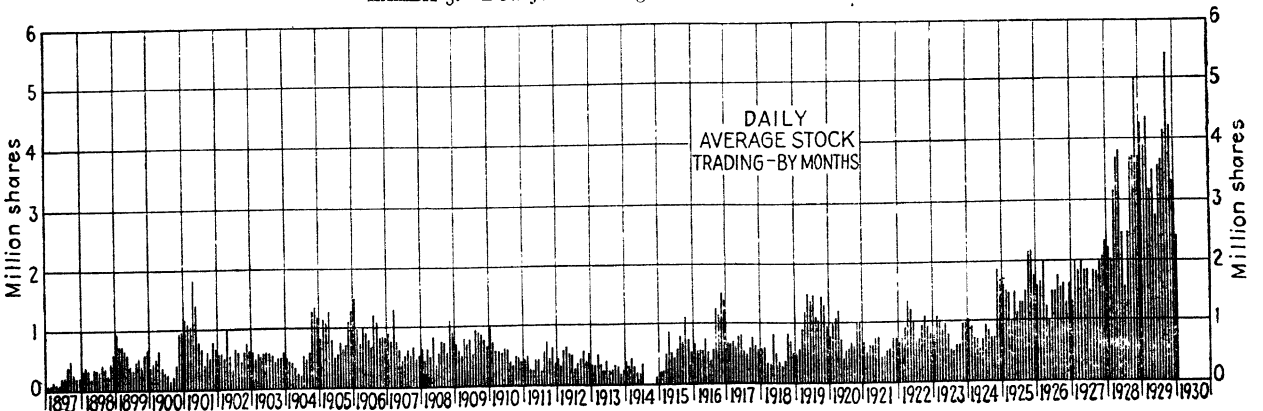


EXHIBIT 3.—Dow-Jones Average of Railroad Stock Prices.



Copyright by Dow, Jones & Co., 1930.

EXHIBIT 4.—Average Daily Number of All Shares Traded on New York Stock Exchange.

In October, 1929, however, stock prices declined sharply, and in November the Dow-Jones average of 30 industrial stocks reached a low point of 198.7. Since Mr. Lane's investments showed a large loss as a result of this decline, he became worried about the safety of his estate and uncertain as to the investment policy he should follow in the future. Although the chart shown in Exhibit 1 indicated that stocks had been profitable investments in the past, he was by no means certain that they would prove equally profitable in the future. The Dow-Jones average of prices of 30 industrial stocks shown in Exhibit 2 indicated that for a long number of years prior to 1925 the trend had been practically horizontal. The same tendency appeared to hold true for the Dow-Jones average of railroad stock prices shown in Exhibit 3.

It was only after the decline in the spring of 1926 that stock prices as recorded by these charts had made a definite move upward. This upward move appeared to coincide with the popular interest in common stocks developed by the studies of Messrs. Smith and Van Strum, the growth of investment trusts, and the promotion of investment counsel firms. This greater interest in common stocks was evidenced by the spectacular increase in the volume of trading on the New York Stock Exchange, as shown by Exhibit 4.

In March, 1930, Mr. Lane was uncertain whether to continue his previous investment policy, using the $150,000 proceeds from the sale of his bookbinding business to buy a diversified list of common stocks.

Could Mr. Lane rely on the principle of diversification to make common stocks always a good buy for the long run?

Appendix

The following excerpt from Irving Fisher's *The Stock Market Crash—And After*[1] (1930) gives some later, additional comments on the so-called "common stock theory":

These writings [referring to the work of Messrs. Smith and Van Strum] threw a bombshell into the investing world. They evolved five reasons for the now proved fact that stocks are a better investment than bonds: first, because the stockholder stands to win as well as to lose; second, because modern dividend policy is toward steadiness; third, because a

[1] Pp. 202–207. Excerpt reprinted by permission of The Macmillan Company, publishers.

portion of the stockholder's earnings is reinvested for him and ultimately yields further dividends; fourth, because the unstable dollar tricks the bondholder, but any effect on the stockholder is largely neutralized; and fifth, because diversification can correct the irregularities of the stockholder's income but not that of the bondholder.

This fifth reason is much emphasized by these writers, especially by Edgar Smith and Kenneth Van Strum. They show that whatever truth there is in the "risk" carried by the stockholder as compared with the bondholder, this risk can be partly neutralized by diversification. If one invests $10,000 in ten different companies, putting $1,000 into each, while he does run a real risk of losing all that he has invested in some one or two of these companies, this risk is mostly offset by the probability that some other company will prosper exceedingly. Both Smith and Van Strum show how this diversification does neutralize the risk and correct the unsteadiness of the stockholder's income.

The bondholder, like the stockholder, may be said to be "gambling." In fact, he is more like the man betting on "heads" or "tails." The dollar will go up or down for *all bonds at once*, and there is no way to iron out that gamble by diversification. The only way to stabilize income from bonds is to buy stocks as well, these also being diversified. The truth is, there is no way to get the gamble out of life altogether. Neither stocks nor bonds are really "safe" as to purchasing power. But the individual investor is at a great advantage when he pools his earnings and savings of those of a multitude of others in an investment trust, which with the aid of expert counsel keeps it invested in well-selected diversified stocks and preferred securities.

Taking Risk from Speculation

A little reasoning permits of a startling corollary. It is this: If we can, by sufficient diversification in investments, get a greater certainty and thus run less risks from our speculation, then the more unsafe the investments are, taken individually, the safer they are, taken collectively, to say nothing of profitableness, provided that the diversification is sufficiently increased.

This paradox is derived directly from exploiting the old-fashioned fear of common stocks and the consequent refusal to deal in them, except well below their "mathematical value."

Now, the mathematical value of a prize at stake is that prize multiplied by the chance of winning it. If a man stakes a dollar on "heads" coming up, the mathematical value of that chance is exactly fifty cents, because there is exactly one chance in two that "heads" will come up. If the prize at stake is to be won only in case two successive "heads" come up, there is one chance in four and the mathematical value is twenty-five cents.

This is so-called "fair" gambling. Any price above the mathematical value is unfair gambling, and none but a real gambler will pay more than the mathematical value, or even so much. The gamblers at Monte Carlo do pay about three per cent more than the mathematical value of their chances; but only conscious gamblers, not investors, participate in *rouge et noir*. In fact, a sound-minded investor will pay less than the mathematical value for a chance to gain money on a risk. That is, he will trim

that price by means of a "caution coefficient," to use a term which I employed in my book on *The Nature of Capital and Income.*

This "caution coefficient" becomes, in practice, greater and greater as the risk grows. If my chance of getting a dollar is a certainty, there would be no reduction on account of the caution factor. If it is like the chance of betting on "heads" or "tails," the caution factor may trim the price of the chance down from fifty cents, in mathematical value, to say, forty cents for the chance to win the dollar. That is a reduction on account of caution to 20 per cent. But if one bets on two heads in succession, the reduction on account of caution would be correspondingly greater, so that instead of paying twenty-five cents, the mathematical value, the investor might insist on a reduction of more than 20 per cent to say, fifteen cents. It is both normal and proper that the higher the risk the cheaper the chance of winning can be obtained, compared with its mathematical value.

Hence, the more risky the investment would be to a lone individual playing the game, the safer it is, if, by pooling in an investment trust with wide diversification in investment, the individual risk is thereby absorbed. For as the risk grows it can be constantly absorbed by corresponding increases in diversification. Thus the individual member of the trust may gain more on the riskier investments, bought by the trusts at much less than their mathematical value, than if he played the market alone with less risky investments, but bought at much nearer their mathematical value.

So the investment trust has proved that speculation can be turned into investment which is much safer than many individual investments in so-called "gilt-edge" securities. And the paradox is that because of the "caution factor" the market value of the riskiest investments has been depressed far below their real mathematical value. The investment trusts, carrying the principle of diversification to wide limits, have managed to get a higher average return from investments which individually would have proved quite risky, while at the same time they have extracted from them largely their elements of risk.

This principle, so far as I know, never has been definitely formulated in the investment market, but it has been acted upon intuitively by increasing numbers of investors, who have accepted it by employing investment trusts, investment counsel and other skilled means of diversifying the use of their funds. Naturally this enlightened process has created a tremendous new market for securities that in times past have gone begging. With the increased demand, the price of these formerly despised securities has risen.

Thus the change in the caution factor, reducing it to a much narrower margin from the true mathematical value of common stocks as their element of risk has been absorbed by intelligent diversification, has helped put the stock market on its higher plateau. It constitutes a permanent reason why this plateau will not sink again to the level of former years except for extraordinary causes.

E. PROFIT SHARING

9. American Woolen Company[1]

EXECUTIVE BONUSES

At the annual meeting of the stockholders of the American Woolen Company on March 24, 1931, the stockholders ratified profit-sharing agreements with L. J. Noah, president, Moses Pendleton, vice president and general manager, and W. B. Warner, chairman of the executive committee, all three of these men being recently elected officers of the company. These agreements provided that compensation in addition to salary was to be paid these officers when the company's net earnings for any year exceeded $2,000,000. Of the earnings in excess of $2,000,000 L. J. Noah was to receive 4% on all or any portion of the first $1,000,000, 5% on the succeeding $1,000,000, and 6% on any further balance. Moses Pendleton and W. B. Warner were to receive 2.5% on the first $1,000,000 of earnings in excess of $2,000,000, 3.125% on the second $1,000,000, and 3.75% on any further balance.

The formula by which net earnings were to be determined was as follows:

> Net earnings of the company shall be determined by deducting from the gross income from every source received or accrued all the expenses of operation, including cost of goods sold, rent, salaries, wages, repairs, interest, taxes accrued, bad debts (or the reserve therefor), a reasonable allowance for depreciation and obsolescence, and any other expense of payment accrued or paid properly deductible from income in accordance with good accounting practice, but not including dividends; provided that no deduction shall be made for depreciation and obsolescence of mills which have not been operated during any part of such calendar year, nor for any loss incurred through the sale or other disposition of mills, nor shall the proceeds of any such sale or other disposition be included in gross income. For the purpose of the computation of such additional compensation, accrued income taxes shall be calculated without deducting from taxable income the amounts of additional compensation provided for in this agreement.
>
> The company shall at the close of each calendar year have its books audited by a certified public accountant to be chosen and paid by it to determine the net earnings and the amounts of the additional compensation, and such determination made in good faith shall be conclusive.

The results of the company's operations for the calendar years 1931 to 1933 were reported by the company in brief as follows:

[1] Except where otherwise specified, this case is based on information appearing in the *Commercial & Financial Chronicle.*

	1931	1932	1933
Profit before inventory reductions and depreciation	$ 418,844	$2,487,201*	$9,998,656
Net reduction in inventories to cost or market	1,749,435	3,690,959	199,104
Profit before depreciation and taxes	$1,330,591*	$6,178,160*	$9,799,552
Provisions for depreciation	1,506,235	1,091,662	2,746,464†
Net profit for year	$2,836,826*	$7,269,822*	$7,053,088

* Loss.
† Includes $930,332 provision for Federal income tax.

In commenting on the 1933 profits in his annual report to the stockholders for that year, Mr. Noah, the president, made the following statement:

Several factors, some of which may be nonrecurring, enter into the profits of 1933. The steadily advancing wool market since April, 1933, eliminated for the first time in several years any substantial inventory loss. An increased demand for woolen goods resulted in increased sales during 1933, both in yardage and dollars. This enabled the Company to secure the benefits of its improved and concentrated manufacturing facilities, the economies effected during the last few years, as well as its inventory position.[1]

In *Women's Wear Daily* for February 15, 1935, the following report appeared on the American Woolen Company's showing for 1934:

A net loss of $5,458,495 was sustained by the American Woolen Co., Inc., and subsidiaries, except Textile Realty Co., in the year 1934, after all deductions, including a net reduction in inventories to cost or market basis of $1,455,721. This compares with a net profit in 1933 of $7,053,088, in which year inventory reduction amounted to only $199,104.

Before deducting depreciation, taxes, and all other charges, the company had a loss from operations of $2,247,897.

The American Woolen Co.'s results of operation since 1915, surplus, and inventories, as at the close of each calendar year, compare as shown in the accompanying table [page 61].

According to figures on executive compensation released by the Federal Trade Commission in a report to the Senate, published in *Women's Wear Daily* for March 1, 1934, L. J. Noah received a salary of $85,000 in 1933, which represented a cut of $15,000 from his salary for 1932; Moses Pendleton received a salary of $50,000 for 1933, the same as in 1932; and W. B. Warner received a salary of $30,000,

[1] *American Woolen Company, Incorporated, Thirty-fifth Annual Report for the Year Ended December 31, 1933.*

which represented a cut of $10,000 from his salary for the preceding year.

Dec. 31	Net Profit	Total Surplus	Merchandise Inventory
1934	$ 5,458,495[d]	$20,172,353	$21,883,273
1933	7,053,088	25,892,427	36,437,785
1932	7,269,822[d]	18,208,378*	16,928,872
1931	2,836,826[d]	17,738,679†	20,818,472
1930	4,897,854[d]	4,787,386	19,801,708
1929	4,228,190[d]	9,684,971	28,654,328
1928	1,262,263[d]	13,913,161	46,148,309
1927	600,112	15,175,425	43,239,698
1926	4,225,845[d]	15,597,022	45,864,990
1925	949,172	23,324,616	54,165,289
1924	6,944,420[d]	22,127,357	49,975,795
1923	6,660,212	33,596,725	56,007,894
1922	6,254,602	32,606,354	43,367,545
1921	6,006,648	13,915,381	40,621,118
1920	4,626,855	31,508,732	43,977,405
1919	11,779,804	31,754,426	52,990,145
1918	7,072,527	19,724,623	37,521,106
1917	10,883,156‡	14,413,096	42,829,234
1916	5,863,819	11,368,940	23,535,782
1915	4,080,685	9,305,121	18,053,972

[d] Net loss.
* Arising largely from common capital change.
† Deficit.
‡ After $3,000,000 tax reserve.

At the annual meeting of the American Woolen Company held on March 26, 1935, according to the *Wall Street Journal* for March 27, 1935, a motion was made by a stockholder that the bonus arrangement with the three principal officers be canceled. This motion was ruled out of order.

In the *Commercial & Financial Chronicle* for May 4, 1935, the following statement appeared: "A director of the company confirmed report of the cancellation, effective January 1, 1935, of the profit-sharing plan for executives approved by stockholders in 1931. Action is understood to have been voluntary and without compensation."

Was the company well-advised to drop the executive bonus plan, or should it have endeavored to modify the plan in certain respects? If so, what respects?

Are there stronger reasons for profit sharing with executives than with labor?

APPENDIX

SOME NOTES ON CORPORATION SALARIES AND BONUSES

I[1]

There has been considerable discussion of late on the question of whether the officials of corporations and financial institutions are paid too much or too little. What a particular man is worth to a particular company is, of course, a question that cannot be decided on abstract principles, nor is it easy to lay down general rules.

The most successful and enterprising businessmen naturally like to be paid by results, or to be partners sharing in the profits. Others, again, who dislike risk, are quite content with a substantial salary. What a company can pay in wages, salaries or dividends depends on what it earns. Under one manager it may lose. Under another, deficits may be turned into profits. If a business is confronted with financial difficulties, the directors may welcome any kind of a bargain with an executive which is based on results. Liberal percentage arrangements may be entered into at a time when the executive's chances of making a profit for the corporation seem slight.

SUITABLE PAYMENTS A DIFFICULT PROBLEM

Puzzling problems arise from the difficulty of determining how those responsible for the conduct of a large business shall be rewarded. Shall the heads of large corporations be given small nominal salaries and fabulous bonuses in good years, or moderate salaries and bonuses in stock in good years, or fairly large salaries at all times and moderate extra bonuses in especially good years, or very large but not sensational salaries at all times?

There are two schools of thought on the paying of salaries. The first pays a flat salary at more or less the going rate, with additions for length of service. The second pays a bare living salary and adds a bonus for results. The bonus may be in cash or in stock. In the first group the officer is a hired man, but in the second he is also a capitalist. The big money all comes out of the bonus, but the bonus may not always be large, because it is based on net profits. In a bad year there may be little or none.

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[1] Excerpts from an article by Philip M. Payne in *The Annalist* for November 10, 1933 (pp. 605–610), reprinted by permission of *The Annalist*. Additional statistical data, with comments, referring to the Studebaker Corporation, oil companies, banks, the Paramount Publix Corporation, public utility companies, and insurance companies, may be found in the original article. In the present version, footnotes in general have been omitted.

Bonus vs. Salary

Charles M. Schwab, the chairman of the board of the Bethlehem Steel Corporation, is, perhaps, the leading advocate of the bonus plan. He favors large rewards for efficient business management, but his preference is for small salaries, with contingent arrangements that make it possible for the capable manager to obtain for himself a very generous annual return for his services.

The Standard Oil Company of New Jersey, on the other hand, believes in generous payment on a guaranteed salary basis. Charles T. White, the secretary of the company, writing in 1923, said:

"We have to pay such salaries to get and keep the services of men who are big enough to do our hardest work. If we did not, our executives would have no difficulty whatever in placing their services elsewhere on a high compensation basis, and we could scarcely blame them for so doing. . . . If we make his salary large enough to cover the risks incident to the scale of living to which he is properly entitled we get 90 or 95 or even the full 100 per cent of his time, his physical and mental energy and his enthusiasm. To accomplish that result with every executive on our pay roll is our conscious purpose, and we believe that the principle on which we act works out to the advantage, in the long run, of the thousands who hold our securities and the thousands if not millions who use our products in every civilized country of the world."[1]

. . . . . .

Era of Individual Ownership Passing

In an earlier generation, business was managed chiefly by the owners, who got the profit or sustained the loss. In the eighteenth century the private firm or partnership was the common form of business organization. Its capital was partly borrowed and partly contributed by businessmen and their relatives and friends. Businessmen borrowed from banks or professional money lenders, but had no permanent associates divorced from the management. The investor had little to do with business; investments were in land or in government bonds.

The growth of the modern corporation has brought about a vast financial participation by investors in business enterprises, with a fundamental division of function between businessmen and investors. It is now rare for the real owners of a large business to manage its activities. The size of many corporations makes it almost impossible for any individual to own even a controlling interest. Bondholders are supposed to receive their interest without incurring the risks of ownership. Stockholders are more than investors; they are the owners and they assume the risks, without the labor of actual management. The actual management is in the hands of salaried executives, who may or may not be stockholders.

Incentive

The growth of the modern corporation has brought increasing employment of salaried men in posts of leadership with a corresponding adjust-

[1] "Salaries for Executives," *Administration*, Vol. V, 1923, pp. 641, 645.

ment of their pay to the qualities required for leadership. It is believed by many that one of the greatest incentives for the development of any business is a sense of proprietorship on the part of the management. Under more recent conditions it has become necessary to find a substitute for the incentive which actual ownership formerly provided.

Many companies have therefore adopted managerial profit-sharing plans. In some cases they involve cash payments based upon earnings. In other cases they consist of stock allotments which are paid for in whole or in part out of a fund created by the corporation and based upon its net earnings. There are also combinations of these methods.

. . . . . .

In the opinion of some, profit-sharing is an excellent thing for corporations and their owners, the stockholders. The executive who shares in the "profits" takes risks, as do the stockholders. But how much of the executive's total earnings is to be regarded as "wages," and how much as in the nature of "profits," is difficult to answer. The profit-sharing system offers, however, a middle course, combining the advantages of corporate organization with the stimulus of individual interest. While it is not in accord with the legal conception that earnings belong solely to stockholders, the fundamental distinction between executive salaries as part of the expense of the enterprise and the profits of the corporation should not be overlooked. Properly understood and administered, the profit-sharing plan seems to accord with the general principles of private property and individualism.

. . . . . .

Economic, Ethical, and Sociological Considerations

. . . . There are two ways of approaching the solution of the problem: One is to find the market value of the true economic value of the services of the management; and the other is to find the true economic value of the use by the corporation of the capital supplied by the stockholders. Unlike the earnings of management, capital is a commodity. It is daily bought and sold in the market; its price depends on supply and demand. But even in the case of capital the price is undoubtedly dependent on the ability and honesty of the management.

1. The Market Value of Management

The management of the modern corporation is, in most instances, intrusted to individuals who have a relatively small financial interest in the business. The conduct of the business of the modern corporation is by capital, management and labor. . . .

No general rule on the proper percentage of the management's participation in the earnings can be formulated. Each corporation must seek its own solution which will reflect the proper return on the contribution of capital by the stockholders and the proper value of the management's efforts. To seek an equitable division between owners and managers is intriguing. One view has been advanced by a corporate official, who wrote:

"When there are profits left over after market wages and salaries have been paid, other ordinary expenses have been met and invested capital has received compensation properly related to its cost and risk, it is a fair assumption that management has contributed that something extra that has been brought about by those profits and therefore has in justice a considerable claim to them."[1]

. . . . . .

There are some who believe that the percentage which the executives receive should increase with increased profits; the increase in profits being considered the result of extra exertion and harder work on the part of the executives, rather than economic conditions. The argument against the owners receiving an increasing percentage is premised upon the idea that capital is inert and cannot move except through its use in the business.

Others, however, assert that enormous salaries or bonuses are unwise and unnecessary. As an outgrowth of efforts in Congress to require limitation of salaries paid by companies which receive government loans, it has been reported that the Reconstruction Finance Corporation has adopted a rule or policy that the executives of corporations who obtain such loans for their companies must take reductions in salaries or prove that their compensation is not excessive. A loan to the Southern Pacific Company seems to have been the first in which salary reductions have been required. The scale of reductions in this specific case was 60% for all salaries of $100,000 or more per year; 50% for salaries from $50,000 to $100,000; 40% from $25,000 to $50,000; 25% from $15,000 to $25,000; 15% from $10,000 to $15,000; and at least 10% for salaries and wages from $4,800 to $10,000.

The act of June 10, 1933, provides that the Reconstruction Finance Corporation shall not make or renew any loan to an insurance company if any officer receives compensation in excess of what appears "reasonable" to the corporation, nor may the corporation purchase any preferred stock of any insurance company if at the time any officer is receiving more than $17,500 per annum.

2. The Economic Value of Capital

The second method of answering the problem involves entirely different considerations. A business cannot long produce or distribute commodities to consumers at a relatively low price unless it yields a profit. It cannot increase in size unless the profit is sufficient to encourage the continuous investment of capital. The yield on the invested capital must be sufficient to keep the stockholders satisfied and to make possible the raising of new capital. This is recognized as fundamental by the American Telephone and Telegraph Company. It is stated in the 1928 Annual Report to the Stockholders to be the policy of the company to pay reasonable and regular dividends only, and to offer additional capital stock to the stockholders on favorable terms for part of the new capital. Extra or special dividends are inconsistent with the aim of this company to protect

[1] Morris E. Leeds, president of the Leeds and Northrup Company, Philadelphia, Pennsylvania, in the foreword (vi) to C. C. Balderston, *Managerial Profit Sharing* (New York, Wiley, 1928).

the investment of its stockholders. It should be remembered, however, that it is a public utility and its rates are subject to regulation.

One view would thus require only a fair return to capital; the remainder of the profits going to control as an inducement to the management. Under this view, the corporation would deliver to the management the surplus profits over a satisfactory return to the stockholders; the stockholders receiving merely wages or interest upon their invested capital. There are objections to this theory.

Legal Principles Must Be Considered

According to legal and accounting principles compensation to an officer for his services constitutes a part of the operating expenses of the corporation deductible from earnings in order to ascertain net profits. It is immaterial whether such compensation is a fixed salary or depends in whole or in part upon the earnings of the corporation. The distinction between executive salaries as part of the expense of the business and the profits of the corporation is essential, since each stockholder of the corporation owns a share in its property and assets and is entitled to have a proportionate share in its profits. The owners of the invested capital are entitled to the entire profits, their contract requiring that the profits of the enterprise shall be ratably apportioned among them.

II

Since Mr. Payne's article appeared in *The Annalist* in 1933, new information relating to corporation salaries and bonuses has become available as a result of data published by the Federal Trade Commission and the Securities and Exchange Commission. On the basis of these data, John C. Baker, Associate Director of Research, Graduate School of Business Administration, Harvard University, made a study, the results of which were published in a volume entitled *Executive Salaries and Bonus Plans*.[1]

Some of the findings are summarized in Exhibit 1.

In regard to executive bonuses, Professor Baker summarized his conclusions in part as follows:[2]

> The proper payment of executives has been and remains highly important to corporate well-being. Directors dare not operate on the presumption that good fortune will supply the place of merit and application among executive officers.
>
> An answer to the question of what constitutes the best method of paying executives is therefore to be sought. It is by no means simple, nor is it obtained readily. The most common methods used over the period studied were: salary, bonus, salary with bonus, salary with stock rights or options, and salary with bonus and stock rights. There were many variations of these plans, some of which were highly involved

[1] John C. Baker, *Executive Salaries and Bonus Plans* (New York, McGraw-Hill, 1938).

[2] *Ibid.*, pp. 245–249.

because of special features. There is little definite evidence, however, that any one method is the best or will be universally used. Plans doubtless should be adapted to meet company and industrial needs. No reason apparently exists why the United States Steel Corporation, for example, should use the same methods as a newcomer in the steel industry, or why an automobile company and a public utility company should follow identical methods. Satisfactory solutions in any area will not be "ready-made" ones; rather, they will be "made to order." Certain of the formal bonus plans, widely heralded some years ago as the answer to these problems, were not satisfactory and in fact precipitated many difficult problems. Complications little anticipated arose from such unrelated sources as an unexpected growth in earnings, payment of bonuses without payment of dividends, inventory price appreciation which increased earnings, and technical provisions, affecting both the men and the amounts paid, which worked out in unexpected ways.

During and following the 1930 business depression, the formal salary method was the one used by the majority of the large industrial companies studied. As earnings decreased after 1929, interest in bonus plans disappeared, but as earnings increased after 1934 and 1935, attention to bonus payments as an addition to formal salaries also increased.

It should be recognized that the characteristics of acceptable methods of paying executives, rather than specific plans themselves, are emerging. Certain of the characteristics, more clearly defined than the methods, are as follows.

Executive compensation must be, in the broadest sense, socially acceptable, i.e., payments should not be so spectacular as to create universal discussion and disapproval. The basis of payment must be revealed and understood, both by the stockholders and by the public. No plan should be adopted and forgotten; it must be carefully prepared and constantly reviewed if it is not to contain the beginnings of serious corporate trouble. Also any satisfactory plan must be flexible. In past years directors and executives often said, "We would rather fire a man than reduce his salary." Like other shibboleths of the 1920's, the depression proved that this sentiment had little merit. Salaries were reduced in times of stress without disastrous corporate effects. Executive compensation should be readily adjustable, even though adjustment may be difficult. The methods used and payments made should be reasonable and have some relationship to practices in the industry, results achieved by the individual, the size of the company, and the payments to stockholders. What the accepted methods may be in the future is more a question of prophecy even than opinion. There is no one specific answer to the question of what is the best method of paying executives.

Should a Bonus Plan Be Adopted?

With the increase in corporate earnings, the problem again arose in 1936 as to whether or not bonus plans should be adopted for executives. In the years just previous to the depression the answer given to this question by at least two-thirds of the listed corporations appeared to be in the affirmative. Three frequently stated reasons for adopting such plans were: an incentive to greater efficiency, an aid in retaining executives,

EXHIBIT 1

EXECUTIVE COMPENSATION AS A PERCENTAGE OF EARNINGS* AND SALES; EARNINGS AS A PERCENTAGE OF SALES; NUMBER OF EXECUTIVES: 1929; FLUCTUATION IN EXECUTIVE COMPENSATION: 1928–1936; IN EACH OF 57 LARGE INDUSTRIAL COMPANIES†

(Companies ranked according to percentage of earnings paid to executives in 1929)

Company	Executive Compensation in 1929		Earnings in 1929	Number of Executives in 1929	Fluctuation in Executive Compensation‡ (Relatives; 1929 = 100)								
	% of Earnings	% of Sales	% of Sales		1928	1929	1930	1931	1932	1933	1934	1935	1936
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
United States Steel Corporation	0 5	0.1	21.8	13	82	100	103	85	79	§	67	76	76
Kennecott Copper Corporation	0 5	0.2	45.7	8	84	100	121	116	110	§	123	127	152
R. J. Reynolds Tobacco Company	0 6	§	§	12	99	100	102	102	102	§	167	157	158
Shell Union Oil Corporation	1 2	§	§	5	103	100	96	103	68	§	76	58	92
Anaconda Copper Mining Company	1 2	0.3	26 0	10	126	100	100	93	73	§	46	46	51
Marshall Field & Company	1 3	0.1	5.7	8	100	100	177	235	167	§	188	211	249
Standard Oil Company of California	1 3	§	§	11	90	100	116	109	109	§	100	107	107
Texas Corporation (The)	1 3	§	§	15	64	100	93	61	53	§	54	49	74
Standard Oil Company (New Jersey)	1.4	0.1	10.3	20	58	100	106	77	56	§	40	37	37
Ohio Oil Company	1 4	0.2	15 0	8	95	100	118	127	128	§	95	97	101
Union Carbide and Carbon Corporation‖	(1.4)	§	§	(10)	(97)	100	(88)	(77)	(69)	§	§	§	§
Goodyear Tire & Rubber Company (The)	1.5	0.1	9.4	16	103	100	101	95	85	§	87	88	88
Phillips Petroleum Company	1 5	0.5	30.3	8	99	100	105	94	104	§	82	101	§
Wheeling Steel Corporation	1.6	0.2	11.5	13	87	100	100	94	74	§	165	§	177
Youngstown Sheet and Tube Company (The)	1 6	0 3	15.9	18	156	100	191	149	79	§	67	77	80
American Radiator & Standard Sanitary Corp	1.7	0 3	15.0	7	§	100	87	70	67	§	58	87	87
Atlantic Refining Company (The)	1.9	0.2	12 0	8	85	100	94	112	92	§	118	124	121
International Shoe Company	1.9	0 2	13 1	24	101	100	102	84	85	§	89	§	92
Eastman Kodak Company	2 1	§	§	11	107	100	113	116	120	§	94	123	134
E. I. du Pont de Nemours & Company	2.1	§	§	27	95	100	69	65	40	§	§	89	§
Consolidated Oil Corporation	2.2	0.3	11.8	13	120	100	110	97	121	§	143	146	173
Sears, Roebuck and Co	2.5	0.2	7.6	10	281	100	104	77	47	§	§	§	§
Tide Water Associated Oil Company	2 6	0 3	9.8	6	91	100	66	53	49	§	43	45	100
United Fruit Company	2.7	§	§	16	99	100	107	103	70	§	55	63	69
American Smelting and Refining Company	2.7	§	§	18	92	100	105	87	72	§	83	82	88
Westinghouse Electric & Manufacturing Co	2.8	0.4	13.0	21	78	100	133	80	63	§	§	§	§

National Dairy Products Corporation	3.0	0.2	8.2	27	80	100	113	134	125	§	99	107	146
B. F. Goodrich Company (The)‖	(3.0)	(0.2)	(6.7)	(15)	(107)	100	(107)	(114)	(102)	§	§	§	§
General Electric Company‖	(3.0)	(0.5)	(16.8)	§	(89)	100	(83)	(49)	(27)	§	§	§	§
Inland Steel Company	3.2	0.6	19.6	14	81	100	92	78	65	§	85	112	149
Phelps Dodge Corporation	3.6	0.9	25.7	10	89	100	123	95	92	§	88	83	88
Radio Corporation of America	3.8	0.4	9.7	10	58	100	81	53	45	§	29	37	38
Procter & Gamble Company‖	(3.9)	(0.5)	(12.4)	(5)	(81)	100	(75)	(27)	(25)	§	§	§	§
Firestone Tire & Rubber Company (The)	4.0	0.3	6.5	11	98	100	92	74	71	§	95	§	98
American Sugar Refining Company (The)	4.2	(0 3)	(6.3)	14	91	100	88	88	75	§	76	77	76
Borden Company (The)	4.3¶	0 3	6 5¶	15	73	100	117	125	71	§	58	57	58
Continental Oil Company	4.4	0.6	14 0	14	92	100	69	61	60	§	62	48	54
R. H. Macy & Co., Inc	4.7	0 3	7.5	4	98	100	100	104	97	§	88	78	91
American Rolling Mill Company (The)	5 0	0.6	11.5	15	88	100	117	85	72	§	76	107	130
Loew's Incorporated‖	(5.2)¶	(0 8)	(14.9)¶	(7)	(82)	100	(119)	(105)	(83)	§	§	§	§
International Harvester Company	5 3	§	§	13	85	100	71	22	18	§	18	20	25**
Liggett & Myers Tobacco Company	5.3	§	§	12	88	100	97	60	62	§	§	40	53
Warner Bros. Pictures, Inc	5.5	3.2	59.0	20	§	100	106	140	87	§	67	73	76
Crucible Steel Company of America‖	(5.8)	§	§	(9)	(85)	100	(93)	(69)	(62)	§	§	§	§
Corn Products Refining Company	6.0	§	§	9	87	100	112	107	62	§	56	46	55
American Tobacco Company (The)	6.1	§	§	21	78	100	175	183	116	§	38	52	57
Montgomery Ward & Co., Incorporated	6.2	0 3	5.4	8	100	100	77	50	40	§	33	40	50
S. S. Kresge Company	6.2	0.6	10.4	9	102	100	92	62	32	§	59	58	63
Pure Oil Company	6.2	0.7	10.9	12	65	100	86	59††	58††	§	48	51	56
Jones & Laughlin Steel Corporation	6.3	1 1	18.0	11	82	100	59	47	41	§	36	27	30
American Locomotive Company	6 6	§	§	16	78	100	93	80	67	§	54	53	61
Bethlehem Steel Corporation	6.9	1.2	16.8	17	58	100	65	31	27	§	26	26	25
F. W. Woolworth Co.‡‡	7.4	0 9	12.7	30	98	100	87	75	60	§	§	§	§
National Lead Company	7 7	§	§	22	72	100	71	59	46	§	43	44	52
Pittsburgh Coal Company	9.0	0 4	5.0	7	84	100	74	71	69	§	123	98	98
United States Rubber Company	16.6	0.3	1.6	19	116	100	80	76	69	§	79	66	69
American Woolen Company§§	.....	§	§	10	112	100	88	89	66	§	54	53	51
Median figures	2.9	0.3	11.8	13	91	100	100	85	70	§	72	75‖‖	78

* Earnings is defined as net income after all charges including depreciation and Federal taxes, but before executive compensation and interest.

† Figures for Chrysler Corp. and General Motors Corp. have not been used because of lack of compensation data.

‡ Figures for 1928–1932 were based on data furnished to the Federal Trade Commission, while those for 1934–1936 were based on figures reported to the Securities and Exchange Commission. In some instances, it appeared desirable to adjust the figures for 1934–1936 to make them more nearly comparable with those for the earlier years; in a few other cases it was necessary to apply the reverse procedure. Several of the compensation figures, therefore, are estimates. Pensions and the cash value of stock bonuses were deducted wherever they were known to be included. In the light of new available material, it seemed desirable to change or omit certain figures published in previous studies.

§ Data not available.

‖ Figures for this company have not been used in arriving at the medians. The data thus excluded have been enclosed in parentheses.

¶ Since an interest figure was not available, interest was estimated at 6 % of the debt outstanding, to secure a comparable earnings figure.

** This relative represents compensation figures for 10 months only. An estimate for 12 months was used in deriving the median for 1936.

†† Because of a change in fiscal year, data for January–March, 1932, are included in the figures for both 1931 and 1932.

‡‡ The earnings figure includes dividends from foreign subsidiaries.

§§ Because of a deficit, no percentage figures based on earnings could be computed.

‖‖ An estimate was used in arriving at the median for 1935.

Source: John C. Baker, *Executive Salaries and Bonus Plans* (New York, McGraw-Hill, 1938).

and a simple way of adjusting executive payments to earnings. One contributing and important factor seldom referred to was that an active group of officers frequently urged directors to adopt such plans. In the past many bonus plans were adopted without detailed study. Recently an article in *The Management Review* recommended bonus plans and included a "general recipe" for one.[1] Unfortunately the problem is not so simple as it may appear at first glance, particularly in the light of present-day corporate publicity. Even before abuses and mistakes were easily discovered, as they are at present, there were considerable criticism and litigation over the operation of these plans. In recent years many plans have been drastically changed, so much so that only relatively modest amounts are being paid to executives in most companies. Numerous companies, as for example the United States Steel Corporation, have abrogated old plans entirely. Opinions as to the group to receive bonus payments have also changed. Chairmen of the board almost always, and presidents frequently, exclude themselves from such plans because of their influence directly or indirectly on the distribution of bonus payments.

Stockholders, it should be remembered, not only are interested in bonus plans and demanding information about them, but also are insisting that before bonus payments are made dividends be paid on all classes of stock. Courts also are definitely examining bonus plans critically from the stockholders' point of view.

Before the adoption of any plan, directors must first answer such questions as: Is the adoption of such a plan wise from the point of view of the company's organization, its stockholders, its executives, and the public? Without forgetting the advantages of bonus plans or subtly condemning them, the student must concede that such plans, with the best of intentions, have in the past occasionally disrupted organizations, incensed stockholders, alienated public opinion, and led to serious legal disputes.

It should be noted that none of the protagonists of bonus plans imply that such plans take the place of good management. Indeed it has been occasionally stated that ordinary or poor management may be harmed rather than helped by bonus plans. Such plans always require careful supervision by management.

A critical examination of the functions of executive officers suggests that executive duties do not necessarily lend themselves to measurable payments, which a bonus plan frequently presupposes. Their functions are to coordinate and direct corporate activities from a long-range and over-all point of view, rather than to stress annual profits to which bonus plans generally are attached.

Even for executives themselves, there are certain drawbacks to bonus plans. It is possible with full corporate publicity given to such payments that attempts will be made by stockholders as well as directors to associate too closely results in the form of earnings with rewards in the form of executive payments. It is readily conceivable that emphasis on such comparison might be inimical to best corporate interests. Also with high surtaxes certain executives may find the rewards of bonus plans highly illusory. A difficult problem always arises as to which executives should receive bonuses and how much they should receive. This is further com-

[1] *The Management Review*, September, 1936, p. 283.

plicated by the question as to whether or not executives in subsidiary companies should receive bonus payments. The chief advantage to executives, however, must not be overlooked: it gives them an opportunity for an additional share of earnings.

Finally, it is often discovered that instead of solving executive compensation problems, bonus plans may precipitate more problems. "The dangers in bonus plans," as one experienced executive who has had a carefully considered plan in effect for many years remarked, "are subtle, concealed, and in the future." It seems clear that the burden of proof falls on the proponents of a bonus plan, and that any decision to adopt one depends to a large extent on the specific corporate situation and upon the plan to be adopted.

F. CAPITALIZATION OF EARNINGS

10. The 12th Street Store, Chicago

VALUATION OF LEASEHOLD

In 1928, The 12th Street Store, Chicago, an Illinois corporation, decided to offer for sale to the public 40,000 shares of Preference Class A stock. Wishing to include in the prospectus describing the issue its balance sheet of March 31, 1928, the company found it necessary to compute among its assets the value of a leasehold estate in the property which it occupied. Accordingly it requested a certificate of valuation of the leasehold estate from the firm of Mark Levy & Brother, real estate appraisers, investor's counselors, and brokers.

The firm of Mark Levy & Brother was unusually well qualified to appraise leasehold estates. Mark Levy, senior member of the firm, in particular had established for himself a good reputation as an investor's counselor and a valuator of real estate. He had been engaged in the general real estate business in Chicago for 20 years, selling, leasing, managing, renting, developing, and appraising real estate, as well as acting in an advisory capacity for persons acquiring various classes of property. The firm had sold property in value approximating 100 million dollars and had made leases for term rentals exceeding 450 million dollars.

The property occupied and leased by The 12th Street Store was located at the northeast corner of Roosevelt Road and Halsted Street, Chicago, occupying a position at the hub of one of the oldest established business centers outside the Loop District. Its trade was drawn not only from within the confines of the immediately surrounding territory but from all sections of the city.

A then recent survey and market analysis of Chicago made by the General Outdoor Advertising Company provided Mark Levy & Brother with valuable information with regard to the territory bounded on the north by Taylor Street, on the west by Western Avenue, and on the south and east by the south branch of the Chicago River. This territory was immediately surrounding and adjacent to the location of The 12th Street Store. The following data are quoted from the advertising company's report:

Population	212,770
Number of families	47,282
Number of banks	11
Total resources of banks	$ 57,141,352
Average rent per month	45
Total amount spent for rent annually	25,532,280
Total annual income	137,874,312
Total expenditure for food annually	31,711,092
Total expenditure for furniture annually	4,549,952
Total expenditure for laundry annually	3,653,669
Total expenditure for shoes annually	4,136,293
Total expenditure for clothing annually	29,229,354

The major trading center of the district was at Roosevelt Road and Halsted Street, with other and smaller centers near by at Roosevelt Road and Blue Island Avenue, and Roosevelt Road and Ashland Avenue. The lower portion of the district was known as "The Ghetto," and here the population was extremely dense.

The population of the district tended toward neighborhood buying; and this tendency, together with the ability of the store to draw from other sections of the city, made it a successful concern, with an annual volume of business of approximately 4.5 million dollars.

The property was served principally by the Chicago Surface Lines, operating on both Roosevelt Road and Halsted Street. It was possible to make transfer connections to or from other surface lines from or to these lines, and also to make connections with elevated and bus lines.

There was approximately 150 feet frontage on South Halsted Street and approximately 112 feet frontage on West Roosevelt Road, to a 16-foot alley. The total linear street frontage was therefore approximately 262 feet, and the land area was approximately 16,800 square feet.

The building occupied by The 12th Street Store was well adapted to its use. It had been built during the year 1905, expressly for department store uses; it was six stories in height with a basement

and was of steel and concrete construction. The exterior of the building was of a light buff-colored face brick; the windows on the main floor were of the modern type of construction.

The building was equipped with three counterbalanced fire escapes, one on the 12th Street side and two on the east or alley side of the building. Elevator equipment consisted of three passenger elevators and one freight elevator.

The building contained approximately 113,374 square feet of space, exclusive of loading platform, boiler room, coal room, and engine room.

An inspection of the building had indicated to the appraisers that it was in good condition throughout.

Among the provisions of the lease contract were the following:

Said building shall be used by the Lessee for the sale of merchandise, at wholesale and retail. No manufacturing shall be done on said premises by machinery which shall be operated by any power excepting hand power, other than such machinery as is now used in the conduct of the business of said Lessee or as may be reasonably necessary in the conduct of the business of the Lessee.

The Lessee shall have the right to sub-let said premises in whole or in part, and for that purpose, to build any such partition and make such changes of entrances as shall be necessary; but said premises shall not be sub-let, in whole or in part, for any use or purpose, except subject to the restrictions herein contained; and at the termination of this lease the Lessors shall have the right to have and obtain the premises with the changes and alterations made thereon by the Lessee, or to require the building to be put in the same condition as at the time of the execution of this lease; provided, however, that the Lessee shall not be required to change the front and entrance on the ground floor; and provided further that the Lessee shall not alter or change the building in contemplation of its removal or of the termination of this lease.

Lessee agrees that it will not permit any lien of any nature whatsoever to be put upon or accrue against said premises, or the buildings thereon, and notice is hereby given to all the world that no right of action, demand, judgment, lien or claim of any nature whatsoever accruing against said demised premises shall be deemed to be a charge upon the title of the Lessors in and to said premises.

. . . If the Lessee shall vacate or abandon said premises, or in the event that the Lessors shall declare a forfeiture of this lease, by reason of any default of the Lessee . . . the Lessors may re-let said premises, either in whole or in part for such time and upon such conditions as the Lessors shall deem fit, and if the rental obtained by said Lessors shall be less than the amount reserved in this lease, then the Lessors shall have the right, if they so desire, to sue for and recover from time to time such difference as may exist between the amount of rental actually obtained by said Lessors and the amount reserved in this lease. In no event shall the original Lessee of this lease be released or discharged from its liability upon this

lease but shall be and remain personally bound and obligated for the payment of all rents, taxes and insurance to be by the Lessee paid under the covenants hereof. Unpaid rent to bear interest at 7% per annum after due.

On January 25, 1928, Mark Levy & Brother reported as follows on the valuation of the leasehold estate:

We have been asked to determine the value of the Leasehold Estate or Equity in the Land and Building at the Northeast Corner of Roosevelt Road and Halsted Street, as of January 1, 1928. From that date the lease has twenty-one (21) years and four (4) months to run, the monthly rentals for said period, according to the lease, being as follows:

$3,333.33 per month for 36 months, from January 1, 1928 to December 31, 1930.
4,083.36 for the 1 month from January 1, 1931 to January 31, 1931.
4,416.66 per month for 219 months, from February 1, 1931 to April 30, 1949,

each such monthly payment being payable in advance on the first of each month of said term.

We have, from such information as has been furnished us and has been available to us, determined that the building contains approximately 113,374 square feet of space, exclusive of loading platform, boiler room, coal room, and engine room. It is our opinion and best judgment that this space has a Fair Market Rental Value of One Hundred Thirteen Thousand Three Hundred Seventy-Four ($113,374) Dollars net per annum, the Lessee to pay in addition all taxes, assessments, insurance, maintenance and operation charges. This rental value is equivalent to Nine Thousand Four Hundred Forty-Seven and $^{83}/_{100}$ ($9,447.83) Dollars per month. It is apparent, then, that there are monthly rental values in excess of the monthly rentals stipulated in the lease to be paid by the Lessee. These excess rental values, being the difference between the stipulated rentals and the Fair Monthly Rental Value as stated above, resolve themselves into the following amounts, which we have considered as monthly payments to the Lessee:

$5,031.17 per month for 256 months,
333.30 per month for 37 months,
750.03 per month for 36 months.

The total of the values as of January 1, 1928, of such a series of payments, with interest at the rate of eight (8%) per cent per annum compounded annually, which we believe to be the proper rate for this type of estate, would ordinarily give the value of the Leasehold Estate, were there no other factors and conditions to be considered. However, the lease provides that there shall be paid, by the Lessee to the Lessors, on May 1, 1933, an additional sum of One Hundred Thousand ($100,000) Dollars the value of which sum, as of January 1, 1928, with interest at the rate of eight (8%) per cent per annum compounded annually, we have deducted from the total of the values, as of January 1, 1928, of the above series of payments.

We have then added to the result of such deduction the sum of Fifty-Three Thousand ($53,000) Dollars, which amount, in securities, has been deposited by the Lessee with The Foreman Trust and Savings Bank as Trustee,[1] as security for the performance by it of the terms and covenants contained in the lease.

The process described above may be briefly set forth as follows:

Value as of January 1, 1928, of $5,031.17 per month for 256 months	$593,712.08
Value as of January 1, 1928, of $333.30 per month for 37 months....	10,990.40
Value as of January 1, 1928, of $750.03 per month for 36 months....	24,157.75
Total	$628,860.23
Value as of January 1, 1928, of $100,000 due May 1, 1933	66,377.90
Value of leasehold estate or equity exclusive of securities	$562,482.33
Value of securities on deposit as above	53,000.00
Total value of leasehold estate or equity inclusive of securities....	$615,482.33

In concluding the report, Mark Levy & Brother made the following statement:

In determining the value of the Leasehold Estate herein referred to, several approaches were available to us.

The first of these would have involved the determination of the value of the Land, if unencumbered by lease, and the determination of the value of the Building, if also unencumbered by lease, and the derivation from the total of such values of a fair return upon such total. We decided against this process for the reason that the owners of the land also own the building, and for the reason that the building was not constructed by the Lessee as might have been the case had the Lessee held a long term lease on the land alone. In this instance the Lessee has only a Lessee's interest in the building, as well as in the land.

We have considered that a rental value determined by taking a minimum of three (3%) per cent of the annual volume of business, which is approximately Four Million Five Hundred Thousand ($4,500,000) Dollars, would be far in excess of the rental value herein estimated, and have also considered that the annual net earnings of the business are sufficient to support a greater rental value than the one used by us in our computation.

Were the existing lease about to expire and the stock of The 12th Street Store to be sold, and the fixtures to be sold at their depreciated value, a purchaser of such items could well afford to pay a rental in excess of that herein estimated provided that his purchase of such items was made at a reasonable figure.

In our opinion, a rental value for this property of One Hundred Thirteen Thousand Three Hundred Seventy-Four ($113,374) Dollars net per annum, and the resultant value for the Leasehold Estate, inclusive of the securities now on deposit, of Six Hundred Fifteen Thousand Four Hundred Eighty-Two ($615,482) Dollars are, when one considers the conditions above stated, conservative.

[1] A list of securities and a certificate of deposit were furnished by the Foreman Trust and Savings Bank.

We assume no responsibility for matters that are of a legal nature. We render no opinion on the title or other legal matters. In determining the value of the Leasehold Estate as hereinbefore stated, we have disregarded any lien or other indebtedness which may or may not be against said Estate.

On January 25, 1928, Mark Levy & Brother issued the following Certificate of Valuation:

Mark Levy & Brother do hereby certify that upon application for valuation of

Joseph Weissenbach, President
The 12th Street Store

Northeast Corner Roosevelt Road and Halsted Street, Chicago, the undersigned has personally examined the following described property:

Location: Northeast Corner Roosevelt Road and Halsted Street, Chicago.

Land: Approximately 112 feet frontage on West Roosevelt Road.
Approximately 150 feet frontage on South Halsted Street.

Total Linear Street Frontage: Approximately 262 feet.

Area: Approximately 16,800 Square Feet.

Building: Six-story and basement, steel and reinforced concrete, fireproof department store building.

Leasehold Estate: Created by that certain Indenture of Lease, dated May 1, 1923, by and between Florence P. Zwetow, et al, and The 12th Street Store, made for a period of Twenty-Six (26) years, commencing with the 1st day of May, 1923, and extending through and including the 30th day of April, 1949. (For further particulars see Abstract of Lease in the Report hereto attached.)

and that Mark Levy & Brother are of the opinion that the fair market value of said Leasehold Estate as of the First day of January A. D. 1928, is as follows:

Six Hundred Fifteen Thousand Four Hundred Eighty-Two Dollars

($615,482)

In witness whereof, Mark Levy & Brother have caused these presents to be signed and their seal to be hereto affixed, this Twenty-Fifth day of January A. D. 1928.

MARK LEVY & BROTHER,
By Mark Levy

The receipt of this statement of valuation enabled The 12th Street Store to include the following item among the assets in its balance sheet of March 31, 1928, which was announced in the prospectus of its offering of Preference Class A Stock:

Leasehold estate—stated at value determined by Mark Levy & Brother, Appraisers, on January 1, 1928, less amortization applicable to March 31, 1928	$608,269.65

What was the basis of the value of this leasehold?

Were the capitalization rates used in this case reasonable and appropriate?

It is a fact that in 1934 the leasehold value was written off the balance sheet of The 12th Street Store. Does this development indicate that any different procedure should have been followed in making the valuation in 1928?

APPENDIX

SOME NOTES ON CAPITALIZATION

Capitalization of earning power is referred to frequently in connection with the valuation of securities, real estate, and other durable property. Reference is made, in real estate and securities, to the times earnings basis—that is, to the extent to which the earnings should be multiplied to get the value of the asset itself—and in the purchase of machinery to the number of years in which it will pay for itself—another way of stating some standard ratio of income and principal. Capitalization in this sense does not refer to the capital structure of a business.

Valuation on the basis of capitalization of earning power is often very difficult. The problem of capitalization arises most frequently when there is no regular market on which the assets to be valued are frequently traded; their current value cannot be ascertained by looking up the current quotations. For instance, the real estate market and the factory site market do not give current quotations which assign a precise value to particular apartment houses or particular factories. Sometimes, however, the capitalization problem arises even when market quotations are available, if it is necessary to check the current quotations of the assets. Current quotations on a securities market may refer to so few shares that the value of all the shares cannot be determined as a multiple. An investor or speculator who wishes to determine whether a security is quoted at too high a figure or too low a figure then undertakes to find some other way of determining value to test the market quotations. All the detailed work involved requires the technical skill and mature judgment of expert appraisers, but the basic theory is not complicated.

The first problem is to determine the earning power of the assets. From the gross income, all costs are deducted which are not connected with the assets considered. Wages of janitors and workmen are

obviously costs. Depreciation, depletion, and obsolescence of the assets to be valued are not considered as costs for the purpose. Depreciation, depletion, and obsolescence are charges based upon the value of the assets and cannot be determined before the value is determined without begging the question. If, for example, depreciation is based upon original cost, the question immediately arises whether such depreciation is sufficient to replace the assets when they become worn out. Depreciation, depletion, and obsolescence are ways of reckoning with the fact that assets do not last forever. In capitalization, the fact that assets wear out is dealt with by capitalizing, not a hypothetical perpetual net earning power, but such gross earning power as the assets will have during the rest of their life. In capitalization, the value of an asset is considered as the present value of a series of future annual incomes (gross) terminating with the exhaustion of the asset. Past and present earnings are of significance only in so far as they throw light on future incomes. Estimating the earning power of later years is more easily said than done; and anyone grappling with the problem will be glad of all the aid given by past records. The practical necessity of studying past earnings should not, however, keep one from recognizing that the question remains whether the future earnings will be better or worse. An excellent earnings statement from a miniature golf course does not give a basis for capitalization after the fad has passed.

The present value of each of these future incomes is determined by discounting it at the appropriate rate. The present value is defined as "that sum of money which, when placed at compound interest for the full number of periods involved, will amount to that given sum."[1] The formula is

$$PV = \frac{S}{(1+i)^n},$$

where i = the interest in hundredths.
n = the number of periods.
S = the given sum.

The present value of $1,000 to be received 20 years hence, compounded at 8% annually, is $\frac{\$1{,}000}{(1.08)^{20}}$, or $214.55. Tables are available which facilitate these calculations.

In the case of The 12th Street Store, it was possible to facilitate the calculation of the present value of the future rental payments by

[1] R. H. MONTGOMERY, Ed., *Financial Handbook* (New York, Ronald, 1925), p. 90.

breaking them down into three overlapping series of payments in which the annual payment in each series was the same from year to year. These series of payments all began with the first year but ran for different lengths of time. The advantage of this procedure lies in the fact that for each of these annuities (note that, when the future income is the same from year to year, the series of future incomes is called an annuity) the present value is easily determined by reference either to formula or to annuity table.[1] But whenever the estimated future incomes differ from year to year in some irregular pattern so that they cannot be considered as a combination of annuities running for varying terms, it is necessary to determine the present value of each of the individual future incomes and then combine them into a total. This total, which is the present value of all the future incomes, is the capitalized value, or in other words the capitalization, of the asset that gives rise to these incomes.

The appropriate rate of discount to be used in capitalizing an income is difficult to determine. If a conservative estimate is being made, a high rate of discount is taken. The rate of discount used need not be the same for each year's earning power. The more uncertain the appearance of the earning power, the higher the rate of discount and the lower the present value. The total of the series of earnings is greater than the sum of the present values; the former is the principal and income, the latter is the principal. The difference is greater, the higher the rate of discount.

If a whole company is being valued, there is only one problem; but if the real estate or machinery of a company is to be valued separately from its good will, the problem arises of allocating the earning power to the various assets. Some of the assets may be eliminated from consideration by another method of valuation, namely, reference to current sales or replacement costs of similar assets. For example, if the earning power of a piece of real estate (the land and building combined) is known and the problem is to find the separate value of the building, it is sometimes possible to arrive at a valuation of the land from the current prices of similar land which is being bought and sold. The value of the land thus determined is then deducted from the total capitalized value of the earning power of the land and building combined, and the remainder is assigned to the building. This is called treating the building as the residual element. If the problem is to find the separate value of the land, a valuation of the building may be obtained either from current sales of similar buildings or from the cost of producing such buildings; of course, some allowance for

[1] *Ibid.*, p. 108.

wear and tear may have to be made. When the purpose is to find the separate value of the land, the value of the building is deducted from the total capitalized value and the remainder is assigned to the land. This is called treating the land as the residual element.

If none of the assets can be eliminated from consideration by reference to current sales or replacement costs, only the value of the whole combination of the various assets can be determined by capitalization; no separate value for the several constituents can be determined. Where values may be determined for some assets by reference to current sales or replacement costs, such values are deducted from the total determined by the capitalization of earning power; the remainder is the value of the other assets.

In the case of The 12th Street Store, the earning power of the leasehold was the excess of the "fair value" over the stipulated payments to the landlords. The fair value was based upon the customary examination by the experts; with the data given, its reasonableness could not be checked in detail. The fair value was assumed to be constant throughout the life of the lease. The use of the 8% rate indicated that the future earning power of the leasehold was not considered so secure as, say, an underlying railroad bond.

Capitalization by multiplying present earnings may be said to imply judgments of some sort about the amount, duration, and trend of future earnings and about appropriate rates of discounting. But the exact judgments cannot be deduced from the multiple, nor can the implications be made explicit; for capitalization by a given multiple, say 10 times earnings, is consistent with very different judgments on the elements which enter into the calculation. The capital sum, which is the product of the present earnings times the multiple, might be (1) the equal of the aggregate present value arrived at by using the same rate of discount for a larger sum in the future, if the trend of income was upward, or a smaller sum in the future, if the trend of income was downward; (2) the equal of the sum obtained by using different rates for each of the future years or a uniform rate for all; or (3) the sum reached either by a heavy discounting of a long series of earnings or by a moderate discounting of a short series. The statement that the present value of an asset is the result of multiplying the earnings by a certain number of times therefore is not a precise statement of the discount rate, the trend of earnings, or the duration of earnings.

The statement that a new machine will pay for itself in, say, three years lacks precision also. It means that if the machine is used to a certain extent and continues to produce certain economies, the

principal will be returned in three years; but the statement does not give any information on the duration or the size of the economies after the three years have elapsed. The statement has no one exact equivalent in the present-value method.

The less exact procedures in capitalization are much used in business because the uncertainties of the data or estimates do not warrant the labor of using the most refined mathematical treatment.

II. DEMAND

SOME NOTES ON DEMAND

The demand for a commodity, as the term is used by economists, is the willingness to exchange other commodities for it. In developed economic systems, barter is rare, and the demand for a commodity takes the form of offering money and other currency. In any case, demand is a relative term, involving the direct or indirect comparison of other commodities with the commodity in question. Although it is useful, for many purposes, to begin the study of a commodity with the study of the demand for it, the student must remember that economic life does not begin with demand, that demand is dependent on employment and production as truly as employment and production depend upon demand.

It is extremely difficult to obtain exact knowledge of the demand for a commodity, or even close approximations to it. The general discussions of demand by economists do not provide any simple formulas which are easy to apply to the facts of a complex and changing world. Some judgment about demand is so important for many business decisions, however, that any aid is welcome. The economists' generalizations are obviously no substitute for the experienced businessman's intimate knowledge of the conditions in his particular trade, but they give the student a useful frame within which he can fit business facts.

To measure demand, the economists take money as the standard measure and refer to price. Money is a satisfactory measure when its own value does not fluctuate, i.e., when the general price level does not change. It is important to remember that demand helps to explain prices only when the general price level is assumed and that *demand and supply really explain relative prices, not the general level of prices.*

Assuming the general level of prices, we measure demand by the prices the buyers are ready to pay for different quantities. *Demand refers to both quantities and prices, not to either of them alone.* A given demand may be expressed either in tabular or in diagrammatic form. A demand schedule states the demand situation as follows:

Price	Quantity
$9	1
8	2
7	3
6	4
5	5
4	6
3	7
2	8
1	9
0	10

This means that if the price is $9 one unit will be taken, and if the price is $7 three units will be taken; and conversely, that if only one is put on the market the price will be $9, whereas if eight are put on the market the price will be $2. If eight are sold rather than one, it does not mean an increased demand; it means that, with an unchanged buyers' attitude toward the commodity, the price is lower for the larger quantity.

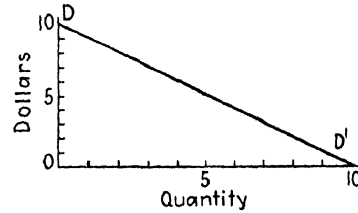


FIGURE 1.

The same demand situation is presented in diagrammatic form in Figure 1 as a demand curve DD'. The entire situation, i.e., the whole statement of quantities and prices, is referred to as the demand. It is a convention among economists to represent physical quantity on the horizontal axis and price on the vertical axis.

The demand schedule and the demand curve both illustrate the general law of demand: *other things being equal, the larger the quantity put on the market, the lower the price; or the lower the price, the larger the quantity sold.*

An increase or decrease in demand must be represented by a new curve. *An increase in demand means that, at the same series of prices as before, increased quantities can be sold.* An increased demand is represented by a new curve, lying to the right of the original curve. A special case of an increased demand is one brought about by the seller through advertising or other sales promotion; this is called, in marketing, the expansibility of demand.

To be distinguished from an increase in demand is the elasticity of demand. Although the general law of demand states that larger quantities bring lower prices, it does not say how much lower. An elastic demand exists when the larger quantity brings a relatively small decline in price; an inelastic demand exists when the larger

quantity brings a relatively large decline. In more precise language, *demand is elastic when, with a larger quantity offered, the necessary reduction in price is so small that the total receipts (the net price times the number of units sold) are greater for a large quantity than for a lesser one; and demand is inelastic when, with a larger quantity offered, the necessary reduction in price is sufficiently substantial to make the total receipts smaller. Conversely, of course, elastic demand means that when a smaller quantity is placed on the market the consequent advance in price is not sufficient to increase the total receipts, whereas inelasticity means that with a smaller quantity placed on the market the consequent advance in price is sufficiently great to increase the total receipts. The boundary case is that where the elasticity is one, where the total receipts are the same whatever the number of units sold.* There is no reason why the elasticity of demand for a particular commodity should be the same throughout; the same commodity might have an elastic demand for one range of prices and quantities and an inelastic demand for another.

The difference between elasticity and inelasticity is illustrated in the following table, which is based on the schedule on page 83:

Price	Quantity	Total Receipts
$9	1	$ 9
8	2	16
7	3	21
6	4	24
5	5	25
4	6	24
3	7	21
2	8	16
1	9	9
0	10	0

Graphically this may be illustrated as in Figure 2.

There are two peculiarities of this diagram which should be pointed out. In the first place, it is ordinarily impossible to plot a total receipts curve (TR) and a demand curve (DD') on the same vertical scale because the values represented by the total receipts are so much greater than the price per unit. The two curves can be put on the same scale only when the total quantity is small. Secondly, the vertical scale is to be read in two ways: as total dollars received by selling a given quantity (when using the total receipts curve), and

as the price at which each unit in a given quantity will be sold (when using the demand curve).

Here the demand curve DD' is a straight line. Starting from very small quantities, as the quantity placed on the market increases, the price per unit drops. At the beginning, the price drop is not enough to keep total receipts from increasing. Total receipts increase as more units are sold until a maximum is reached. Up to this point N, therefore, the demand is elastic. Thereafter the total receipts from larger quantities decrease until finally, when the unit price becomes zero (where the DD' line cuts the horizontal axis), total receipts also become zero. This straight line demand curve does not have the same elasticity throughout; in fact, it is highly elastic at the beginning and highly inelastic at the end, and is neither elastic nor inelastic at the midpoint, where the total receipts become a maximum. If a monopolist had the quantity OM to sell, he would get the most by selling half that quantity and keeping half off the market.

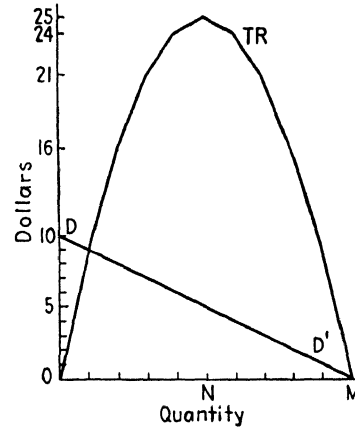


FIGURE 2.

The difference between elasticity and inelasticity may be illustrated also in another type of diagram, as in Figure 3, where the demand curve alone is used and the total receipts are measured by a rectangle, one side of which represents quantity sold and the other side of which represents unit price. The elasticity can be ascertained by comparing the size of the rectangles:

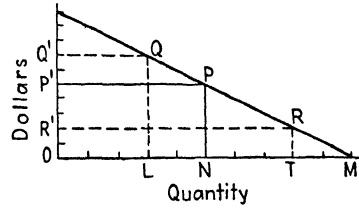


FIGURE 3.

The total receipts for the quantity ON are $ONPP'$; they are greater than the total receipts $OLQQ'$ for the smaller quantity OL; the demand is therefore elastic between OL and ON. The greater

quantity *OT* sells for *OTRR'*, a smaller amount than *ONPP'*; the demand is therefore inelastic between *ON* and *OT*.

Another way of stating the definition of elasticity is in terms of increment receipts, a concept very useful in analysis. Increment receipts are the amount of the additions to total receipts.[1] When total receipts increase as quantity increases, demand is elastic and increment receipts are positive. When total receipts decrease as quantity increases, increment receipts are negative and demand is inelastic.

The relationship between total receipts and increment receipts is seen most clearly in diagrams which omit the demand curve. The case of a farmer who can dispose of his entire wheat crop without affecting the market price at all is the extreme case of elasticity. For then, each additional bushel sold adds a constant amount to the total receipts, and total receipts are represented by a straight line rising steadily as each additional bushel is sold. Likewise, since each additional bushel brings no reduction in price, the increment receipts are represented by a straight line, which is parallel to the horizontal axis. This is illustrated in Figure 4, where it is assumed that the price is $1 per bushel and the farmer has any number from 0 to 8 bushels to sell.

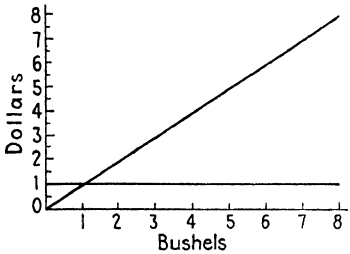


FIGURE 4.

The idea of increment receipts may be clarified by adding these new figures to the assumed data already given on pages 83 and 84.

Price	Quantity	Total Receipts	Increment Receipts
$9	1	$ 9	
8	2	16	$7
7	3	21	5
6	4	24	3
5	5	25	1
4	6	24	−1
3	7	21	−3
2	8	16	−5
1	9	9	−7
0	10	0	−9

[1] The term "marginal revenue" is also frequently used to designate this concept.

This demand is elastic from one to five units, and is inelastic when more than five units are put upon the market. This situation is illustrated diagrammatically in Figure 5, in which an increment receipts (*IR*) curve is added to the diagram shown in Figure 1.

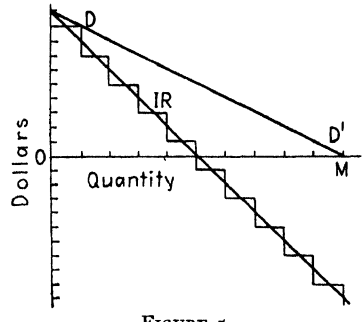


FIGURE 5.

As is shown in this illustration, the increment receipts curve is not really a "curve" but a series of steps representing the successive amounts added to total receipts by the sale of additional units. When large quantities are involved, as is commonly the case (e.g., 900,000,000 bushels of wheat produced in the United States in one year), each step in the series becomes so small that for practical purposes the series of steps becomes a straight line.

The relationship between total receipts and increment receipts is shown in Figure 6. After the quantity *ON* is put on the market, total receipts decline. From that point on, additional receipts are a minus quantity, and the increment receipts curve *IR* is below the horizontal axis. The loss of total receipts, brought about by putting *ON'* on the market instead of *ON*, is the value of *PN*, as shown on the vertical scale (25), minus the value of *P'N'*; this is likewise the same as the area *NN'G*, which measures the amount of negative additional receipts.

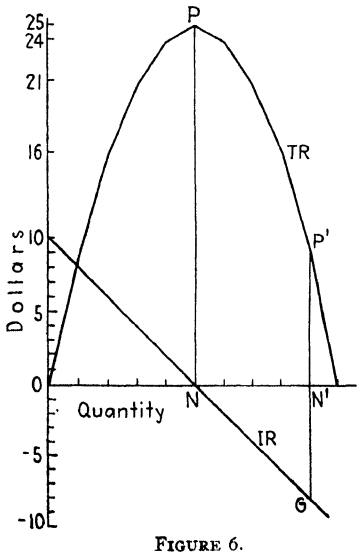


FIGURE 6.

Although increment receipts can be seen most simply in diagrams without the demand curve, when both curves are used the total receipts are shown either by the rectangle under the demand curve (as already illustrated in Figure 3) or by the irregular area under the increment receipts curve. The distance from the demand curve to the horizontal axis represents the unit price. The distance from the increment receipts curve to

the horizontal axis represents the addition to total receipts at that point.

If this last statement is to be accurately illustrated by the diagrams used here, the increment receipts have to be treated as a series of steps, as in Figure 5. For the usual situation, however, dealing with large numbers, the increment receipts are represented by a line, and the distance from the curve to the horizontal axis at any point represents the addition to total receipts at that point. To illustrate: if the tables we have been using were in hundreds of units, instead of single units, a few selected figures would be as follows:

Price	Quantity	Total Receipts	Increment Receipts
$6.00	400	$2,400.00	
5.99	401	2,401.99	$1.99
5.98	402	2,403.96	1.97
5.51	449	2,473.99	1.03
5.50	450	2,475.00	1.01
5.49	451	2,475.99	.99
5.01	499	2,499.99	.03
5.00	500	2,500.00	.01
4.99	501	2,499.99	−.01
4.98	502	2,499.96	−.03

In Figure 7, the quantity *ON* brings the unit price *PN*; the total receipts are *ONPT*. The total receipts are also represented by *ONF*. Both areas have *ONGT* in common, and the area *FTG* is equal to the area *GPN*. At the point *N*, the increment receipts (*IR*) curve touches the horizontal axis. At this point, the total receipts reach their maximum; beyond this there is no addition to total receipts, and demand is no longer elastic. If the quantity *ON'* is put on the market, the unit price is *N'P'*, and the line *GN'* (the line from the increment receipts curve to the horizontal base) shows the amount added to total receipts at the point *N'*. The total receipts are *ON'GF*.

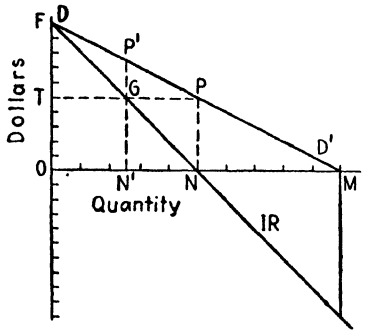


FIGURE 7.

The tables and diagrams thus far have all illustrated a straight line demand curve. This assumption was chosen because it avoids unnecessary complications involved in other types of demand curves; but the principles for others are the same as for a straight line curve. An example of another type of demand curve is given in the following table and illustrated in Figure 8.

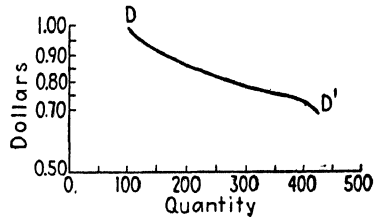


FIGURE 8.

Price	Quantity
$1.00	100
0.95	125
0.90	180
0.85	225
0.80	300
0.75	400
0.70	425

The question may be asked, under what conditions is the demand for a commodity elastic? Under what conditions will a lowering of price lead to a great increase in physical volume? The only general answer possible is that elasticity depends upon the desire for the commodity and upon the substitutes for it. If the desire for a commodity is especially urgent, a higher price will not result in a great decrease in the quantity sold unless there are many substitutes available. If there are many substitutes available, a lower price will result in the commodity's replacing them, and a higher price will result in the commodity's being replaced by them, provided the prices of the substitutes do not change at the same time and to the same extent. The most immediate substitutes for the product of any company are the products of its competitors. It follows that the more highly competitive is the situation of a company, the greater is the elasticity of demand for its product. Another general proposition is that demand is more elastic over a period than it is at once, because the process of substitution often takes time. Established methods of distribution, established brands, buyers' ignorance and buying habits, and other similar factors slow down the rate at which a cheaper substitute can make inroads on the market of its competitors.

In practice, an accurate estimate of the probable response of volume to price changes is extremely difficult. The problem is

clearly one of business judgment, not to be solved by any simple formula.[1] Yet the practical difficulties of judging elasticity must not lead to dismissing the problem as arbitrary guesswork, for much of the success of an enterprise depends upon sound business judgment

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[1] A mathematical procedure for measuring the elasticity of demand is described as follows by Eric James Broster in *Cost, Demand and Net Revenue Analysis* (London, Gee, 1938), pp. 30–34:

"When the price of any article of commerce rises, the demand for it diminishes, and when the price falls, the demand for it increases. If, for a rise in price, the decrease in demand is insufficient to prevent a rise in gross revenue, the demand is not sensitive to price change, and is said to be inelastic. The same remark applies to a fall in price that results in an increase in demand insufficient to prevent a fall in gross revenue. On the other hand, if a rise in price is accompanied by a decrease, or a fall by an increase, in gross revenue, the demand is sensitive to price change and is said to be elastic.

"Suppose that in any month the public demand for a particular brand of soap is 1,000 tablets when the price is 1s. a tablet, and 1,500 when the price is 6d. Since the gross revenue yield of the higher price (1,000 at 1s. = £50) is greater than that of the lower price (1,500 at 6d. = £37 10s.) the demand is inelastic. If, however, the demand at 6d. exceeded 2,000 tablets, then the gross revenue yield of the lower price would be the greater, and the demand in that case would be elastic.

"The discovery of this phenomenon led to the formulation of a means of measuring the elasticity of demand—a means that is universally applicable. Its basis is a simple mathematical formula so devised that, if gross revenue remains constant when the price is altered, the resulting value of the elasticity of demand is one, or unity. Where the demand is inelastic the value is less than unity, and where elastic greater than unity.

"I do not propose dealing with the theory of this formula. Such considerations have been fully examined elsewhere. Our purpose is to apply it in practice. Sufficient if I add that it represents the ratio of the price charged to any small change in that price multiplied by the ratio of the resulting change in the quantity sold to the total quantity sold. It may be stated in the form of an equation:

$$n = \frac{p}{p - p'} \cdot \frac{x' - x}{x}$$
$$= -\frac{x - x'}{p - p'} \cdot \frac{p}{x}$$

where n is the measure of the elasticity of demand, p and p' are two prices, and x and x' the corresponding quantities. Reducing $p - p'$ indefinitely, we have

$$n = -\frac{p\,dx}{x\,dp} \qquad (1)$$

which is the analytical form of the elasticity of demand.

"There are *a priori* grounds for supposing that the elasticity of demand tends to vary directly as the price—that it is higher for high prices than for low prices. However, as I have shown elsewhere, there are equally sound *a posteriori* reasons for supposing that this sensitiveness of the elasticity of demand to changes in prices is imperceptible when the price range is limited to what we generally find to be the case in the real world, even over a considerable period of years. As Marshall shows, the general equation to demand curves at every point of which the elasticity of demand is the same is —

$$xp^n = k \qquad (2)$$

in which x, p, and n have the meanings ascribed to them above, and k is a constant. This equation forms the basis of the law of demand for any commodity within the range of prices normally to be observed during any period of a few years.

"Returning to the simple example of the soap tablets, we may easily be led to the erroneous conclusion that because the demand is 1,500 per month when the price is 6d., and 1,000 per month when the price is 1s., the demand would be at the rate of 1,250 when

in this area. In fact, the decision on elasticity is usually easiest when the problem is of little importance, and hardest when most depends upon it.

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the price is 9d. The problem is not one in ratio and proportion. From equation (2), we have its linear form:

$$\log x + n \log p = \log k$$

Substitute the known values of x and p

$$\log 1000 + n \log 12 = \log k$$

$$\text{and } \log 1500 + n \log 6 = \log k$$

$$\therefore \log 1000 + n \log 12 = \log 1500 + n \log 6$$
$$\therefore \log 1500 - \log 1000 = n (\log 12 - \log 6)$$
$$\text{and } n = \frac{\log 1500 - \log 1000}{\log 12 - \log 6}$$
$$= \frac{3.1761 - 3.000}{1.0792 - .7782}$$
$$= .585$$

which is the measure of the elasticity of demand for the tablets. Now solve for k by substituting this value for n in either of the equations with which we began—

$$\log k = \log 1000 + .585 \log 12$$
$$= 3.000 + .585 \times 1.0792$$
$$= 3.6313$$
$$\therefore k = 4279.$$

The complete equation for our hypothetical soap tablets is therefore—

$$xp^{.585} = 4279$$

To determine the quantity that would be sold in a month if the price were 9d. per tablet, substitute 9 for p:

$$x \times 9^{.585} = 4279$$
$$\therefore \log x = 3.6313 - .585 \times .9542$$
$$3.0731$$
$$\therefore x = 1183.$$

The quantity that would be sold in a month if the price were 9d. a tablet is therefore not 1,250 as at first may be supposed, but 1,183. Such an equation should give reasonably accurate results where the highest price is not more than double the lowest price. It would not be safe to use the same complete equation for the hypothetical soap tablets for the purpose of determining the number that would be sold if the price were raised to 2s., for instance, or reduced to 3d.

"When the values of n and k have been determined, we can therefore ascertain—*other things being equal*—the quantity that will be sold for any given price:

$$x = kp^{-n} \tag{3}$$

or the price that will lead to the sale of a given quantity:

$$p = \left(\frac{k}{x}\right)^{\frac{1}{n}} \tag{4}$$

Equations (2), (3) and (4) represent in different forms what has come to be known as the *static* law of demand. They do not take into account those 'other things' that may not be equal. . . . "

A. THE MEANING OF DEMAND

1. Tennessee Valley Authority

EFFECTS OF RATE REDUCTIONS

The Tennessee Valley Authority was established in 1933, by an Act of Congress, to maintain and operate the Wilson Dam and power plant, to administer the fertilizer plant at Muscle Shoals, and to build the Cove Creek (Norris) Dam on the Clinch River. It had also the broader purpose of furthering the conservation and the development of the natural resources of the Tennessee Valley.

The operation of the dams that were built primarily for flood-control purposes made available vast potential water power. In order that this power might be utilized for the development of the Tennessee Valley, Congress empowered the Authority to install generating equipment and to construct or acquire transmission facilities, and specifically directed it to promote the wider and better use of electric power for agricultural and domestic use.

Guided by a Supreme Court decision[1] confirming its constitutional right to seek a wider market, the Authority interpreted the section of the Act relating to electric power as obliging it "first, to see that the power is developed as rapidly as a market can be found for it; second, to see that it is sold and the revenue used to help pay operating and construction costs; third, to see that it is sold under such conditions and at such prices as will promote the widest possible use of electricity."[2]

The first of these obligations was primarily an engineering problem and was solved by the addition of generating and other electrical equipment, which was relatively inexpensive, at key dams which were built for purposes of navigation and flood control. The second and third obligations presented the problem of finding markets and establishing a price which would "promote the wider and better use of electric power for agricultural and domestic use."[3]

The Authority felt that it could accomplish this latter purpose and, at the same time, dispose of its large quantity of surplus power only by selling this power at rates low enough to bring about an increased consumption and a wider market for electricity. It was of the opinion that electrical rates throughout the United States were too high and that the industry as a whole would profit from a bold

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[1] Ashwander et al. *v.* T. V. A. et al., 19 F. Supp. 190.
[2] Tennessee Valley Authority, *Annual Report for the Fiscal Year Ended June 30, 1936.*
[3] The language of the Act.

attempt to increase the use of electricity by a substantial reduction in rates. This point of view was summarized by the following statement appearing in the annual report of the Authority for the fiscal year ended June 30, 1936, page 26:

> What was needed was an actual demonstration (1) that the electrical power industry had become involved in a vicious circle of high prices and low consumption, and (2) that there was a means of escape from this predicament. The difficulty was, despite a gradual increase in power consumption, and despite also a gradual reduction in retail rates, that electricity was still too expensive to be widely used. The utilities did not think it advisable to make drastic rate cuts in advance of wider use. The consumers, on the other hand, would not buy additional current in large amounts, or would not buy current at all at the then existing rates.
>
> To the Authority the solution of this stalemate seemed to be to apply to the electrical industry the principles of mass production and mass consumption which had proved successful in a number of great private industries in America. The essential element in mass production is a progressive decrease in unit cost—the more items of any commodity a producer turns out, the less each item is likely to cost him. There are limits to this law of diminishing costs, but the electrical industry is a long way from having reached them. Similarly, the essential element in mass consumption is that the cheaper the article is, the more the consumer can buy. Here, too, there is a limit to the law, but in the case of electricity it is not likely to be reached for a long time.

In accordance with this policy, the Authority, up to May, 1935, had entered into agreements to sell surplus electric power to contractors (municipalities, nonprofit organizations, cooperatives, and so on) who owned or operated distribution systems, for distribution and resale to ultimate consumers. In each case, the contract included a schedule of resale rates to consumers. A typical residential schedule was as follows:

	Cents per Kilowatt-Hour
First 50 kw.-hr. per month	3.00
Next 150 kw.-hr. per month	2.00
Next 200 kw.-hr. per month	1.00
Next 1,000 kw.-hr. per month	0.40
Excess over 1,400 kw.-hr. per month	0.75

Minimum monthly bill = 75 cents

In order to judge the effectiveness of these low rates, the Authority in December, 1935, made a before-and-after study of consumption in seven localities. The results are summarized in Exhibit 1. It was noted that in all cases:

EXHIBIT 1

TENNESSEE VALLEY AUTHORITY

Average Consumption, Number of Customers, Total Revenue, and Average Revenue per Kilowatt-hour, before and after Introduction of T.V.A. Rates

A	B	C	D	E	F	G	H	I	J	K	L	M
Contractor	Date T.V.A. Service Began	Months T.V.A. Rates in Effect at June 30, 1935	Average Consumption per Customer (Kilowatt-hours)		Number of Customers		Total Consumption (Kilowatt-hours)		Total Revenue		Average Revenue (Cents per kilowatt-hour)	
			Month prior to T.V.A.	June, 1935	Month prior to T.V.A.	June, 1935	Month prior to T.V.A.	June, 1935	Month prior to T.V.A.	June, 1935	Month prior to T.V.A.	June, 1935
Tupelo, Mississippi	February 7, 1934	17	49	112	955	1,241	46,398	138,570	$3,436	$2,849	7.4	2.1
Alcorn County Electric Power Association	June 1, 1934	13	49	101	1,180	1,519	58,288	153,880	3,129	3,298	5.4	2.1
Athens, Alabama	June 1, 1934	13	51	112	521	712	26,589	79,667	1,464	1,655	5.5	2.1
Pontotoc County Electric Power Association	June 1, 1934	13	33	71	311	450	10,158	31,985	648	781	6.4	2.4
New Albany, Mississippi	November 12, 1934	7	43	75	539	577	22,896	43,021	1,553	1,028	6.8	2.4
Pulaski, Tennessee	January 4, 1935	6	49	84	477	531	23,581	44,431	1,370	991	5.8	2.2
Dayton, Tennessee	February 1, 1935	5	40	53	451	480	17,995	25,457	1,132	680	6.3	2.7

Source: Tennessee Valley Authority, *Statistical Bulletin No. VII*, December, 1935.

1. The total consumption of electricity increased (see columns *H* and *I*, Exhibit 1).

2. The number of customers increased (see columns *F* and *G*, Exhibit 1).

3. The amount of electricity consumed by each customer not only increased but in six of the seven localities rose above the national average (see columns *D* and *E*, Exhibit 1).[1]

It was argued that the consumption under the reduced rates justified the conclusion that private utilities had misjudged the character of the market and had mistakenly sought monopolistic profits from high rates.

Did the data in Exhibit 1 show that the demand for electricity for domestic consumption was elastic?

Would it have been a sound policy for privately owned public utilities to adopt domestic rate schedules such as those established by T.V.A.?

2. Benton Cab Company

Determination of Rate Schedule

In November, 1921, a group of men decided to enter the taxicab business in a large city which, they were convinced, offered a fertile field for development by a company which could provide good service. A corporation known as the Benton Cab Company was formed. The capital was subscribed by the incorporators. The company desired to secure public interest and support from the outset, and the officers had to develop a policy to attain that end. Arrangements were concluded with a cab manufacturer to supply 75 cars of the model and design used by many companies in other cities.

One of the first problems facing the new company was determination of a schedule of fares. From an investigation which previously had been made in the city, the executives of the new company concluded that the companies then in operation were in a virtual combination to maintain rates at a high level; that their cars were for the most part nondescript; that many of their drivers were rough and discourteous; and that the service rendered was often undependable. Profits, moreover, did not appear to be commensurate with the high rates. These shortcomings, together with the success in other cities of companies which operated cabs of uniform model economically and

[1] The average residential consumption per month for the entire United States for the 12 months ended June 30, 1935, as estimated by the Edison Electrical Institute, was 54 kilowatt-hours.

profitably on a low schedule of rates, pointed the way to the new company.

The executives of the Benton Cab Company were confident that the setting of rates at a level materially below those of other companies in the city would serve a double purpose. It would enable the company to secure a large share of the existing taxicab patronage and, in addition, to build up an extensive new patronage through the appeal of low rates to classes of people who previously had not used taxicabs because of the high fares.

A rate reduction, of course, could not wisely be made below the point which assured a reasonable margin of profit. It was necessary, therefore, to estimate accurately the probable costs of operation. For this purpose, cost figures furnished by the cab manufacturers were used as a basis. The company decided to set its rates at 25 cents for the first half-mile, 15 cents for each additional half-mile, and 10 cents for each additional person. The prevailing rates of existing companies were substantially higher.

The Benton Cab Company made a particular effort to secure drivers distinctly above the average of their group. Each applicant was required to furnish complete details as to his education, habits, and previous employment. Before engaging an applicant, the manager, through personal interview and a careful investigation of the references, satisfied himself fully of the man's character and ability. The new employee was on probation for two weeks, during which his personal conduct and his capacity as a driver were observed closely. The vigilance of the company was expected to have a cumulative advantage, since patrons were likely to prefer the taxicabs of this company if they were operated by careful, courteous, and honest drivers.

The company sought to attract the public through the price inducement and through the facts that its cars were new, clean, and in good running order, and that prompt and efficient service was guaranteed. All these appeals were stressed in the preliminary newspaper advertising. In order to establish the name of the company firmly in the minds of the public, a distinctive design in contrasting colors was painted on the sides of each cab and prominently connected with the name. In this way, each cab was made a moving advertisement of the company, and the attractiveness of the design and the well-kept appearance of the cars were effective in drawing favorable attention.

The success of the appeals was attested by the record of the company during the first year and a half of operation. It gained

good will and patronage rapidly. Other companies, in an attempt to meet the competition, placed better cars in service, adopted distinctive color combinations, and reduced rates. That the Benton Cab Company, however, retained its initial advantage was shown by its steadily increasing popularity. So great was the demand for taxicab service that in the winter of 1922 and 1923 the company was able to give service to only one out of ten calls received. This condition led in the spring of 1923 to a policy of expansion. On the basis of funds received from the sale of new common stock, 175 new cabs were ordered, to be delivered in small lots at frequent intervals. It appeared certain that all the new cabs could be kept in operation to their full capacity.

Was the question of elasticity or inelasticity of demand important to the Benton Cab Company?

Assume that three executives, *A*, *B*, and *C*, submitted for general discussion their respective estimates as to the results directly obtainable from use of the fares listed, as follows:

Fares (Cents per half-mile)	Average Number of Half-Mile Rides Sold Daily		
	A's Estimate	*B*'s Estimate	*C*'s Estimate
50¢	100	75	70
45	110	90	75
40	120	120	75
35	125	150	80
30	140	200	100
25	150	300	200
20	175	400	450

On the basis of each set of estimates, what were the total receipts; the increment receipts?

Was the Benton Cab Company concerned primarily about elasticity or inelasticity of total demand or of demand for its particular cab service? When is elasticity greater for any one company's demand than for total demand? Would there be any difference between a wheat farmer and the Benton Cab Company in this respect?

Should the company have considered the probability of a change in demand because of the contemplated advertising and improvement of service? What is the difference between a change in demand and elasticity or inelasticity of demand?

Should the company have raised its price when it discovered the size of the demand, instead of planning to increase the number of cabs operated?

3. Pennsylvania Anthracite Industry[1]

CAUSES OF DECLINE IN SALES

In the period preceding the war of 1914–1918, production of anthracite increased more or less regularly each year, and mine operators were constantly striving to enlarge their output to meet the rising trend of demand. During the war years and to some extent in the years immediately following, the chief problem of the operators continued to be one of increasing production. During the postwar period, however, the strike years excluded, production on the whole remained relatively constant until 1924, and after that year it declined steadily to 1933 (see Exhibit 1).

The calculated consumption of Pennsylvania anthracite paralleled, on the whole, the movement in production. Except in 1925, when strikes by mineworkers reduced output to such an extent that consumers were not able to obtain enough coal to satisfy their needs, the movement in consumption showed a downward trend from 1924. The prices for breaker shipments of anthracite at the mine reached their peak in the postwar period in 1926, and from that year to 1933 they declined steadily.[2]

The reasons for the change in the trend of demand for anthracite during the postwar period may be summarized under three heads: (1) use of substitutes, (2) price, and (3) convenience. In strike years when production was not sufficient to meet the demand, consumers were forced to substitute other fuels to meet their heating requirements. Consumers who formerly had used Pennsylvania anthracite became acquainted with the use of oil, gas, coke, fuel briquettes, imported anthracite, or bituminous coal. Their experience in the use of these substitutes, coupled with the apprehension that future strikes might again interrupt the supply of anthracite,

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[1] This case is based primarily on information concerning Pennsylvania anthracite appearing in the *Minerals Yearbooks* of the U. S. Bureau of Mines.

[2] Prices of anthracite at the mines are considerably below those to the consumer. Prices to the consumer include freight charges to points of consumption plus wholesalers' and retailers' margins amounting in all to almost as much as the price of coal at the mine.

resulted in a marked increase in the competition which anthracite had to face.

EXHIBIT 1

PRODUCTION, CONSUMPTION, AND PRICE PER TON AT THE MINE OF PENNSYLVANIA ANTHRACITE, AND INDEX OF WHOLESALE PRICES, 1919–1935

Year	Production (Million short tons)	Calculated Consumption (Million short tons)	Average Price per Short Ton at the Mine (Dollars per ton)	U.S.B.L.S. Wholesale Price Index—All Commodities (1926 = 100)
1919	88.092	81.518	$4.63	138.6
1920	89.598	85.786	5.50	154.4
1921	90.474	81.950	5.60	97.6
1922	54.683	56.799	5.79	96.7
1923	93.339	86.914	6.04	100.6
1924	87.927	80.717	5.98	98.1
1925	61.817	64.061	5.88	103.5
1926	84.438	77.221	6.11*	100.0
1927	80.096	74.672	5.80	95.4
1928	75.348	73.650	5.70	96.7
1929	73.828	71.457	5.63	95.3
1930	69.385	67.628	5.52†	86.4
1931	59.646	58.408	5.35	73.0
1932	49.855	50.500	4.74	64.8
1933	49.541	49.600	4.46	65.9
1934	57.168	55.500	4.53	74.9
1935	52.159	51.100	4.29	80.0

* This figure should be $6.05 per ton to be comparable with prices in previous years. The figure given in the table results from a later and more accurate system of estimating the value of output for one company.

† This figure should be $5.54 per ton to be comparable with prices in previous years. The difference of 2 cents between the two prices is attributable to the change in status of a company which formerly had sold its output direct but which in 1930 was merged with a larger company selling through a separately incorporated sales company.

Note: Strikes occurred in 1922, 1925, and 1926.

Some householders, conscious of the fact that fuels other than anthracite could satisfactorily fulfill their heating requirements, became interested in the price of the various fuels in the market and bought that fuel which was cheapest for their needs. Other consumers became interested in the convenience of some of the substitute fuels. The use of anthracite had always necessitated a certain amount of labor on the part of the consumer. The use of oil or gas, on the other hand, involved no such labor; and mechanized heating was so convenient that increasing numbers of consumers ceased to

desire anthracite. The consumption of two of the substitutes, coke and oil, during the period 1924 to 1935 is shown in Exhibit 2.

EXHIBIT 2

CONSUMPTION OF BY-PRODUCT COKE AND OIL FOR HEATING, 1924–1935

Year	For Domestic Heating		For Domestic and Commercial Heating
	By-Product Coke (Million net tons)	Oil (Million bbl.)	Oil (Million bbl.)
1924	2.81	5.02	*
1925	4.09	8.83	*
1926	5.06	9.08	*
1927	4.70	11.71	*
1928	6.25	14.27	*
1929	7.38	19.58	*
1930	7.89	25.77	43.28
1931	8.38	24.66	40.39
1932	9.25	*	44.26
1933	10.22	*	50.14
1934	10.17	*	60.82
1935	9.16	*	76.85

* Separate figures showing the consumption of heating oil for domestic heating are not available after 1931. Figures showing consumption for domestic and commercial heating combined are not available prior to 1930.

In the latter part of 1927, the anthracite industry initiated efforts to meet the competition of substitutes. At the Anthracite Operators' Conference in November of that year, plans were made to establish better relations between the producer and the retailer, that there might result a more favorable attitude of the coal merchant toward anthracite. Improvements in the quality of the coal marketed were effected through mechanical improvements in the breakers for cleaning and sizing the coal. The Anthracite Coal Service was established to direct the promotion of anthracite sales, and offices were set up in the chief consuming centers for this purpose.

The Anthracite Coal Service made its engineering corps available to retailers and to organizations interested in commercial and industrial heating. It sponsored combustion schools for retailers; and in cities where the school course had been completed or was well advanced, cooperative advertising, paid for in part by the anthracite producers, was available to retailers. The Anthracite Coal Service published and distributed, chiefly to retailers, a monthly pamphlet,

The Anthracite Salesman, which described the methods employed by retailers in merchandising anthracite and presented suggestions for increasing the volume of business. It also published the *Anthracite Coal Magazine,* which it sent to approximately 10,000 engineers, architects, and building owners in an effort to impress upon them the advantages of hard coal. Envelope stuffers and leaflets outlining methods for obtaining the best results from the use of anthracite in house heating were distributed free of charge to retail coal merchants.

Early in 1928, a group of companies, including a number of independent producers and all but two of the large companies, launched a cooperative newspaper advertising campaign in the anthracite consuming territory, advertising their product as "Cert-i-fied Anthracite." This newspaper advertising was followed by a 24-sheet poster billboard campaign which began in June of that year. Retail distributors were furnished with metal signs featuring the name "Cert-i-fied Anthracite" and with stickers to place on delivery tickets.

This same group of companies, recognizing the apparent trend toward mechanized heating, in 1929 engaged the services of a research laboratory for testing and developing devices which would bring about a more economical and efficient use of anthracite. One result of this research was a new stoker, which was automatic in its operation and required no attention except the removal of ashes. The Anthracite Equipment Corporation also was established to encourage the invention and technical improvement of completely automatic anthracite-burning equipment.

The Anthracite Institute was set up in 1929 to serve as an intermediary between the producers and the public and to aid in fostering public good will. There were established also a credit bureau and a traffic bureau to aid in solving operating problems.

In 1930, all the industry's promotional activities were placed under the direction of the Anthracite Institute. In addition, a new testing laboratory was established and the system inaugurated of putting the Institute's official mark of approval on equipment found to give efficient heating service, the results of such tests being communicated to retail coal merchants through the *Anthracite Institute Laboratory Bulletin.* The work in the training schools was intensified, instruction being furnished not only in the uses of anthracite for various purposes and in various types of furnaces and buildings but also in up-to-date methods of merchandising.

Reductions in prices per ton of anthracite at the mine were made after the peak had been reached in 1926 (see Exhibit 1). That the

prices to consumers might still be high and thus have resulted in a narrowing of markets for anthracite was the opinion expressed in 1931 by J. B. Warriner, President of the Lehigh Coal and Navigation Company.[1] The anthracite operators had attempted to reduce costs of production, transportation, and distribution to allow the establishment of satisfactory prices to consumers without loss to the producers. Of the total costs, however, labor costs were regulated under the wage rates established by agreement between the industry and the United Mine Workers of America, and could not be changed except under the terms of that agreement. Transportation costs also were regulated by forces beyond the control of the producers. Furthermore, decreasing output tended to increase costs per ton of coal produced, because of the continuance of taxes and the expenses involved in maintaining idle collieries.

From the data in Exhibit 1, what is to be concluded about the demand for anthracite?

What were the causes of the decline in demand?

Was the demand for anthracite becoming more, or less, elastic?

Should the anthracite industry have continued to expend funds in promotional or developmental work, or should it have reduced prices?

4. California Clingstone Peach Industry

Role of demand analysis in forecasting profitable prices

In the spring of 1930, it became apparent that the season's production of clingstone peaches in California would be exceptionally large. A survey made later indicated a supply sufficient for a pack in excess of 18,000,000 cases of 24 No. 2½ tins. Clingstone peaches were utilized almost entirely for canning, since they were not adapted for sale as fresh fruit or for drying. Packs in the four preceding years, 1926 to 1929, had been approximately 13,500,000, 10,800,000, 14,800,000, and 8,000,000 cases.

Early in June, 1930, a preliminary report became available on a study, made by the Giannini Foundation of Agricultural Economics of the University of California under the direction of H. R. Wellman,

[1] Annual report of the Lehigh Coal and Navigation Company, 1931, p. 9. Mr. Warriner's comments include the following statement: " . . . high prices, due to high basic costs of production, transportation, and distribution have narrowed its [the anthracite industry's] markets."

of factors affecting the annual prices of canned clingstone peaches from 1921–22 to 1929–30. Professor Wellman's report began as follows:

The purposes of this study are to determine the factors that have been responsible for the variations in the annual average f.o.b. prices of canned clingstone peaches and to measure the influence of the factors that can be expressed in quantitative terms. Obviously the prices of canned peaches are affected by many factors. Not all of these factors, however, can be measured with the data now available. In this analysis only the following factors have been measured: (1) shipments, (2) trend of demand, (3) value of exports, (4) employment in the United States, and (5) competing fruit production. While most of the variations that have occurred in the annual average f.o.b. prices of canned peaches can be accounted for by these five factors, other ones have also had some influence.[1]

Relation between Shipments and F.O.B. Prices of Canned Peaches. The closest approximation to the supply of canned peaches moved into consumption that can be obtained with the data now available is the shipments of canned peaches by canners. Except in years when large stocks are carried over by wholesalers and retailers, these shipments practically coincide with the consumption. The annual shipments of canned peaches from 1921–22 to 1929–30 were computed from data on the pack and carry-over, and are given in Exhibit 1. The annual average prices of canned clingstone peaches, f.o.b. cannery, are given in Exhibit 2, column 1.

In the chart shown as Exhibit 3 the annual shipments of canned peaches are measured along the horizontal scale, the annual average prices along the vertical scale. The diagonal solid line represents the average relation that has existed between shipments and prices adjusted to the situation in 1928–29. From this line it is possible to estimate the prices at which varying quantities of canned peaches could have been sold in 1928–29 if other conditions had been average. Shipments in 1928–29 amounted to 13,306,000 cases; the actual price was $3.06 a case. The actual price, however, was lower than would normally be expected, chiefly because of the large competing fruit crop. Under normal conditions shipments of 13,306,000 cases could have been sold for $3.12 a case. And if shipments in 1928–29 had been as small as they were in 1924–25,

[1] The basic data used by Professor Wellman are given in Exhibit 2 for the nine crop years 1921–22 to 1929–30. It is suggested that the reader will follow the text explanation of method more easily and will better understand the limitations of the method if he checks the analysis step by step. He should begin by plotting on the chart shown as Exhibit 3 the data for net cannery price [Exhibit 2, column (1)] against the data for shipments of canned peaches [column (2)]. Each plotted point should be identified according to year. The discrepancies between the points and the 1928–29 line of relationship (discrepancies measured as plus and minus cents per case) should then be examined by plotting them year by year on the chart shown as Exhibit 4. The discrepancies from the line of relationship of Exhibit 4 should then be related to the index of value of exports for the corresponding years [Exhibit 2, column (3)] in Exhibit 5, and the discrepancies in that chart analyzed in Exhibit 6, and so on. The price estimate for any year is the sum of (1) the reading from the line of relationship of Exhibit 1 and (2) the appropriate additions or subtractions from Exhibits 4, 5, 6, and 7. It will be apparent that in drawing the lines of relationship Professor Wellman had to exercise considerable judgment, both as to the shape of the lines and as to their location on the charts.

EXHIBIT 1

PACK, CARRY-OVER, AND SHIPMENTS OF CALIFORNIA CANNED PEACHES*

(Unit = 1,000 cases)

Year June–May	Pack	Carry-over from Previous Year	Available for Shipments	Carry-over into Following Year	Shipments
	(1)	(2)	(3)	(4)	(5)
1921–22	5,796	946	6,742	336	6,406
1922–23	9,160	336	9,496	2,199	7,297
1923–24	7,464	2,199	9,663	1,642	8,021
1924–25	6,330	1,642	7,972	823	7,149
1925–26	10,457	823	11,280	592	10,688
1926–27	14,472	592	15,064	4,020	11,044
1927–28	11,150	4,020	15,170	1,562	13,608
1928–29	14,975	1,562	16,537	3,231	13,306
1929–30	8,365	3,231	11,596	1,731†	9,865†

* Includes both clingstones and freestones.
† Subject to revision.
Sources: Column (1). Compiled by the Canners' League of California.
Columns (2) and (4). Years 1921–22 to 1924–25 compiled from records of canners. Years 1925–26 to 1929–30 compiled by the Canners' League of California.

EXHIBIT 2

ANNUAL AVERAGE PRICES OF CANNED CLINGSTONE PEACHES AND IMPORTANT FACTORS AFFECTING THEM

Year June–May	Net Price F.O.B. Cannery ($ per case)	Shipments of Canned Peaches 1,000 cases)	Index of Export Values (Per cent)	Index of Factory Employment (Per cent)	Index of Competing Fruit Production (Per cent)
	(1)	(2)	(3)	(4)	(5)
1921–22	$3.93	6,406	102	84.3	63
1922–23	4.08	7,297	107	98.4	96
1923–24	3.50	8,021	81	101.5	130
1924–25	4.00	7,149	95	96.0	97
1925–26	3.59	10,688	117	101.2	98
1926–27	3.50	11,044	103	100.4	123
1927–28	3.04	13,608	99	97.0	86
1928–29	3.06	13,306	101	99.5	116
1929–30*	3.85	9,865	100	97.0	93

* Subject to revision.
Source: Giannini Foundation of Agricultural Economics, University of California, Preliminary Report, *Factors that Affected the Annual Average Prices of Canned Clingstone Peaches, 1921–22 to 1929–30.*

when they amounted to 7,149,000 cases, the normal price would have been around $4.48 a case, or if they had been the same as in 1925–26—10,688,000 cases—the normal price would have been around $3.70 a case. The diagonal solid line, therefore, represents the situation that has existed between shipments and prices at a given time, namely, 1928–29. The same situation may also exist over a period of years if there is no change in the demand for canned peaches. In 1929–30 shipments amounted to 9,865,000 cases. Exhibit 3 shows that, assuming no change in demand for canned peaches from that in 1928–29 and other conditions being average, 9,865,000 cases could be sold for about $3.88 a case. The actual price in 1929–30 was $3.85 a case. Conditions in that year, however, were not average and furthermore the trend of demand was higher than in 1928–29. In analyzing the causes of the changes in prices from year to

year, therefore, factors other than the size of the shipments must be considered.

Trend of Demand for Canned Peaches. That there has been an increase in the demand for canned peaches during recent years is indicated by the positions of the diagonal solid line and the diagonal broken line in Exhibit 3. As has already been mentioned the diagonal solid line represents the average relation between shipments and prices adjusted to the situation in 1928–29. The diagonal broken line represents the average relation

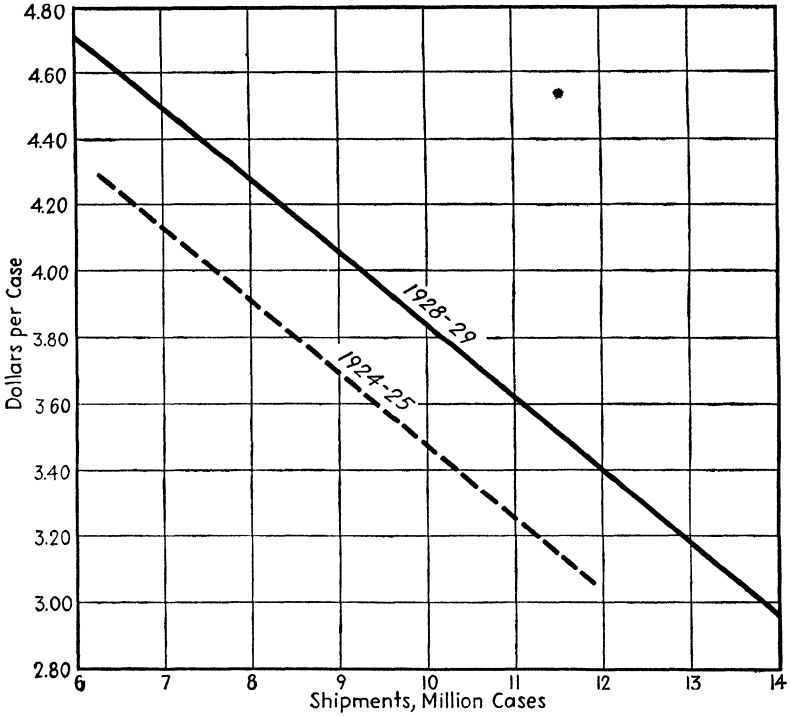


EXHIBIT 3.—Relation between the F.O.B. Price and Shipments of Canned Peaches, Adjusted to the Situation in 1928–29.

between shipments and prices adjusted to the situation in 1924–25.[1] It will be noted that the diagonal broken line has the same slope as the solid one but is lower and farther to the left. Evidently the demand for canned peaches increased considerably between 1924–25 and 1928–29. And as a result of the increase in the trend of demand, the same volume of shipments would have sold for 40 cents a case more in 1928–29 than in 1924–25,

[1] These lines were obtained by employing the Bean method of graphic curvilinear correlation. See L. H. Bean, "A Simplified Method of Graphic Curvilinear Correlation," *Journal of the American Statistical Association*, Vol. 24, No. 168, December, 1929, pp. 386–397.

or at the same price per case about 1,900,000 cases more could have been sold in 1928–29 than in 1924–25. It should be clearly recognized that an increase in consumption is not definite proof that there has been a corresponding increase in demand. An increase in consumption may be solely the result of a decrease in price.

The trend of demand for canned peaches from 1921–22 to 1929–30 is shown in Exhibit 4. The level of demand in 1928–29 is taken as the base and is shown on the vertical scale as zero. The trend of demand in the other years is measured from the base year. This figure shows that the same volume of canned peaches could have been sold for 70 cents a case more in 1928–29 than in 1921–22 and for 2 cents a case more in 1929–30 than in 1928–29. It will be noted that the trend of demand rose rapidly during the first part of the period, but less rapidly during the past three years.

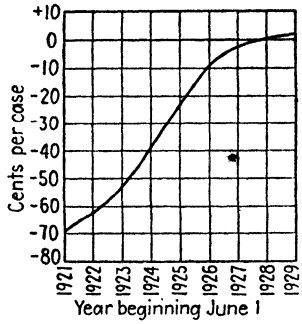


EXHIBIT 4.—Trend of Demand for Canned Peaches.

This increase in the trend of demand is the result of many factors, such as growth in population, increased use of fruits in the diet, increased purchase of fruits in cans, and the general upward trend of prosperity.

Professor Wellman recognized that the actual demand for canned peaches had fluctuated about the trend, sometimes below it, sometimes above it. He stated that the three most important causes of these fluctuations of demand about the trend were value of exports, buying power of consumers in the United States, and volume of competing fruit production.

The chief characteristic of export values he found to have been the steady upward trend, but the influence of this trend was included in the trend of demand. He computed an index of export value to measure the fluctuation of the export value of peaches about the trend. High export values tended to raise canners' prices; low export values tended to reduce them. The line of relationship between the index of export values and the price per case of canned peaches is shown in Exhibit 5.

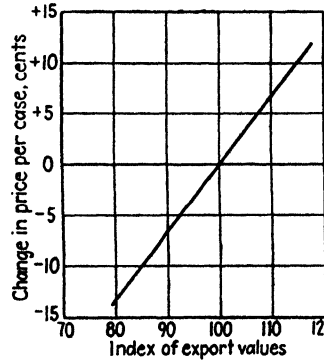


EXHIBIT 5.—Relation of Export Values to Price of Canned Peaches.

As a measure of the buying power of consumers, the Federal Reserve Board index of factory employment was used. Professor Wellman concluded that when the working people were fully

employed, canners could sell the same quantity of peaches at a higher price than they could when many people were out of work, other conditions being equal. The line of relationship between the index of factory employment and the price per case of canned peaches is shown in Exhibit 6.

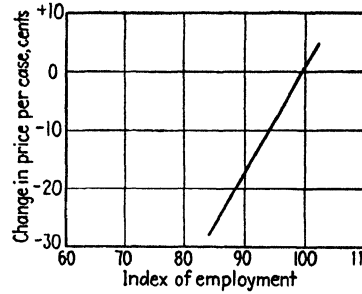


EXHIBIT 6.—Relation of Index of Employment to the Price of Canned Peaches.

To measure the effect of competing fruit production, since with the available information it was not possible to determine exactly what products competed with canned peaches, and to measure accurately the influence of these products, an index was used consisting of the production of the important tree fruits grown in the United States, the Hawaiian pineapple pack, and banana imports. By measuring this index along a horizontal scale and the price of canned peaches along a vertical scale, Professor Wellman showed, for instance, that as a result of the small fruit production in 1927–28 the price of canned peaches was 7 cents a case higher than if the fruit crop had been average. On the other hand, the large fruit crop of 1928–29 caused the price of canned peaches to be 6 cents lower than it would have been if the fruit crop had been average. The line of relationship between the index of competing fruit production and the price per case of canned peaches is shown in Exhibit 7.

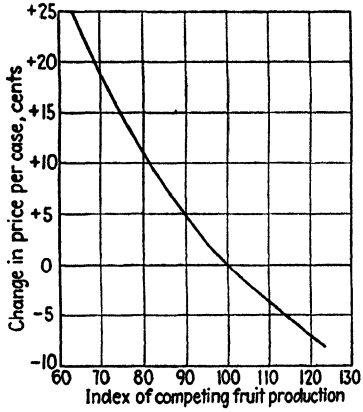


EXHIBIT 7.—Relation of Index of Competing Fruit Production to the Price of Canned Peaches.

From the five factors of shipments, trend of demand, export values, employment, and competing fruit production, Professor Wellman considered that it was possible to explain most of the variations that had occurred in the average annual prices of canned clingstone peaches during the nine years 1921–22 to 1929–30 (see Exhibit 8). For example, in 1925–26, shipments amounted to 10,688,000 cases. For this quantity, the normal price would have been around $3.70 a case (Exhibit 3). The trend of demand, however, in 1925–26 was 24 cents a case less than in 1928–29 (Exhibit

4). Hence Professor Wellman subtracted 24 cents from $3.70. Similarly, he added 11 cents a case because the value of exports in 1925–26 was 17% above the normal trend (Exhibit 5). Also, since the index of factory employment was above normal, he added 2 cents (Exhibit 6). Finally, because the index of competing fruit production was slightly below normal, he added 1 cent (Exhibit 7).

EXHIBIT 8

ESTIMATED AND ACTUAL PRICES OF CANNED CLINGSTONE PEACHES

Year June–May	Shipments (1,000 cases)	Estimated from Shipments Only ($ per case)	Adjustment for Trend of Demand ($ per case)	Adjustment for Value of Exports ($ per case)	Adjustment for Employment ($ per case)	Adjustment for Competing Fruit Production ($ per case)	Price Explained by the Foregoing Factors ($ per case)	Actual Price ($ per case)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1921–22	6,406	4.65	−0.70	+0 01	−0.28	+0.25	3.93	3.93
1922–23	7,297	4.46	−0.62	+0.05	−0.03	+0.02	3.88	4.08
1923–24	8,021	4.30	−0.53	−0.13	+0.03	−0.02	3.65	3.50
1924–25	7,149	4.48	−0.40	−0.03	−0.07	+0.01	3.99	4.00
1925–26	10,688	3.70	−0.24	+0.11	+0.02	+0.01	3.60	3.59
1926–27	11,044	3.63	−0.10	+0.02	+0.01	−0.08	3.48	3 50
1927–28	13,608	3.06	−0.03	−0 01	−0.05	+0.07	3.04	3.04
1928–29	13,306	3.12	0.00	+0.01	−0.01	−0.06	3.06	3.06
1929–30	9,865*	3.88	+0.02	0.00	−0.05	+0.03	3.88	3.85

* Subject to revision.
Source: Giannini Foundation of Agricultural Economics, University of California, Preliminary Report, *Factors that Affected the Annual Average Prices of Canned Clingstone Peaches, 1921–22 to 1929–30.*

The result of these adjustments for the year 1925–26 was a calculated price of $3.60. The actual price was $3.59 a case. As shown in Exhibit 8, comparison of the annual prices computed by applying the adjusting factors and the prices actually secured by canners showed no appreciable discrepancies between the two except in the years 1922–23 and 1923–24. It was Professor Wellman's opinion that factors which could not be measured numerically probably accounted for the discrepancies in these two years. Available evidence indicated that wholesalers had purchased freely in 1922–23 and in doing so had overestimated demand, with the result that their supplies were large at the beginning of the 1923–24 crop year. A sharp increase in employment during 1922–23 and a sharp decrease in 1923–24 may not have been accounted for fully in the use of the employment factor.

Professor Wellman ended his report with the statement:

It should be clearly recognized that the foregoing analysis explains only what has occurred. It does not explain what would have occurred if conditions had been different from what they were, nor does it forecast what will occur in the future. However, the determination and measure-

ment of the more important factors that have affected the prices of canned peaches in the past may give the industry a better basis than it previously had for judging the probable price at which a given supply of canned peaches can be sold under the conditions that are likely to exist.

Realizing the need for curtailment of the pack, and with the ultimate idea of indemnifying growers whose fruit would not be purchased by canners, a survey to determine probable production was undertaken in June, 1930. This survey, financed by the Canners' League of California, covered every orchard north of Tehachapi, the region in which a large proportion of clingstone peaches was grown. Actual figures or estimates were obtained for average production during the preceding five years, as well as estimates of probable production in 1930. From these figures, the total probable production for 1930 was determined. These production figures indicated a supply sufficient to provide fruit for more than 18,000,000 cases.

The results and methods of Professor Wellman's study were used to make an analysis of the probable influence of the same five factors on the prices of canned peaches during the year 1930–31. An attempt was made to determine the prices at which various quantities of canned peaches could be sold. From the resulting estimates it was apparent that the quantity which could be moved into consumption without jeopardizing the market, at prices which would enable the canners to pay reasonable prices to producers and make an almost normal profit, was 13,000,000 cases. Of this quantity, the region south of Tehachapi would contribute 500,000 cases.

It was decided to curtail by approximately 30% (roughly 111,000 tons) the supply of clingstone peaches available to canners. Acting under an agreement signed by canners representing 95% of the canning capacity of California, the canners contracted for their requirements before July 12, 1930, and furnished the Control Committee with lists of the growers from whom they had purchased, the quantities which these growers had been expected to produce, according to the survey that had been made, and the tonnage purchased. The Control Committee planned to purchase the peaches not contracted for, up to 111,000 tons; and if the total quantity not contracted for was less than this, the Control Committee was empowered to acquire tonnage already under contract in order to bring its purchases up to the 111,000 tons. Fruit was to be purchased by the Control Committee at $20 a ton less $7, which represented the cost of picking, handling, and delivering for packing. It was expected that practically all the tonnage acquired by the Control Committee would be left on the trees. If a canner furnished proof that he had induced a

grower to leave fruit on the trees, he was authorized to pay the grower $13 for each ton left on the trees; he was to be reimbursed by the Control Committee. In order that funds might be available to defray the expenses of the control program and to purchase surplus fruit, each canner was to pay immediately 50 cents for each ton of peaches canned in 1929, and $6.50 in weekly installments for each ton packed in 1930. By way of penalty for failure to abide by the agreement, it was provided that the Control Committee could purchase at $1 a ton all fruit obtained or packed by a canner in violation of the agreement, or that the canner could retain such fruit by the payment of $26.50 a ton. Books of the canners were open to inspection by a representative of the Control Committee. No agreement existed as to the tonnage each canner might pack.

The original estimate of the probable production of clingstone peaches north of Tehachapi was 487,000 tons, which, after a "grade out" of No. 2's and smaller sizes, would net approximately 375,000 tons, or 17,750,000 cases. It had been estimated that of this quantity 111,000 tons would have to be kept from the market by the Control Committee; and a fund of $1,750,000 was thought necessary to purchase this fruit and to cover expenses. The charge of $6.50 netted approximately $1,600,000, inasmuch as only 250,000 tons of fruit were packed. It was found also that the grade out for No. 2's and smaller sizes did not reach the expected proportions, and that actually the surplus that had to be purchased totaled 148,000 tons. Additional assessments were made, bringing the total charge for each ton of fruit packed to $7.83. The total pack in 1930, including the 500,000 cases south of Tehachapi and approximately 540,000 cases packed for remanufacture into salads, was about 13,180,000 cases. At the end of the packing season, members of the Control Committee, which represented canners and a cooperative canning association, apparently were satisfied with the results of the control program.

Data for the two crop years subsequent to the completion of Professor Wellman's study were as follows:

	1930–31	1931–32
Carry-over from preceding year (1,000 cases)	1,750	4,050
Pack (1,000 cases)	13,600	8,700
Carry-over into the following year (1,000 cases)	4,050	5,050
Shipments (1,000 cases)	11,300	7,700
Index of export value (%)	72	63
Index of factory employment (%)	81	68
Index of competing fruit production (%)	108	120

On the basis of this information and the lines of relationship used by Professor Wellman, the price per case was estimated at $3.02 for 1930–31 and $3.50 for 1931–32. The actual prices received by canners for these years were approximately $2.70 and $2.45, respectively. To what may be ascribed the differences between the estimated prices and the actual prices in those years?

Was it reasonable to use a straight line to depict the relationship between price and shipments, adjusted to the situation in 1928–29, as was done in Exhibit 3? Was it logical to expect the two lines in that chart to be parallel?

Was it a sound conclusion that a pack of 13,000,000 cases for the crop year 1930–31 was the quantity most likely to produce a maximum income?

5. Genessee Company

Decline in Diamond Prices

Net sales of the Genessee Company declined from $761,496 in 1920 to $487,636 in 1921. This firm was known principally as a wholesale diamond house; but it also sold Hamilton, Howard, Illinois, Elgin, and Waltham watches and carried on a general wholesale business in gold and gold-filled cases, gold and plated jewelry, chains, and rings.

In 1920 and 1921, sales, gross margins, and inventories were as shown in Exhibit 1.

Exhibit 1

Genessee Company

Sales, Gross Margins, and Inventories, 1920 and 1921

	Sales		Gross Margin (Net sales = 100%)		Opening Inventory at Cost	
	1920	1921	1920	1921	1920	1921
Jewelry	$158,811	$133,977	38.6%	38.0%	$ 59,525	$ 72,468
Watches	423,274	283,767	20.7	20.0	50,237	46,198
Diamonds	179,411	69,892	66.0	9.3*	418,988	363,269
Total	$761,496	$487,636				

* Loss, registered in sales, not in inventory writedowns.

Early in 1922, a divergence of opinion developed among the executives of the Genessee Company with regard to the large inventory of diamonds. The treasurer believed that inventory valuations should be sharply reduced and prices lowered to whatever extent necessary to liquidate the greater part of the stock. The company was not in urgent need of cash, but the treasurer argued that a substantial reduction in the inventory of diamonds would be a prudent management policy. The president, on the other hand, maintained that the peculiar characteristics of the demand for diamonds and the special conditions affecting the supply of diamonds were such as to make the treasurer's proposed policy undesirable.

In replying to a letter from a customer in February, 1922, regarding the general trend of diamond prices from 1916 through 1921, the president of the Genessee Company wrote as follows:

GENTLEMEN:

Responding to yours of the 24th, you have asked us a question which would be worth a good deal of money to us if we could answer it down to date. From January, 1916, to the peak of war prices there was an advance of roughly 150% in price. Since the peak, diamonds have been worth what they will bring. We have had quotations on poorer grades of stones weighing ½ carat and under amounting to between 40% and 50% of the cost of the same merchandise in February, 1920. A quotation this morning on ¼-carat sizes in top grades is $210 a carat as against a cost to us in October, 1919, of $265. This may or may not be indicative of the general price level, as tomorrow some one may come in who needs ready cash and duplicate the lot at $170 a carat.

The general tendency is for a stiffening in prices, however, as irregular supplies of merchandise are becoming exhausted. Eventually the price to us will return to a base set by the Syndicate at London. We are assured that, with the exception of ⅕ carat, and under, the next lot marketed by it will be at the price of the last lot delivered. Its vaults have been closed for upwards of two years.

A prevalent view of the diamond market was expressed in the following editorial, which was published in the *Jewelers' Circular*, March 29, 1922:

Financial writers and other authorities outside the industry who have been analyzing the conditions of the diamond trade for the past year or more have been surprised at the strength of the market in face of so many adverse conditions, economic and political. To those not familiar with the full situation, it has seemed most remarkable that the diamond business of the world did not fall to pieces in view of the general conditions. In other lines of industry the factors which determined the price of commodities have tended to produce a decline in value and with the readjustment of their markets put them on a new basis far below the levels existing during the war or directly thereafter. With diamonds no such conditions have existed.

That diamonds (generally considered one of the greatest luxuries) should not have become a drug on the market in view of the straitened conditions of most countries of the world, was something that the superficial investigator could not understand, particularly as in addition to the general world economic conditions, large amounts of merchandise were thrown on the market by the Russian Government as well as by firms in other countries which were forced to realize on their assets under pressure of their creditors. But strange as it may seem to the outsider, the diamond trade has weathered the crisis to an extent that no other industry has been able to do and instead of growing weaker, the position of the diamond market is now growing stronger every day.

Those who have truly investigated the situation learned there was a big factor in the diamond situation that did not exist in other industries; namely, the conservative and intelligent control of the raw material at its source, the production of the bulk of the larger stones being controlled by the DeBeers interests, and the marketing of the rough of the world almost generally controlled by the Diamond Syndicate of London, which made no attempt to force diamonds upon the cutter either by price concessions or otherwise.

When the crisis came and had to be weathered, the drop in demand by the buying public of the world was compensated for by a drop in supply, practically by the cessation of the supply of raw material, a condition that existed in no other industry. This has given an opportunity to have the cut goods on the world's market gradually absorbed by the moderate yet steady demand that exists even in the poorest of times. As this stock has been gradually taken up by the public, the market for diamonds continues to grow stronger because there is no weakening at the source of supply.

True, the prices in some cases have been affected by those of "distressed" goods thrown on the market as a result of a few failures, this being apparent more particularly in the small stones which also were affected by inferior rough from the Congo not under the Syndicate's control. But this situation was met by a readjustment of the prices of small rough by the Syndicate which has helped to set a real market price for Mêlée throughout the world. As a general proposition, however, it may be stated that the consumption of diamonds is gradually eating up the stocks on hand and the new goods that are coming and will come in the market are being sold at prices that are determined by the cost of rough from the Syndicate plus the cost of labor; and the Syndicate (with the exception of the rough for very small stones) has continued to follow its established policy of maintaining prices.

Therefore we see in the diamond trade a stability of value that exists in few if any other industries, most of which have had to readjust their prices as a result of the lower cost of the new raw material. Instead of looking forward to a gradual decrease to pre-war levels in the price of his merchandise, the seller of diamonds almost alone can look forward to a strengthening of his market as the days go on and at least a maintenance of present prices, if not an increase of the same in the near future.

Owing to the great value of his diamond lines, the jeweler in some cases found this stock a handicap and hard load to carry when the public ceased

purchasing; but he should be thankful that in this he was not in the position of merchants in other lines whose stock on hand often suffered a tremendous if not a total loss. But the jeweler who is in a financial position to carry his stock of diamonds need take no such loss, as with the increasing demand which is now developing he can eventually liquidate it not only without loss but at a profit.

Should the Genessee Company have endeavored to reduce its diamond inventory by quoting lower prices, or was it justified in holding its stock on the assumption that diamond values would be substantially unaffected?[1]

[1] The price per carat paid by a large wholesaler for diamonds from 1913 through 1933 and the U. S. Bureau of Labor Statistics index of wholesale commodity prices for this period were as follows:

Year	Price per Carat of ½-Carat Diamonds	U. S. B. L. S. Index of Wholesale Prices—All Commodities (1926 = 100)
1913	$150	69.8
1914	150	68.1
1915	160	69.5
1916	170	85.5
1917	190	117.5
1918 Early	200	131.3
1918 Late	240	
1919 Early	265	138.6
1919 Late	385	
1920	385	154.4
1921 Early	350	97.6
1921 Late	280	
1922 Early	270	96.7
1922 Late	290	
1923	290	100.6
1924	260	98.1
1925	290	103.5
1926 Early	290	100.0
1926 Late	275	
1927	275	95.4
1928	280	96.7
1929	280	95.3
1930 Early	265	86.4
1930 Late	215	
1931 Early	215	73.0
1931 Late	175	
1932 Early	150	64.8
1932 Late	135	
1933 Early	135	65.9
1933 Late	185	

B. THE DEMAND FOR CONSUMERS' GOODS

6. Sumner Tunnel

PROPOSED CHANGES IN TOLLS

The Boston Municipal Research Bureau,[1] in its *Bulletin* of October 27, 1938, recommended that the toll for passenger vehicles and light trucks using the Sumner Tunnel be raised from 15 cents to 20 cents for an experimental period of 12 months beginning January 1, 1939. The proposed increase was suggested as the best means of raising the income from the tunnel, which in the 4½ years since its opening had operated at a deficit. The time limit was suggested to ensure that the rate structure be reviewed again at the end of another year, when further experimentation with other rates might be advisable.

In 1929, the General Court of Massachusetts had authorized the City of Boston to build a vehicular traffic tunnel under Boston Harbor to connect downtown Boston with East Boston and thereby provide a through, direct route to the North Shore cities and resorts. The act provided that the tunnel should be operated by the Public Works Department of the City of Boston, which should, from time to time, establish a schedule of tolls and charges for the use of the tunnel which in the judgment of the Public Works Department would yield revenue sufficient to pay all operating costs.

Sumner Tunnel, a single tube providing passage for one lane of traffic in each direction, was opened on June 30, 1934. It furnished a new, direct route to the Boston Airport[2] and to cities along the North Shore, such as Revere and Lynn. Many residents of these cities were employed in Boston, and many others made frequent but irregular visits to Boston for business, shopping, or pleasure. In addition, there were several popular bathing beaches along the North Shore which were more readily accessible from downtown Boston via the tunnel than by other routes. On November 30, 1934, the Commonwealth of Massachusetts completed Route C 1, connecting the tunnel with the Newburyport Turnpike at Saugus. Except for about one mile through the city streets of East Boston, this route was a four-lane superhighway through open country. The

[1] The Boston Municipal Research Bureau was a nonprofit, nonpolitical organization, founded for the purpose of examining problems of municipal government with a view to offering sound advice for the operation of the city. Its recommendations were entirely unofficial, and its bulletins were issued primarily to help formulate public opinion.

[2] The Boston Airport, as well as other places and routes mentioned in this paragraph, is shown on the map in Exhibit 3.

turnpike, U. S. Route 1, was the main north and south highway in eastern New England, connecting Boston with Newburyport, Massachusetts; Portsmouth, New Hampshire; and Portland, Maine, in the north. From downtown Boston, the new route (C 1) was no shorter than the old, but in rush hours it reduced the driving time to Saugus from about three-quarters of an hour to twenty minutes.

The toll schedule in effect when the tunnel was opened is given in Exhibit 1.

EXHIBIT 1

SUMNER TUNNEL

Initial Schedule of Tolls, June 30, 1934

A. Passenger car	$0.25
B. Tractor without trailer	0.25
C. Tractor with trailer not in excess of 2 tons capacity	0.25
D. Tractor with trailer over 2 tons up to 5 tons capacity	0.35
E. Tractor with trailer over 5 tons up to 10 tons capacity	0.50
F. Tractor with trailer over 10 tons up to 15 tons capacity	1.00
G. Tractor with trailer in excess of 15 tons capacity	1.25
H. Truck not in excess of 2 tons capacity	0.25
I. Truck over 2 tons up to 5 tons capacity	0.35
J. Truck over 5 tons up to 10 tons capacity	0.50
K. Truck over 10 tons up to 15 tons capacity	1.00
L. Truck over 15 tons capacity	1.50
M. Bus with or without passengers	0.50
N. Motorcycle	0.15

Source: Sumner Tunnel Records.

EXHIBIT 2

SUMNER TUNNEL

Schedule* of Tolls in Effect in October, 1938

1. Truck not in excess of 2 tons capacity Tractor without trailer	$0.15
2. Passenger car	0.15
3. Motorcycle	0.15
4. Truck over 2 tons up to 5 tons capacity Tractor with trailer, over 2 tons up to 5 tons capacity	0.25
5. Passenger car with trailer	0.20
6. Truck over 5 tons up to 10 tons capacity Tractor with trailer, over 5 tons up to 10 tons capacity	0.35
7. Tractor with trailer not in excess of 2 tons capacity	0.20
8. Truck over 10 tons capacity Tractor with trailer over 10 tons capacity	1.00
9. Bus with or without passengers	0.25

* This schedule became effective at 12:01 a.m., August 1, 1938.
Source: Sumner Tunnel Records.

The toll for passenger cars and trucks under two-tons capacity was reduced from 25 cents to 15 cents on January 14, 1935. On this

date, all 25-cent fares were reduced to 15 cents, all 35-cent fares to 25 cents, all 50-cent fares to 35 cents, and the 15-cent fare to 10 cents. These changes were made partly because residents of East Boston declared that they would no longer use the tunnel at the existing rate, and partly because one of the free alternate routes was



EXHIBIT 3.—Map of Boston and Vicinity. *(Reproduced by permission of The Commonwealth of Massachusetts, Dept. of Public Works.)*

closed. Subsequently minor revisions were made in the rates for heavier trucks, but the rates for passenger cars and light trucks remained unchanged. The toll schedule in effect at the time the *Bulletin* was published is shown in Exhibit 2. A map showing the location of the tunnel and alternate routes is given in Exhibit 3. The main routes to East Boston and the North Shore were as follows:

1. Free bridges.
   a. Charlestown Bridge [1].[1]
   b. Warren Bridge [2].
   c. Craigie Bridge (Dam) [3].
   (Also Longfellow and Harvard bridges.)

2. South Ferry, owned and operated by the City of Boston [4]. The fare was 10 cents for each vehicle with one passenger, and 15 cents for each vehicle with more than one passenger. The pedestrian fare was 1 cent. The Boston Municipal Research Bureau reported that the ferries operated at a deficit of $300,000 in 1937.

EXHIBIT 4

SUMNER TUNNEL

Revenue, June, 1934, to December, 1938

Month	1934	1935	1936	1937	1938
January	.....	$ 41,270	$ 43,545	$ 47,146	$ 47,624
February	.....	50,860	40,075	44,401	46,215
March	.....	62,635	50,785	52,357	54,219
April	.....	75,000	55,650	58,137	62,729
May	.....	82,910	61,245	73,754	81,509
June	$ 868*	94,705	87,345	87,858	91,223
July	57,882	118,060	97,470	95,441	89,913
August	53,756	110,910	85,010	89,432	87,082
September	40,462	90,430	72,215	68,888	73,331
October	40,647	105,145	73,485	69,408	75,914
November	42,198	81,675	61,365	61,511	62,540
December	38,846	82,490	60,085	60,570	64,101
	$274,659	$996,090	$788,275	$808,903	$836,400

* One day.
Source: Sumner Tunnel Records.

3. Rapid-transit tunnel, owned by the city but leased to the Boston Elevated Railway, which operated rapid-transit trains through the tunnel between downtown Boston and East Boston. The location of this tunnel was between the Sumner Tunnel and the route taken by the South Ferry. The fare was 10 cents, with transfer privileges to the entire Boston Elevated system.

A study made by the Mayor's Street Traffic Survey before the Sumner Tunnel was constructed indicated that, starting at the State House [5] during the rush hours, in 30 minutes a vehicle was able to travel 2½ miles by way of the ferry; 5 miles by way of Charlestown Bridge, Chelsea Street, and Broadway; and 10 miles by way of Beacon Street [6] to Wellesley. These figures were cited as an argument for the construction of the tunnel, but no similar studies were made after that time.

[1] The numbers in squares are keyed to Exhibit 3.

EXHIBIT 5

SUMNER TUNNEL

Weekly Number of Vehicles Using the Tunnel, June, 1934, to December, 1938

(Weeks beginning on Monday)*

Date	Week				
	1	2	3	4	5
1934					
June	.....	.....	.....	15,374†	
July	60,252	50,410	49,340	46,356	49,821
August	49,655	48,339	48,026	45,272	
September	41,960	37,884	34,314	33,603	
October	33,390	38,154	37,521	37,011	40,057
November	40,559	38,641	36,547	40,536	
December	32,742	31,962	36,574	35,834	29,209
1935					
January	30,639	79,157	58,959	75,056	
February	85,221	86,132	89,818	92,175	
March	97,171	101,316	104,311	107,567	
April	110,366	104,258	121,211	121,426	122,812
May	127,723	127,579	133,028	140,702	
June	135,164	150,341	154,834	161,035	
July	168,630	173,291	177,431	178,104	182,896
August	183,370	161,397	152,610	148,717	
September	150,578	142,270	142,350	133,967	151,766
October	158,688	163,750	145,825	139,920	
November	135,187	126,331	127,260	133,129	
December	119,919	123,724	126,375	93,078	72,618
1936					
January	68,619	62,411	56,588	63,850	
February	63,625	57,994	63,749	71,168	
March	71,030	73,931	76,152	80,260	80,916
April	84,799	86,427	89,048	91,929	
May	97,368	95,507	103,111	107,224	
June	123,944	115,913	137,433	141,641	146,254
July	141,202	145,198	143,570	145,416	
August	145,987	143,091	113,356	113,840	115,952
September	112,485	102,362	102,274	103,239	
October	109,993	113,884	111,987	104,922	
November	99,372	98,917	94,309	91,435	86,170
December	82,440	86,611	94,900	81,893	
1937					
January	68,806	71,867	69,702	71,637	
February	71,575	71,042	75,009	76,463	
March	77,009	75,637	76,777	83,766	85,364
April	84,910	89,127	93,268	96,498	
May	102,971	99,720	103,986	130,242	139,153
June	138,955	148,826	124,685	129,866	
July	131,951	143,870	149,217	147,626	
August	148,297	150,072	123,649	119,390	114,308
September	110,744	103,776	105,302	102,920	
October	106,608	106,868	99,931	96,805	
November	96,954	92,930	93,731	95,023	90,909
December	86,933	85,604	98,853	76,585	
1938					
January	73,506	71,591	67,313	75,010	77,793
February	77,279	73,465	76,052	73,945	
March	79,236	81,525	86,009	87,216	
April	86,454	96,152	100,438	108,164	
May	119,691	116,891	121,824	123,385	135,322
June	137,759	143,597	146,384	149,568	
July	150,561	129,531	118,393	133,993	
August	136,762	138,030	128,769	126,143	126,410
September	119,850	108,623	109,719	109,485	
October	112,546	116,019	115,822	111,824	102,793
November	100,983	97,836	88,184	89,708	
December	94,302	93,460	102,206	92,009	

* That is, weeks beginning on the first, second, third, fourth, or fifth Monday of the month. For instance, the figure of 29,209 listed for the fifth week in December, 1934, applies to the seven days from December 31 (a Monday) through January 6, 1935 (a Sunday).

† Two days, Saturday, June 30, and Sunday, July 1.

Source: Sumner Tunnel Records.

EXHIBIT 6

SUMNER TUNNEL

Monthly and Average Daily Volume of Traffic, July, 1934, to December, 1938

Month	1934		1935		1936		1937		1938	
	Monthly	Daily Average	Monthly	Daily Average	Monthly	Daily Average	Monthly	Daily Average	Monthly	Daily Average
January	.....	.....	232,210	7,491	281,146	9,069	310,879	10,028	311,948	10,063
February	.....	.....	345,867	12,352	265,059	9,140	294,089	10,503	303,385	10,835
March	.....	.....	452,411	14,594	332,597	10,729	347,883	11,222	358,465	11,563
April	.....	.....	490,620	16,354	369,030	12,301	383,841	12,795	415,039	13,835
May	.....	.....	577,537	18,630	445,184	14,361	487,950	15,740	537,977	17,354
June	.....	.....	642,322	21,411	558,891	18,630	583,272	19,442	607,575	20,252
July	234,751*	7,336	774,623	24,988	639,995	20,645	631,999	20,387	597,313	19,268
August	214,509	6,920	730,048	23,550	574,082	18,519	592,027	19,098	582,775	18,799
September	161,346	5,378	611,791	20,393	458,791	15,293	457,219	15,241	487,720	16,257
October	162,090	5,229	679,523	21,920	489,933	15,804	457,903	14,771	503,953	16,257
November	168,791	5,626	565,062	18,835	411,379	13,713	404,575	13,486	412,728	13,758
December	154,890	4,996	504,824	16,285	390,655	12,602	399,292	12,880	424,424	13,691
Total	1,096,377	.....	6,606,838	.....	5,216,742	.....	5,350,929	.....	5,543,302	
Annual daily average	.....	5,926	.....	18,101	.....	14,253	.....	14,660	.....	15,187

* Includes June 30.
Source: Sumner Tunnel Records.

Monthly revenue from the tunnel from June, 1934, through December, 1938, is shown in Exhibit 4. Weekly traffic figures from June, 1934, through December, 1938, are given in Exhibit 5; and monthly summaries are given in Exhibit 6. During this period, factors which had an important bearing on the volume of traffic carried by the tunnel were as follows:

1. From June, 1934, to January 14, 1935, the toll on passenger cars was 25 cents; thereafter it was 15 cents.
2. The tunnel approaches at the Boston end were not completely open to traffic until June, 1935.
3. The Chelsea Bridge [7], an integral part of the route to Chelsea and Revere via the Warren and Charlestown bridges, was closed for repairs from January 14 to December 23, 1935, forcing traffic either to use the Sumner Tunnel or to make a long detour around the Mystic River.
4. Suffolk Downs, an important horse race track, was located in Revere. There was also a dog race track in the same city. The dates of the racing periods were as follows:

Year	Horse Racing	Dog Racing
1935	June 28—August 10 October 3—20	June 12—August 14 October 1—31
1936	June 14—August 16	June 3—August 15 October 1—21
1937	May 24—June 19 July 12—August 15	July 4—August 15 October 1—21
1938	April 30—July 8	May 3—August 14 October 1—27

The theoretical capacity of Sumner Tunnel is given in Exhibit 7. The maximum daily traffic moved through the tunnel on August 7, 1935, when 27,587 vehicles passed through in 24 hours. The maximum hourly one-way traffic occurred on the same day, when there were 1,438 eastbound vehicles from 1 p.m. to 2 p.m.; the maximum hourly total traffic occurred from 5 p.m. to 6 p.m. on August 2, 1935, when 2,296 vehicles used the tunnel. The traffic load by hours for August 2 and August 7, 1935, is given in Exhibit 8.

The construction of the tunnel was financed by a series of bond issues which totaled $19,500,000 and entailed an annual interest charge of $868,250 and annual sinking-fund payments of $250,000. The estimated annual operating expenses are shown in Exhibit 9. Calculations indicated that all these were relatively constant over wide ranges of traffic variation, with the possible exception of power costs and wages of tollmen. From the time of the opening

EXHIBIT 7

SUMNER TUNNEL

Theoretical Hourly Capacity

Spacing* (Feet)†	Speed (Miles per hour)	Vehicles per Hour in One Direction
50	30	3,168
60	30	2,640
40	20	2,640
50	20	2,112

* The figures in this column do not allow for the length of the vehicle; in other words, they represent the distance from the rear of one vehicle to the rear of the next.

† This spacing at 30 m.p.h. is less than the safety requirements of the Registry of Motor Vehicles of Massachusetts.

Source: Sumner Tunnel Records.

EXHIBIT 8

SUMNER TUNNEL

Hourly Traffic, August 2 and August 7, 1935

	August 2, 1935	August 7, 1935
12– 1 a.m.	765	1,030
1– 2	305	307
2– 3	143	150
3– 4	94	76
4– 5	105	91
5– 6	291	231
6– 7	655	546
7– 8	1,388	1,417
8– 9	1,474	1,343
9–10	1,166	1,153
10–11	1,235	1,095
11–12	1,164	1,190
12– 1 p. m.	1,195	1,367
1– 2	1,812	1,978
2– 3	1,358	1,694
3– 4	1,275	1,255
4– 5	1,761	1,315
5– 6	2,296	2,011
6– 7	1,906	1,967
7– 8	1,821	2,218
8– 9	1,674	1,620
9–10	1,073	1,082
10–11	930	996
11–12	1,174	1,257
		198 free
	27,060	27,587

Source: Sumner Tunnel Records.

EXHIBIT 9

SUMNER TUNNEL

Estimated Annual Operating Expenses

Interest		$ 868,250
Sinking fund		250,000
Maintenance:		
Salaries:		
1 Division engineer (part time)	$ 1,500	
1 Chief electrician	3,000	
2 Electrical engineering inspectors at $2,300	4,600	
1 Cashier	2,300	
1 Clerk-cashier	1,800	
2 Clerk-stenographers at $1,300	2,600	
14 Chauffeur-laborers at $5.25 per day	22,932	
15 Electrician-operators at $7.00 per day	32,760	
1 Chauffeur-mechanic at $6.00 per day	1,872	
36 Tollmen-guards at $5.50 per day	72,072	
3 Laborers at $5.25 per day	4,914	
	$150,350	
Light, heat, and power	42,000	
Supplies and equipment	11,500	
Contractual services	8,200	212,050
		$1,330,300

Source: Sumner Tunnel Records.

of the tunnel to December, 1938, power costs had varied from a low of $2,072 to a maximum of $4,170 per month. Power costs were as follows:

	Total	Average Month
1934 (6 months)	$13,494.90	$2,249.15
1935	36,631.39	3,052.62
1936	38,472.28	3,206.02
1937	38,607.68	3,217.31
1938	39,921.23	3,326.77

The 36 tollmen whose wages were included in the schedule of expenses represented an average number employed; and it was estimated that they would be sufficient until permanent traffic averaged more than 30,000 vehicles per day.

The law authorizing the construction of the tunnel provided that any deficits from its operation should be met by the City of Boston through taxation. In 1938, about 30 cents of the Boston tax rate was used to meet the deficit of $453,478 incurred by the tunnel in 1937. The Boston Municipal Research Bureau held that this was

EXHIBIT 10

SUMNER TUNNEL

Origin (Place of Registration) of Passenger Cars Using the Sumner Tunnel on Monday, May 16, 1938, from 8 a.m. to 6 p.m.; Population in 1935; and Number of Vehicles Registered in 1937

Origin by Place of Registration*	Number of Passenger Cars				Population, 1935	Vehicles Registered, 1937
	Bound to Boston	Bound from Boston	Total	Percentage of Total		
Barnstable County	6	8	14	0.2%	‡	‡
Berkshire County	3	3	6	0.1	‡	‡
Bristol County	15	21	36	0.6	‡	‡
Dukes County	1	0	1	0.0	‡	‡
Essex County:						
Beverly	56	48	104	1.7	25,871	7,764
Danvers	20	13	33	0.5	13,884	3,846
Gloucester	24	23	47	0.8	24,164	5,330
Lynn	320	202	522	8.7	100,909	21,364
Manchester	13	11	24	0.4	2,509	1,100
Marblehead	111	78	189	3.1	10,173	4,157
Nahant	16	11	27	0.5	1,748	587
Newburyport	18	11	29	0.5	14,815	3,127
Peabody	39	34	73	1.2	22,082	5,360
Salem	102	77	179	3.0	43,472	8,638
Saugus	32	36	68	1.1	15,076	4,410
Swampscott	134	94	228	3.8	10,480	4,280
Other†	66	56	122	2.0	‡	‡
Franklin County	2	1	3	0.1	‡	‡
Hampden County	4	6	10	0.2	‡	‡
Hampshire County	1	2	3	0.1	‡	‡
Middlesex County:						
Arlington	19	28	47	0.8	38,539	11,533
Belmont	19	21	40	0.7	24,831	8,949
Cambridge	35	44	79	1.3	118,075	19,418
Everett	25	29	54	0.9	47,228	9,616
Malden	36	30	66	1.1	57,277	12,977
Medford	27	34	61	1.0	61,444	16,458
Melrose	18	38	56	0.9	24,256	8,292
Newton	77	101	178	3.0	66,144	25,672
Somerville	23	36	59	1.0	100,773	19,314
Waltham	10	17	27	0.5	40,557	10,964
Watertown	16	16	32	0.5	35,827	9,622
Other†	59	80	139	2.3	‡	‡
Norfolk County:						
Braintree	20	27	47	0.8	17,122	6,056
Brookline	83	92	175	2.9	50,319	17,870
Milton	19	29	48	0.8	18,147	7,577
Needham	14	8	22	0.4	11,828	4,779
Quincy	88	76	164	2.7	76,909	22,829
Wellesley	11	9	20	0.3	13,376	5,722
Weymouth	23	13	36	0.6	21,748	7,600
Other†	34	35	69	1.1	‡	‡

EXHIBIT 10 (*Continued*)

SUMNER TUNNEL

Origin by Place of Registration*	Number of Passenger Cars				Population 1935	Vehicles Registered 1937
	Bound to Boston	Bound from Boston	Total	Percentage of Total		
Plymouth County:						
Brockton	21	20	41	0.7	62,407	16,025
Other†	33	42	75	1.2	‡	‡
Suffolk County:						
Boston	625	722	1,347	22.4	817,713	111,782
Chelsea	45	41	86	1.4	42,673	4,978
Revere	124	98	222	3.7	35,319	5,649
Winthrop	270	225	495	8.2	17,001	4,526
Worcester County:						
Worcester	7	15	22	0.4	190,471	45,438
Other†	13	21	34	0.6	‡	‡
States:						
Connecticut	25	20	45	0.7		
Florida	28	23	51	0.8		
Maine	32	24	56	0.9		
New Hampshire	36	33	69	1.1		
New York	56	51	107	1.8		
Pennsylvania	8	13	21	0.4		
Rhode Island	43	35	78	1.3		
Other	69	64	133	2.2		
Total	3,074	2,945	6,019	100.0%		

* By counties in Massachusetts and by cities and towns within the counties whenever more than 20 vehicles from a city or town made use of the tunnel.

† Towns and cities in the counties indicated from which fewer than 20 vehicles made use of the tunnel.

‡ Data not readily available.

Sources: Traffic Count: Boston Traffic Commission. Population: Commonwealth of Massachusetts, Secretary of the Commonwealth, *The Decennial Census, 1935*. Vehicles Registered: Commissioner of Corporations and Taxation, Commonwealth of Massachusetts (unpublished report).

unfair to the citizens of Boston, inasmuch as the tunnel was used more by people living outside the city than by Bostonians. In support of its argument, the Bureau cited the results of a traffic count by the Boston Traffic Commission in 1938. The count is reproduced in Exhibit 10, together with the number of people and the number of vehicles registered in each town listed.

A survey of all the vehicles entering and leaving an "inner cordon" of downtown Boston (a crowded business and commercial area including the North and South Stations, the financial district, the wholesale market district, all the principal retail stores, and most of the theaters) during a 17-hour period from 7 a.m. until 12 midnight was made on one day in June, 1927, June, 1932, and June,

1938. The traffic counts are shown in Exhibit 11. A further study of the number of persons entering the inner cordon is shown in Exhibit 12.

EXHIBIT 11

NUMBER OF VEHICLES ENTERING AND LEAVING THE "INNER CORDON" OF DOWNTOWN BOSTON, 17-HOUR PERIOD, 7 A.M. TO 12 MIDNIGHT, ONE DAY IN JUNE

	1927	1932	1938
Charlestown Bridge	26,660	26,791	41,248
Warren Avenue Bridge	12,230	19,520	Closed
Craigie Bridge	20,836	32,916	34,653
Longfellow Bridge	15,392	21,207	29,396
Embankment Road	14,132	21,426	21,466
Revere Street	699	399	505
Pinckney Street	401	880	784
Mt. Vernon Street	2,183	3,019	3,266
Chestnut Street	1,154	2,307	1,474
Beacon Street	17,158	16,105	15,323
Boylston Street	19,773	18,544	18,536
Park Square	11,394	19,816	21,009
Carver Street	463	476	585
Eliot Street	5,920	12,009	10,781
Stuart Street	9,262	11,371	6,801
Warrenton Street	485	988	420
Tremont Street	11,126	13,946	12,545
Washington Street	3,885	6,948	5,839
Witmore Street	135	144	100
Harrison Avenue	7,383	6,515	6,349
Tyler Street	2,984	4,530	7,246
Hudson Street	822	1,111	1,772
Albany Street	4,225	5,960	4,975
Dorchester Avenue Bridge	17,548	18,995	22,114
Summer Street Bridge	11,340	12,085	12,472
Congress Street Bridge	5,070	5,925	6,184
Northern Avenue Bridge	5,457	9,176	9,649
South Ferry	2,966	1,460	470
Sumner Tunnel	.....	.....	18,758
North Ferry	1,211	400	
	232,294	294,969	314,720

Source: Boston Traffic Commission.

The Boston Municipal Research Bureau analyzed the records of the use of the tunnel and concluded that the toll charge for passenger vehicles and light trucks was of primary importance in establishing the total revenue received. In 1937, 91% of the vehicles using the tunnel were passenger cars and 6% were light trucks paying only the 15-cent toll. On the basis of these figures, the Bureau recommended no change in the tolls except for passenger cars and light trucks.

Exhibit 12

Number of Persons Entering and Leaving the "Inner Cordon" of Downtown Boston, One Day in June, 1927, 1932, 1938

	1927			1932			1938		
	On Street	Off Street	Total	On Street	Off Street	Total	On Street	Off Street	Total
Rapid transit	.....	537,263	537,263	.....	499,201	499,201	.....	436,402	436,402
Street cars	50,448	194,418	244,866	34,693	180,460	215,153	19,294	197,137	216,431
Steam railroad	.....	182,940	182,940	.....	110,403	110,403	.....	85,448	85,448
Busses	20,210	.....	20,210	29,648	.....	29,648	40,265	7,620*	47,885
Steamship and ferries	.....	13,347	13,347	.....	6,665	6,665	.....	8,876	8,876
Total mass transportation	70,658	927,968	998,626	64,341	796,729	861,070	59,559	735,483	795,042
Passenger cars	332,770	.....	332,770	449,817	.....	449,817	456,466	31,992*	488,458
Trucks	79,519	.....	79,519	86,110	.....	86,110	85,076	2,462*	87,538
Horse-drawn vehicles	12,761	.....	12,761	2,671	.....	2,671	608	.....	608
Total individual transportation	425,050	.....	425,050	538,598	.....	538,598	542,150	34,454	576,604
Pedestrians	233,277	.....	233,277	253,220	.....	253,220	170,500	.....	170,500
Total number of persons	728,985	927,968	1,656,953	856,159	796,729	1,652,888	772,209	769,937	1,542,146

* Sumner Tunnel.
Source: Boston Traffic Commission.

As a result of its investigation, the Bureau concluded:

The present schedule of tolls does not provide sufficient revenue. There is no evidence to suggest that it yields the maximum revenues. And there has been insufficient experimentation to discover what rates will produce the maximum revenue.

As for the basic rate, the 25-cent toll was in effect for only six months. In late 1934, when pressure—some of it from outside Boston—developed for a decrease in rates, the Research Bureau warned against hasty action. . . . Nevertheless, the 15-cent toll was introduced soon after and has not been changed since.

Traffic tunnel tolls must be viewed in relation to free avenues. For access to East Boston and the North Shore, the City maintains public ways and six bridges over Chelsea Creek and the Mystic and Charles Rivers. These govern the upper limits at which tolls may be profitably set.

Nevertheless, to secure "the maximum revenue," an upward revision now appears necessary. A 20-cent toll, barring loss of traffic, would boost revenues by $275,000 and cut the deficit in half. Under a toll increase the tunnel could sustain a loss in traffic and still produce greater revenue than at present. Because of varying monthly traffic usage, a rate increase should be given a 12-months' trial.

Should the Sumner Tunnel tolls have been increased? If so, what rates should have been established?

7. Marlin Firearms Company

PRICE POLICY FOR RAZOR BLADES

In 1935, the Marlin Firearms Company, a well-known manufacturer of guns for sports use, had sought a product to add to its line in order to eliminate or smooth out appreciably the seasonal and cyclical variations in its business. Guns were sold principally in the fall and spring; and since they were primarily a sporting item, their sale was subject also to great fluctuations with cyclical movements of general business.

The company had successfully weathered the 1929 depression, but its sales had dropped so greatly that the executives were convinced of the necessity of adding another line which would help to maintain the company's income during depression periods and off seasons. The president believed that razor blades fulfilled the requirements of the company since there was a constant and permanent market for them. Razor blades wore out and were con-

tinually replaced, whereas guns were, to a certain extent, a luxury with a rather long life. The president believed also that the company's established reputation for the manufacture of high-quality firearms, the familiarity of men with its guns, and its knowledge of steel all would serve the Marlin Firearms Company in good stead in the marketing of razor blades.

The president had reached several conclusions as a result of his observation of the market:

1. There had been an enormous increase in the number of brands of razor blades offered to the public since 1932.[1] He attributed this to the fact that many companies, stimulated perhaps by the apparently phenomenal success of the Gillette Safety Razor Company and by the expiration of patents, had entered upon the sale of razor blades just as the Marlin Company was planning to do.
2. Few double-edge blades other than those made by the Gillette Company were distributed nationally. Many department stores and men's clothing stores were selling blades under private brands, but these brands for the most part were known only in a single locality.
3. Although most of the brands were sold at retail prices under those prevailing for Gillette blades, few were really inexpensive; and many that were inexpensive were either poor or not constant in quality. In other words, most brands were priced in relation to Gillette blades, with the price set slightly lower in order to obtain a market. But few, if any, manufacturers had attempted to give the public a good blade at as low a cost as possible.
4. Many of the independent companies which were just underselling the Gillette product were not being unusually successful.

The president concluded, therefore, that there was a genuine market for a razor blade of high uniform quality, priced cheaply enough to allow the average man to use a new blade every day. On the basis of the population of 130,000,000 in the United States, he estimated that between 1,000,000,000 and 1,500,000,000 blades were used annually.[2] The president believed that there were many men who would like to use a new blade every day and that if blades were cheap enough they would. If the habit of using a new blade every

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[1] A study which he conducted indicated that more than 3,000 brands of razor blades were on the market in 1935.

It was estimated that there were, in the United States, about 20 companies making razor blades and that of these companies one produced about one-half the total output.

[2] Out of the 130,000,000 people a little more than 50% were males (65,000,000); of these about 60% were 21 years old or older (39,000,000). The president estimated that of the 39,000,000 males of shaving age, 1% did not shave themselves, 20% used single-edge blades, and 11% used electric razors; hence the remaining 68% (26,500,000) used Gillette-type razors. If these men used one blade a week they would require 1,378,000,000 blades annually to supply their needs.

EXHIBIT 1

MARLIN FIREARMS COMPANY

Razor Blade Division—Typical Cost Figures at Selected Dates

(Per thousand blades, on basis of packages of 20 and 40 blades)

	October 6, 1936*		May 1, 1937		August 1, 1937		October 1, 1937		April 25, 1938	
	Mail Order	Other	Mail Order	Other	Mail Order	Other	Mail Order	Other	Mail Order	Other
Volume of sales (thousand blades per week)†	200	200	60	500	60	500	60	500	40	700
Cost of blades	$4.50	$4.50	$ 3.90	$3.90	$ 3.80	$3.80	$ 3.625	$3.625	$ 3.50	$3.50
Boxes and cartons	0.29	0.14	0.245	0.316	0.245	0.313	0.245	0.31?	0.243	0.2956
Cost of packing	0.30	0.30	0.056	0.045	0.056	0.045	0.056	0.045	0.035	0.0362
Shipping labor	.....	.....	0.40	0.03	0.40	0.03	0.40	0.03	0.313	0.0418
Social security payments	.....	.....	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Postage or freight	0.60	.....	0.60	0.16	0.60	0.20	0.60	0.20	0.60	0.2094
Administrative salaries	.....	.....	0.81	0.328	0.81	0.328	0.35	0.35	0.30	0.30
Labels and enclosed coupons	.....	.....	0.09	.....	0.09	.....	0.09	.....	0.09	.....
Office expense (rent, light, heat, typewriters, stationery)	0.20	0.20	0.118	0.100	0.118	0.100	0.118	0.100	0.059	0.059
Bank charges on checks	.....	.....	0.125	0.006	0.125	0.006	0.125	0.006	0.125	0.006
Losses	.....	.....	0.11	0.075	0.11	0.075	0.11	0.075	0.11	.....
Total cost exclusive of advertising and direct selling	5.89	5.14	6.464	4.970	6.364	4.907	5.729	4.754	5.395	4.4680
Net sales price	.....	.....	12.50	6.875	12.50	6.875	12.50	6.875	12.50	6.93

* The cost data were not completely analyzed at this time; therefore individual items may not be exactly comparable with the corresponding items in later periods.

† Since the costs in this exhibit are for selected dates, the volume figures do not correspond precisely to the sales figures in Exhibit 2.

day could eventually be developed, potential sales would, of course, be much greater than his calculations indicated.

The Marlin Firearms Company therefore entered upon the sale of low-price razor blades and set as its immediate goal about 200,000,000 blades a year or 4,000,000 a week.

The executives realized that, in order to make a profit at low prices, the company would have to achieve a large volume of sales; but the low price in combination with national advertising and distribution and the Marlin reputation was relied upon to attract the necessary volume. In order to obtain inexpensive national distribution, especially so that it could be cited later as an inducement to wholesalers and retailers to carry Marlin blades, sales were made at the outset only by mail order and through one department store in each city.

Blades were initially offered for sale in October, 1935, at 50 for 50 cents; and the response to a series of mail-order advertisements in sports publications was considerable. Within a year, more than 70,000 people had sent in by mail an average of $1 for an initial purchase of Marlin blades; and between 35% and 40% had sent in repeat orders. In addition, over 300 department stores ran promotions on the blade.

The volume to be obtained from mail-order selling was necessarily limited because of the effort required on the part of the customer in sending in an order. Some of the executives believed also that the cost of mail-order advertising was too high in proportion to the returns. Moreover, although department stores sold a large volume of blades while special promotional efforts were being made, they did not develop a constant rate of sale. The fact that each department store was the only outlet in a community also considerably restricted the sales of Marlin blades. Therefore, in September, 1936, efforts were initiated to obtain distribution in other retail outlets through wholesale channels with a smaller, 25-cent package of blades; and by the end of 1937, the greater part of the output was being distributed through wholesalers and retailers. By means of advertising and promotional campaigns in cooperation with wholesalers, the company was gradually building up an intensive distribution system, to the end that Marlin blades could be purchased in almost any store, including chain and independent drug stores, chain and independent grocery stores, department stores, cigar stores, newsstands, confectionery and variety stores, haberdasheries, and gasoline stations. The company's procedure frequently was to obtain orders from retailers for the wholesalers.

In August, 1936, just before the development of retail stores as an outlet, it had been found necessary to raise the price of blades slightly in order to cover increased costs. Costs for various dates after this increase are given in Exhibit 1.

From time to time, slight changes were made in the packaging of blades. The package put on the market at 25 cents in September, 1936, contained 20 blades. Subsequently small sample packages of 5 blades for 10 cents were introduced to attract potential users. The packages which contained 20 blades (for 25 cents) and 40 blades (for 50 cents) were by far the most important from the standpoint of revenue. Any advantage accruing from the high price per blade in the sample packages was entirely offset by higher packaging costs.

EXHIBIT 2

MARLIN FIREARMS COMPANY

Unit Sales of Razor Blades by Quarterly Periods, October 1, 1935, to March 31, 1938

	Quarter	Total for Period	Average per Week
1935	Fourth quarter		
1936	First quarter Second quarter	12,371,560	317,219
	Third quarter	8,956,000	688,923
	Fourth quarter	6,219,000	478,385
1937	First quarter	7,672,250	590,173
	Second quarter	6,399,700	492,284
	Third quarter	8,436,316	648,947
	Fourth quarter	8,358,502	642,962
1938	First quarter	11,050,000	850,000

Gillette blades usually retailed at 5 blades for 25 cents, although from time to time combination offers were made giving razors or shaving cream free or at low prices with the purchase of blades. Some other brands of Gillette-type blades, and the retail prices at the end of 1938, were as follows:

	Cents Each
Dublekeen	3
Thin-Flex	3⅓
Windsor Super-Thin	5

	Cents Each
Barbasol	3
Ward's Super-Thin	4
Wexteel	4
Probak	5
Cooper	5
Ring	1½

Gillette blades were commonly accepted as the standard of quality, regardless of price. Some users reported that Marlin blades closely approached the Gillette quality and were more satisfactory than many other inexpensive blades.

Sales from October, 1935, through March, 1938, are shown in Exhibit 2. Sales expense was necessarily kept low since the margin did not allow an elaborate sales organization. The promotional policy of the company called for an annual advertising expenditure of approximately 20% of sales. A record of the selling and advertising expenditures as a percentage of sales was as follows:

Period	Compensation of Salesmen and Other Direct Selling Expense	Advertising Expense
July 1 to December 31, 1936	5.95%	22.01%
Calendar Year 1937	7.50	16.91
January 1 to March 31, 1938	8.42	19.48

The sharp increase in the average weekly sales during the first quarter of 1938 was the result of an intensive sales and advertising campaign which had been inaugurated in the early part of the year. The president was dissatisfied, however, because the volume of sales was still far below the original goal of 4,000,000 blades per week. He was considering, therefore, a reduction in price to stimulate sales.

He calculated that the total cost (excluding direct selling and advertising) would be lowered gradually to $4 per thousand as the volume of sales increased to 2,000,000 blades per week; any increase in volume beyond this rate, he estimated, would not bring about a further decrease in costs.

What reasoning should the president have used in deciding whether or not to lower the price?

8. King Underwear Company

PRICE POLICY IN DEPRESSION

The King Underwear Company, one of the leading manufacturers of high-quality underwear for infants, experienced increasing competition from manufacturers of lower-price products in the period following 1929. The changes in the demand for King products forced the company to reconsider the price policies which had been followed from the outset and which had made the King trade-mark, used on all King products, widely known as a symbol of high quality.

The company's merchandising, promotional, selling, and pricing policies had been consistently based upon strong emotional buying motives, such as the parent's concern about the infant's health, comfort, and development and the parent's pride in doing a good job as a parent. The executives of the company were convinced that they should base their promotional plans upon the appeal of quality, not of price, and that the costs of advertising would be easily covered by the price which parents would be willing to pay if the appeal was made effectively. The company's promotional program was an elaborate one, carefully prepared and executed. The company advertised to the consumer in appropriate national media. It provided its retail outlets with cuts for local advertising and with dealer helps for display and promotional work. It cooperated in the training of the personnel employed in the infant's wear departments of many of its more important outlets, by offering a systematic and thorough course of study of the mother's problems in buying and using infants' wear. It pointed out to its retail dealers that good work in selling infants' and children's wear would help to form customer patronage habits and eventually would result in sales in other departments.

The King Underwear Company sold its products directly through its own salesmen. In 1929, it had about 10,000 dealer accounts. Its principal customers were department stores, and 80% of its volume was obtained from 20% of its customers. To help cover the expense of direct sale, in territories where the ratio of sales expenses to sales of its own products was exceptionally high the company sold a few related products not of its own manufacture. The King Underwear Company did not attempt to sell to mail-order houses, chain stores, or buying syndicates, because it believed that they bought and sold primarily on a price basis. From its factory and warehouses, the King Underwear Company was able to make prompt deliveries of the various items and sizes in its wide line. The executives of the com-

pany stated that the prompt deliveries and effective promotion on the part of the King Underwear Company enabled the average retailer to obtain a stock-turn of 8 times a year on King merchandise, a much higher figure than the typical over-all stock-turn in infants' and children's departments.

The wholesale list prices of the King Underwear Company's products allowed the retailers a markup of at least 33⅓% on the suggested retail prices. These suggested retail prices were chosen to conform to the price lines[1] commonly used in infants' departments; most of the prices were between 50 cents and $2. The company was successful in obtaining practically universal adherence to the suggested retail prices. It did not refuse to fill orders obtained by its salesmen from price cutters, but it did refuse to fill unsolicited orders from such outlets and it stopped the salesmen from calling upon price cutters. It consistently refused requests for special prices or extra discounts to help retailers plan special sales of King garments at reduced prices. No quantity discounts based on the size of the individual order were given, for the executives of the company could see no economies in either manufacturing or marketing as a result of large individual orders. A special 5% deferred discount was given to customers whose annual purchases reached $5,000; the executives considered this an effective stimulus to promotion and to concentration on King products. The company gave a cash discount of 2% for payment in 10 days. The terms of sale were printed on the salesmen's order forms, with the purpose of obviating discussion of them and focusing the salesman's and buyer's attention upon the merits of the merchandise.

Retailers outside the New York City territory were charged with the shipping costs from the factory in Philadelphia or from the nearer of the two warehouses in San Francisco and Chicago; the manufacturer absorbed the shipping charges to the New York territory. The resulting differences in the cost of King merchandise to retailers throughout the United States were not great enough to break down the national uniformity of retail prices. Few changes in retail and wholesale prices had been made in the five years prior to 1929. As more items were added to the King line and some older items were discontinued, a few minor adjustments were made in prices. The purpose of such changes had been to keep the various King prices in proper relation to one another, not to meet competitive conditions.

[1] A price line is a single retail price used, instead of a number of slightly different prices, on a variety of articles within one department. Price lines ordinarily are set at strategic intervals. Their use reflects a known tendency of consumers to concentrate purchases at a limited number of prices.

The King Underwear Company's volume remained on a high level in 1930 and in the first part of 1931. In the fall of 1931, increased price competition made itself felt. Dollar sales for the first nine months of 1931 were only 10% below the sales of the corresponding period of the preceding year, but the rapid drop in the following three months brought the year's sales 13.5% below 1930. This competition came chiefly from manufacturers of unbranded merchandise, who did little promotion and selling, but concentrated upon manufacturing. Many of the competitors were small companies which obtained their orders from large buying offices or syndicates; these buying organizations, after an agreement had been reached as to specifications and price, ordinarily placed large orders well in advance of delivery dates. These competitors could concentrate their production upon a few items at a time and did not maintain inventories of finished products. They expanded and contracted their work forces freely with changes in the orders on hand. They copied many of the features of the products of the King Underwear Company, only a few of which were protected by patents. Competition among such manufacturers was very severe, and there was little resistance to the pressure for lower prices. The King Underwear Company experienced increased competition, also, on some of its products outside the knitted underwear classification. The competition from both branded and unbranded merchandise affected most of the articles in the King line except a few patented items and other specialties, but the competition came from different sources on the different items; there was no competitive pressure from manufacturers who, like the King Underwear Company, produced and sold a wide line of infants' articles under a single brand.

The competitive difficulties of the King Underwear Company were aggravated by the efforts of retail outlets to economize. In some infants' departments, the size of the sales force was cut down so that there was less time to give individual service to each customer. Display in the stores, designed to let the merchandise sell itself, saved the time of clerks but served to increase the customer's attention to price. If the customer had to wait for the clerk, she had an opportunity to see lower-price merchandise; and then it became more difficult for the clerk to urge the merits of quality merchandise without disparaging other articles offered for sale and without running the risk of making no sale at all.

The development of competitive pressure toward the end of 1931 and the unpromising outlook for 1932 led the directors at the beginning of the year to make some changes of policy in order to conserve

the financial strength of the company. The economy program called for dropping a large number of small-volume items, eliminating half the sales force, reducing the number of customers solicited, and abandoning the national consumer advertising. At the same time, the suggested retail price of each item was moved down to the next lower price line; and a new retail price, 39 cents, took the place of 50 cents as the lowest price for any of the King products except baby socks. Because of the different intervals between price lines, the percentage reduction in price was not uniform; the average reduction was 14.8%. Wholesale list prices were reduced correspondingly.

These measures did not avert a severe loss of sales in 1932, both in dollars and in units. Considerable volume was obtained on two items retailing at 39 cents, but volume was lost on the higher-price items. Salesmen and field agents reported that buyers declared that King prices were too high. The retailers gave King products less aggressive support, even though the company continued its program, on a reduced scale, of trade advertising and dealer helps. Through a clipping service, the company kept track of newspaper advertisements in which King products were included; the amount of such local promotion decreased sharply. Except in some high-class stores, the sales force gave less attention to effective work on King products. Some confusion was caused by the company's disposal of the stocks of discontinued lines. The special prices at which the company sold these stocks led other stores, which heard promptly of the availability of King items at low prices, to ask for similar discounts on the same or other King merchandise. The sales manager was convinced that the abandonment of national advertising and the adoption of the 39-cent price by the King Underwear Company had led the retailers to believe that the company had lost its courage and its faith in public acceptance of high-quality products, and had led them to give the King Underwear Company less effective support at the final stage of selling.

After a year, the directors modified the program in several particulars. National advertising was resumed, although on a reduced scale. The 39-cent price line was abandoned, and the lowest-price articles were restored to 50 cents. No other upward readjustments were made, however. The King Underwear Company continued to offer a limited number of styles and types of underwear and to restrict the number of small customers on the salesmen's call lists. The number of accounts remained at approximately 7,000; the 3,000 lost were mostly small stores in smaller communities.

The response of the retailers to the new program was good, and local promotion improved. In the late spring and early summer of 1933, sales increased rapidly, but this improvement turned out to be advance buying which was followed by radically reduced sales later in the year. In July, 1933, under an order from an NRA Code Authority, the company added a 15% surcharge to all its prices. This order had

EXHIBIT 1

KING UNDERWEAR COMPANY

Index of Net Sales, 1929–1933

(1929 = 100)

Year	Index
1929	100
1930	89
1931	77
1932	51
1933	43

the effect of disturbing the price lines established in the retail stores, and in August, 1933, these prices were adjusted. The effect of the changes was to restore the 1929 retail list prices. In August, 1933, the retail markup was increased from 33⅓% to 37½%, and the wholesale prices remained roughly 6% below the 1929 level. Early in 1934, the markup was increased to 40%, retail prices were left unchanged, and wholesale prices were 10% below the 1929 level.

During the period after 1929, material costs went down, labor costs were stationary, and overhead cost per unit increased. As a result, there was little change in the factory costs per unit. Losses

EXHIBIT 2

KING UNDERWEAR COMPANY

Annual Sales, in Dozens of Units, of Selected Products*

Year	Item *A*	Item *B*	Item *C*	Item *D*	Item *E*
1928	6,839	1,118	3,974	39,445	1,492
1929	7,319	1,270	7,212	34,790	1,752
1930	5,358	1,028	6,201	29,792	1,329
1931	8,059	1,121	6,267	32,840	2,560
1932	4,366	893	2,540	21,973	1,610
1933	3,471	877	1,471	14,185	1,539

* These five items were selected by company officials as a sample. They do not constitute a full sample in the sense that their average changes, allowances being made for price changes, correspond to the changes in the total dollar sales given in Exhibit 1.

in volume of sales were great enough to outweigh the changes in costs.

The decline of net sales, shown in Exhibit 1, was not evenly distributed over all the King products. Some of the variations in physical volume were as shown in Exhibit 2. Exhibit 3 throws some light on developments in the infants' wear market in the period 1928–1932.

EXHIBIT 3

INDEXES OF RETAIL PRICES, DOLLAR VOLUME OF SALES, AND PHYSICAL SALES OF DEPARTMENT STORES

(1928 = 100)

	Fairchild Retail Price Index			Dollar Volume of Sales	Physical Sales
	Composite Index	Infants' Wear	Infants' Underwear	Infants' Wear	Infants' Wear
1928	100.0	100.0	100.0	100	100.0
1929	99.0	96.7	96.6	104	107.5
1930	90.3	90.8	90.8	97	106.8
1931	76.6	78.8	78.8	83	105.4
1932	63.8	67.8	67.4	62	91.4

Source: ARTHUR R. TEBBUTT, *The Behavior of Consumption in Business Depression* (Harvard Business School, Division of Research, Business Research Studies, No. 3, August, 1933), Tables 15, 16, and 17.

Was the demand for King garments elastic or inelastic? How was the elasticity of the demand affected by the policies of the company?

Did the King Underwear Company follow a sound pricing policy?

C. DERIVED DEMAND

9. WESTERN DOOR COMPANY

POLICY IN DEPRESSION

The Western Door Company of Seattle, Washington, manufactured and distributed about 12% of the doors produced in the United States. Despite its important position in the industry, however, the company had experienced a marked decline in earnings, and in 1928 sought means to improve the situation.

The building boom following the war of 1914–1918 had stimulated the demand for building materials, and door manufacturers quite generally had increased their facilities until, in 1926, observers estimated that there was 30% overproduction in the door manufac-

EXHIBIT 1

SALES OF DOORS BY THE WESTERN DOOR COMPANY, AND F. W. DODGE FIGURES FOR BUILDING CONTRACTS AWARDED IN 36 STATES, 1922–1927

Year	Sales of Doors by Western Door Company (Unit: 1,000 doors)			Building Contracts Awarded in 36 States, Monthly Average* (Unit: 1,000 sq. ft.)
	Plywood	Firwood	Total	
1922	131	902	1,033	54,552
1923	243	1,120	1,363	56,352
1924	380	1,411	1,791	58,869
1925	614	1,633	2,247	74,955
1926	708	1,684	2,392	70,245
1927	513	1,551	2,064	67,699

*F. W. Dodge Corporation figures.

turing industry. The Western Door Company, by effective sales promotion activities, had captured a large share of the new business and had enjoyed profitable operations. Its advertising efforts had been especially successful, and the company had continued to make large outlays for advertising and other sales promotion activities.

The company manufactured two types of doors, one a veneer product bearing the trade name "Plywood," and the other a regular solid wood door known as "Firwood." Figures for the number of doors of each kind sold by the Western Door Company during the

EXHIBIT 2

WESTERN DOOR COMPANY

Costs per Door, 1924–1927

	1924	1925	1926	1927
Direct manufacturing costs	$1.485	$1.415	$1.414	$1.477
Manufacturing overhead	0.187	0.163	0.147	0.133
Selling costs	0.063	0.074	0.076	0.112
General overhead	0.057	0.036	0.035	0.047
Total	$1.792	$1.688	$1.672	$1.769

period 1922–1927, with data for building contracts awarded during this period, are shown in Exhibit 1.

The costs per door for the Western Door Company over the period 1924–1927 were as shown in Exhibit 2. Selling prices quoted by the company over this period were as shown in Exhibit 3.

EXHIBIT 3

WESTERN DOOR COMPANY

Selling Prices for Plywood and Firwood Doors, September, 1924, to September, 1927*

Date	Plywood	Firwood
1924		
September 16	$1.65	$1.65
October 10	1.72½	1.72½
November 28	1.87½	1.87½
December 15	2.02½	2.02½
1925		
June 1	1.72½	1.72½
August 20	1.80	1.80
December 2	1.87½	1.87½
1926		
March 8	1.72½	1.72½
March 19	1.65	1.65
April 16	1.50	1.50
August 16	1.50	1.42½
August 27	1.65	1.57½
October 7	1.72½	1.65
1927		
February 26	1.72½	1.65
July 18	1.65	1.50
July 30	1.57½	1.42½
September 27	1.50	1.35

* Dates are those of changes in quotations. Prices f.o.b. factory, Seattle, Washington.

The company disliked to lose its prominent position in the industry and was under pressure to maintain sales volume at unprofitable prices. Yet the trend of earnings was such that the company felt the necessity of reducing costs or increasing revenues. Theoretically, there were four ways in which the company could increase revenues:

1. By increasing the number of doors sold at existing prices.
2. By increasing prices and maintaining the existing unit sales.
3. By decreasing prices in the hope of securing a substantially larger sales volume, which might permit lower costs.
4. By adding new lines.

Only the fourth suggestion seemed to present any real possibilities, and accordingly in 1927 the company added to its line plywood doors

with imported hardwood finishes. The margin of profit on this line was much wider than that on the fir lines, but the volume of this business was small.

EXHIBIT 4

WESTERN DOOR COMPANY

Earnings Available for Dividends, 1922–1927

(000 omitted)

1922	$525
1923	598
1924	108
1925	173
1926	14
1927	Loss 72

EXHIBIT 5

WESTERN DOOR COMPANY

Comparative Balance Sheets as of December 31, 1922, 1924, 1926, and 1927

(Thousands of dollars)

	1922	1924	1926	1927
Assets				
Real Estate, Plant, and Equipment (after depreciation)	$1,322	$2,105	$2,096	$2,059
Investments	59	427	444	374
Cash	84	61	137	124
Notes and Accounts Receivable	404	333	519	445
Inventories	418	643	774	859
Other Current Assets	13	21	46	54
Deferred Charges	18	50	108	89
Total	$2,319*	$3,640	$4,125*	$4,002*
Liabilities				
Preferred Stock	$1,000	$1,000	$1,000	$1,000
Common Stock	500	500	500	500
Funded Debt	.....	599	1,119	1,092
Notes and Accounts Payable	277	397	90	146
Accrued Interest and Other Items	.....	79	69	76
Reserves for Taxes and Other Items	112	70	49	42
Surplus	430	996	1,297	1,147
Total	$2,319	$3,640*	$4,125*	$4,002*

* Discrepancies in totals due to rounding off of figures to nearest thousand.

The earnings available for dividends from 1922 to 1927 were as shown in Exhibit 4.

Comparative balance sheets of the company as of December 31, 1922, 1924, 1926, and 1927, were as given in Exhibit 5.

In view of the characteristics of demand for its products, what general policies should the Western Door Company have adopted in order to improve its position?

APPENDIX

SOME NOTES ON DERIVED DEMAND

Strictly speaking, the demand for all goods except finished consumers' goods, such as shoes and cigarettes, is derived from the demand for finished consumers' goods. But the term is usually limited to the cases where the connection between the goods is important. For example, the demand for some leathers is derived from the demand for shoes; but the demand for lubricants for machinery is so little dependent upon the demand for shoes, even though some lubricants are used in the shoe industry, that it is not treated as derived.

The well-known discrepancies between fluctuations of wholesale and retail prices show that it is important to consider the time factor. The demand for raw materials is not based upon the current demand for the finished product, but upon the changes in the demand anticipated in the future. The demand for tomatoes for canning is dependent upon the outlook for the ensuing year. Where the production period is long and where the storage possibilities are great, the connection between the consumers' demand and its derived demands may be much obscured.

The time factor is particularly important in the case of capital goods. The demand for capital goods is dependent upon the demand for the finished goods throughout the life of the machinery. The demand for machinery thus changes with the sums available for investment and the investors' expectations of the future. Minor fluctuations in demand for the finished products are taken up in the rate of the operation of the machinery already in existence, and the derived demand for machinery is not affected.

A steady demand for new installations of capital goods (excluding replacements) is dependent upon a steady increase in the demand for the finished product. If an industry which has been growing steadily should become stable, the reduction of its demand for machinery to a simple replacement basis represents a drastic curtailment. The capital goods case of derived demand is another instance of the importance of the time factor, and appears wherever there is a

marked difference in the life of the machinery and the life of the finished product. Although the demand for raw materials and the demand for machinery are both derived from the demand for the finished product, they respond very differently to increases or decreases in that demand.

Another important case of a derived demand is the relationship among several commodities combined in one product. Here the demand for one of the constituents is dependent not only upon the demand for the finished product but upon the supply of the other constituents. For example, an abundant supply of gasoline available at low prices strengthens the demand for automobile tires. Where there are many constituents, the elasticity of the demand for any one of them may be radically different from the elasticity of the demand for the final product. A drop of 50% in the price of one, and only one, constituent might change the price of the finished product by 1% and, even if the demand for the finished product was highly elastic, lead to only a small increase in the quantity sold.

These relationships between the demand for consumers' goods and the demands derived from it are important in the study of the so-called failure of demand and supply to maintain economic balance and stability.

10. Gray & Kimball, Inc.

Price Policy for Shoe Linings

Gray & Kimball, Inc., of Boston, Massachusetts, was one of eight American importers of English kip leather, which was used for shoe linings. Kip leather was curried in England; the skins were imported from India. No significant quantity of kip leather used for shoe linings was prepared outside of England. A considerable portion of the available English kip leather was sent to the United States; but American purchases did not dominate the English market, because an even greater portion was either used in England or exported to the Continent. The business of importing English kip leather into the United States was usually combined with the sale of other supplies and materials to shoe manufacturers; but it represented, for almost all those engaged in it, the principal part of the total business. Like the other importers, Gray & Kimball, Inc., sold the kip leather to shoe manufacturers through its own salesmen or through agents in the principal shoe manufacturing centers of the United States.

Kip linings were used principally in men's and boys' high-grade shoes. Men's shoes retailing at $5 and up and boys' shoes of comparable quality ordinarily were lined with kip leather. Kip linings were made from grain leather (the outside of the hide) and were considered superior to other linings in softness and wearing qualities. The cost of kip leather linings represented only a small fraction of the total cost of manufacturing shoes. The average quantity of lining leather used in a pair of men's shoes was approximately nine-tenths of a square foot, and in 1933 and 1934 this quantity of kip leather cost between 7 cents and 13 cents; the average quantity used in a pair of boys' shoes was about half a square foot.

Manufacturers of shoes retailing below $4 did not use kip linings. Shoes retailing at $3 were lined with domestic split linings. Such splits were a by-product of upper leather. The grain leather, that is, the outside of the hide, was used for the uppers; the splits were not grain leather but were obtained from the inside of the hide when the leather was cut to the desired thickness for the uppers. Although almost all split leather was suitable for use as plain linings, some of it ordinarily was manufactured into fancy colored linings, fancy outside leather, gloves, brief cases, and numerous similar articles. Some split leather was suitable only for the production of plain linings. Preparing the leather for the other purposes was generally more expensive than preparing it for plain shoe linings. The proportion of split leather used for the linings which competed with kip linings was not definitely known, for the relative quantities of split leather used for different purposes varied with the relative prices and the shifts in demand. Under ordinary conditions, somewhat more than half the available split leather was made into plain shoe linings.

No statistics were available to show the percentage of the total leather linings which were made of the imported English kip and the domestic split.[1] Because of the much greater number of shoes sold below $4 than at $4 and above, it was certain that more split linings were sold than imported kip linings.[2] Under the conditions prevail-

[1] Kip leather and split leather were not the only lining materials. Some men's shoes of the highest quality were lined with domestic calf, a much more expensive grain leather than kip leather. Many shoes retailing at a low price were lined with substitutes for leather. In 1934, split leather sales had been affected by the competition of these substitutes. Practically all shoes retailing at $2 and below were lined with imitation splits, a rubberized and coated cotton fabric. Calf linings did not compete directly with split linings, and leather substitutes did not compete directly with kip linings. The only indirect competition of any importance was that of the leather substitutes. Through their effect on the prices of split linings, the leather substitutes had some effect on the market for kip linings.

[2] The president of Gray & Kimball, Inc., estimated that at least 70% of the sales of men's shoes in 1934 were at $3 or less.

ing in the fall of 1934, it was estimated that the proportion was at least seven split linings to one kip lining.

The two linings did not compete over the entire range of shoes; the competition was principally for use in shoes selling at $4 and between $4 and $5. Within this range, the relative prices of the two linings were an important competitive factor but not the only one. A shoe manufacturer was reluctant to shift from one lining to the other after he had adopted his styles for the season. A change at this time from split linings to kip linings would not bring increased sales; and a change from kip to split linings might lead his customers to reject deliveries. Moreover, a shoe manufacturer occasionally was unwilling to use kip linings even if the price differential was smaller than usual or even if the price differential disappeared. Although he might find the better linings a useful sales argument, he could not be sure that the price of kip linings would stay low; and he sometimes reasoned that a later shift back to split linings would cause more sales difficulties than those encountered if he used split linings regularly. Also, different shoe manufacturers did not attach the same importance to the differences between the two sorts of leather linings. Some manufacturers considered the advantages of kip linings very important; others did not. The lining selected by a manufacturer depended in part upon his personal preferences and in part upon his relationships with the leather mechants.

When the price of kip linings was about 2 cents higher than the price of split linings, the two were noncompetitive in the sense that each was used by manufacturers who rarely or never used the other. If the price differential between kip linings and split linings was as high as 3 cents, substitution of split linings became important. If the price differential was as low as 1 cent, sales could be made to manufacturers who ordinarily used the domestic split. Some of the difficulties in ascertaining the extent of substitution following changes in the price differentials were caused by the fact that neither the kip linings nor the split linings were homogeneous commodities. The domestic splits were divided into three main grades; but even within these grades the tannage, weight, trim, and color varied slightly. The imported kip lining leather was even less standardized. Both the original condition of the hides and the methods employed by the English curriers made for differences in the finished product.

Prior to the spring of 1933, the low price of sterling exchange had enabled Gray & Kimball, Inc., to buy and sell at relatively low prices in American currency. The fluctuations of exchange, together with the fluctuations of kip prices in England, had made both buying and

selling more uncertain and had led to some complaint by shoe manufacturers of the large changes in the prices of kip linings. When the United States went off the gold standard and sterling appreciated in terms of the dollar, the costs and selling prices of kip linings advanced. Prices became so high that substitution of split linings took place on a considerable scale. The competitive pressure on Gray & Kimball, Inc., was increased in 1934 by the increasing proportion of shoes produced in large factories for sale at low prices in the stores of large chain organizations. Some of the manufacturers of these shoes refused to use kip linings because of the fluctuations in price. The company's difficulties were further aggravated by the decline in English prices of kip leather in January and February, 1934, which exposed the company to losses on large contracts which had been placed in November, 1933, for future delivery.

The policy of Gray & Kimball, Inc., was to base its prices on the current delivered cost of kip leather, which was determined principally by the English prices reported daily by London cables and the price of sterling exchange. In computing the current delivered cost, allowance was made for the duty of 15%, and for ocean freight and customs charges, which together averaged about one-fourth cent per foot. This so-called delivered cost was not necessarily the actual cost of the company's leather. It might be above the actual cost if the company had leather on hand which it had acquired through advantageous purchases of leather at prices lower than those current in England or through purchases of sterling exchange below current quotations; or it might be below the actual cost. To the figure thus determined for delivered cost the company added a small amount for expenses and profit, based upon the officers' estimate of supply and demand. Ordinarily, competing importers asked the same price for kip leather of the same grade, color, and tannage; occasionally some competitors "made the market" by cutting prices in order to move a relatively large inventory, and other importers were forced either to meet these reductions or to lose sales.

The actual prices were settled by bargaining between the company's salesman or agent and the shoe manufacturers. Ordinarily, the actual price, which typically was about one-half cent below the asking price, was reached by splitting the difference between the buyer's first offer and the seller's first offer. If the market was becoming firmer, the sellers held more tenaciously to the asking price; if the market was weakening, the buyer refused to go above his first offer. If sellers found little difficulty in getting their asking price, the asking price soon was advanced, and the process of splitting

the difference began again. The Gray & Kimball salesmen and agents were in constant communication with the company and were kept informed of price changes. They had authority to make sales

EXHIBIT 1

GRAY & KIMBALL, INC.

Sales and Prices of Kip Linings, by Months, January, 1933, through October, 1934

Year and Month	Sales (Dozens*) (1)	Prevailing American Price (Cents per foot) (2)	Sterling Price (Pence per foot) (3)	American Equivalent of Sterling Price† (Cents per foot) (4)	Difference between American and English Prices‡ (Cents per foot) (2)–(4) (5)
1933					
January	2,242	7¼	3⅞	5.4	1.85
February	3,596	7¼	3⅞	5.5	1.75
March	3,648	7½	3⅞	5.5	2.00
April	3,085	7½	3⅞	5.8	1.70
May	3,279	9	4	6.5	2.50
June	4,880	10	4	6.9	3.10
July	5,552	11	4⅛	8.0	3.00
August	4,954	12	4⅛	7.7	4.30
September	3,758	13½	4⅞	9.5	4.00
October	2,065	13½	4⅞	9.5	4.00
November	3,137	14	5⅛	11.0	3.00
December	1,464	13¾	5⅛	10.9	2.85
1934					
January	1,955	14½	5⅛	10.7	3.80
February	1,733	13½	5	10.5	3.00
March	4,060	12½	5	10.6	1.90
April	2,382	12¼	4⅜	9.4	2.85
May	1,965	12¼	4¼	9.1	3.15
June	1,989	11½	4¼	8.9	2.60
July	1,876	11½	4¼	8.9	2.60
August	2,092	11½	4¼	9.0	2.50
September	2,152	11	4¼	8.6	2.40
October	1,437	10	4⅛	8.5	1.50

* A dozen contains approximately 120 feet.

† This figure is computed by multiplying the English price by the monthly average of sterling cables published by the Federal Reserve Board. It was not the actual American cost of kip leather to Gray & Kimball, Inc.; and it was not a computed cost of the leather delivered in Boston, for it did not include the 15 % duty, or the freight and customs charges, which together averaged about one-fourth cent.

‡ This difference was not the actual gross margin obtained by Gray & Kimball, Inc.

at prices slightly lower than the asking prices. If a large order could be obtained only by means of an abnormally large cut in price, the salesmen or agents commonly asked for a company authorization before completing the sale.

Gray & Kimball executives stated that shoe manufacturers were governed by no settled policy in buying linings. If a manufacturer thought that the current price was advantageous, he might buy in anticipation of future requirements; under other circumstances, he might buy only enough to enable him to fill his current orders for shoes. Advance buying usually took place only at the beginning of the manufacturing season, if at all; late-season buying was almost always on a hand-to-mouth basis. Sometimes shoe manufacturers refused to accept delivery of lining leather ordered at higher prices than those current at the time of delivery, and Gray & Kimball, Inc., was not in a position to insist upon acceptance. On the other hand, Gray & Kimball, Inc., could not refuse to make deliveries if the market price advanced. Insistence upon the letter of the order in the one case or refusal to live up to the letter in the other might result in the loss of the customer's business to a competitor.

The shoe manufacturers who used kip linings kept themselves informed of the condition of the leather markets. Both the buyers and the sellers of lining leather heard promptly of any advance or decline in the prices of kip linings. Competition was active both

EXHIBIT 2

PRICES OF DOMESTIC PLAIN SPLIT LININGS, JANUARY, 1933, THROUGH OCTOBER, 1934

Month	1933		1934	
	Cents per Foot*	Differential with Kip Lining†	Cents per Foot*	Differential with Kip Lining†
January	7¼	0	11	−3½
February	6½	−¾	11¼	−2¼
March	6¾	−¾	10¾	−1¾
April	7¼	−¼	10½	−1¾
May	8¾	−¼	11	−1¼
June	11	+1	10½	−1
July	11¾	+¾	10½	−1
August	11¾	−¼	10	−1½
September	11½	−2	9½	−1½
October	10½	−3	9½	− ½
November	10	−4		
December	10¾	−3		

* These estimates of monthly average prices are based on the quotations published by the *Shoe and Leather Reporter* for linings of the first grade.

† This differential is the difference between the prices given for split linings and the prevailing American prices for kip linings given in Exhibit 1, column 2. This differential understates the differential prevailing in the leather market, for the prices given for split linings were asking prices and the prices given for kip linings were actual prices.

among the importers of kip and among the sellers of split linings; there were no price agreements among the sellers of either lining and no agreements between the two groups concerning the price differential.

The executives of Gray & Kimball, Inc., stated that there were no opportunities for increasing profit by any changes in their pricing policy on the kip linings. In their opinion, profits had to depend upon the purchase of kip leather and sterling exchange at favorable times and prices.

EXHIBIT 3

PRODUCTION OF CERTAIN CLASSES OF SHOES AND INDEX OF WHOLESALE PRICES OF BOOTS AND SHOES, JANUARY, 1933, THROUGH OCTOBER, 1934

Month	1933		1934	
	Production* (Million pairs)	Index of Wholesale Prices† (1926 = 100)	Production* (Million pairs)	Index of Wholesale Prices† (1926 = 100)
January	5.5	83.3	6.0	98.5
February	5.9	83.3	6.8	98.4
March	6.4	83.2	7.3	98.5
April	6.3	83.2	7.3	98.5
May	7.7	83.6	7.2	98.5
June	8.4	85.5	6.8	98.4
July	8.0	88.3	6.1	98.0
August	8.6	96.1	6.8	97.9
September	7.2	98.9	6.4	97.9
October	7.7	98.9	7.0	97.7
November	6.4	99.0		
December	5.4	98.6		

* Men's dress shoes and boys' and youths' shoes. Source: U.S. Bureau of the Census.
† Boots and shoes (not men's, youths', and boys' shoes alone). Source: U. S. Bureau of Labor Statistics.

In view of the characteristics of demand for kip leather, was there an opportunity for Gray & Kimball, Inc., to improve its position by making any changes in its pricing policies?

11. Morton Company

PRICE POLICY FOR TEXTILE MACHINERY

By 1928, the Morton Company had become the dominant manufacturer in the United States of one sort of textile machinery. Other textile machinery companies remaining in the field produced machinery of other types, which did not compete directly with Morton machines. The depressed condition of the textile industries, which had brought about the collapse of the few direct competitors of the Morton Company, had, in the opinion of the Morton executives, radically altered the market for the company's machines.

Since further expansion of the textile industries themselves appeared highly improbable, the executives of the Morton Company in 1928 reached the conclusion that the principal future market for Morton machines was the replacement market and that the company could best reach this market by producing improved machinery at lowered costs and selling it at prices which would permit textile manufacturers to obtain operating economies.

In the program of cost reduction, one of the principal steps taken by the Morton Company was to redesign and standardize many of the parts used in Morton machines and at the same time to improve the accuracy of molding and machining. The final assembly and erection of Morton machines had always entailed high labor cost, because tolerances in molding and machining were not narrow and much fitting and filing was necessary before the parts as they came from the machine shop could be fitted together. To meet this situation, machine molding was introduced in place of hand molding in the foundry, and pressed and structural steel was used in place of some cast iron. Furthermore, with the redesigning and standardization of parts, it became possible to use modern machine tools and more expensive jigs and fixtures. By these means, the parts were made fully interchangeable. Another step in the cost reduction program was the standardization of frames and subassemblies.

The result of all these steps was a marked reduction in labor cost, which was offset only in part by the increase in material and overhead cost. The net over-all cost reduction was between 10% and 20%; in the assembly shop, it was almost 33⅓%.

As a step in the program of improving Morton machines, studies were made of existing equipment in actual operation. From these studies, it was apparent that the manufacturing departments of the textile industry were interested especially in low cost, satisfactory

quality of product, and speedy completion of orders. In most instances, the operation performed by Morton machines represented a large percentage of the total cost of producing textiles, and direct labor and overhead were the principal components of the cost of this operation. Indirect labor was comparatively unimportant.

Hence the attention of the Morton engineers was directed to the speed of the machines and the percentage of idle time caused by necessary adjustments and repairs and by the breaking of threads. A list was made of defects in work, classified to show whether they were the fault of the material, the worker, or the machine. And experiments led to the elimination of the most serious defects attributable to deficiencies in the machine. Requirements of speed and adaptability were met in the design of the machinery itself and in the development of special attachments for use with the standard machines.

The development of the improved machines was made the responsibility of a newly organized sales engineering department, the head of which reported directly to the president of the company. Before the redesigning of any type of Morton machine was undertaken, a conference of all the members of the sales engineering department was held with the entire sales force. Discussion of their combined experience led to a statement of the specifications for the improvement. After the head of the sales engineering department had approved the proposal and obtained the president's authorization, an appropriation was made to cover the development work at the plant and in the field. Expenditures from this appropriation were charged to the general overhead of the company; they entered into the computed cost of the new machine only through the overhead charges. Although the primary purpose of the field work was to observe the causes of the known deficiencies of the existing machinery, the members of the sales engineering department frequently were able to obtain from the workmen in textile mills information about other deficiencies. Also, they were able, on the basis of their field work, to avoid changes of design which would have made the machines labor-exhausting rather than labor-saving.

The work of designing any new type of Morton machine was greatly reduced by the simplification program, for many of the parts were identical with those used in other new machines previously developed. Before final specifications were made for new parts, the cost of such parts was estimated by the planning section of the production branch in order to prevent the adoption of specifications which would needlessly increase production costs. As a result of the

use of many standard parts and assemblies and of the careful checking of new parts, the department was able to provide estimates of the total cost of the new machine which were very close to those realized later, when actual production was begun.

The methods of sale used by the Morton Company were not greatly changed by the new developments. As before, sales were made by the company's own salesmen, who had their offices at the plant or in leading textile centers. Under the new program, however, special assistance was made available to the salesmen by the sales engineering department.

In a few cases, members of the department made careful studies of the manufacturing costs of a particular textile manufacturer to determine the precise economies which that manufacturer might expect to achieve through the use of new machinery. The records regularly maintained by manufacturers rarely gave detailed information on direct labor, indirect labor, and expenses for each operation and for each type of machine. The special studies enabled the company to put before the textile manufacturer definite figures on the increased production per machine, the increased production per group of machines tended by a single workman, the percentage reduction

EXHIBIT 1

MORTON COMPANY

Excerpt from Special Cost Report Prepared for Textile Manufacturer

General Expense Data

Item	Description	Cost per Week	
		Old Machine	New Machine
1	Number of machines	1,050	865
2	Taxes on machinery	$ 89.50	$ 89.50
3	Insurance on machinery	15.65	15.65
4	Depreciation on machinery	672.00	533.60
5	Taxes, insurance, and depreciation on buildings	196.56	196.56
6	Power, light, and heat	200.76	200.76
7	General expenses—office, superintendence	388.08	388.08
8	Repairs	549.99	274.99
9	Supplies	146.16	120.41
10	Attachments	126.95	126.95
11	Insurance, compensation	18.17	14.95
Total expense per week		$2,403.82	$1,961.45
Cost per machine per week		2.42	2.45

in cost, including all labor and overhead charges, and the percentage return on the investment. Data were given showing the number of machines tended by a single workman, the comparative speed, the comparative operating and idle time, and the comparative percentages of defective output. Supporting data also were reported in the form of analyses of the comparative costs for direct labor, indirect labor, and expense.

An example of an analysis of the general expense per machine per week is given in Exhibit 1. Savings were shown in the depreciation on machinery, repairs, supplies, and workmen's compensation insurance.

Following the detailed analysis of comparative costs, the studies made by the sales engineering department concluded with the detailed computation of the return on the investment. The example given in Exhibit 2 is taken from the same study as the figures in Exhibit 1. Figures for a possible loss in scrapping the old machinery were not included in the analysis, nor were figures for the scrap value. The head of the sales engineering department stated that he considered such figures pertinent to the customer's decision but had found by experience that the customer was not interested in them but rather was confused by them.

EXHIBIT 2

MORTON COMPANY

Excerpt from Special Cost Report Prepared for Textile Manufacturer

Savings and Return on Investment

Item	Description	Old Machine	New Machine
1	Output per machine per week	120	145.5
2	Cost per machine per week	$6.428*	$ 5.656*
3	Cost per unit of output	0.054	0.039
4	Savings per unit of output	.....	0.015
5	Output per machine per year of 50 weeks	6,000	7,275
6	Savings per machine per year of 50 weeks	.....	$109.13
7	Cost of new machine	.....	640.00
8	Return on investment	.....	17.05%

* Figures higher than corresponding figures in Exhibit 1 because here direct labor is included.

The prices of the standard Morton machines were between $400 and $1,400. With each machine, the customer purchased in addition the special attachments which he desired. The total price of the attachments was typically much less than the price of the machine.

Free instruction was furnished to the operatives in mills where new Morton machines were installed.

The Morton Company quoted the same prices to all its customers, both domestic and foreign. Allowances were made on old machines, but from 1928 on they were strictly confined to bare scrap value. Inasmuch as both the textile manufacturers and the Morton Company considered it to their interest to avoid putting second-hand machinery on the market, the old machinery was scrapped. The Morton Company gave quantity discounts based on the number of machines ordered at one time. The schedule was as follows:

24 to 48 machines	2.5%
49 to 99 machines	5.0
100 to 199 machines	7.5
200 machines and over	10.0

In conformity with the prevailing practice in the industry, the company accepted the notes of textile manufacturers in part payment for machines. The cash payment was required to be at least 25%; the notes, bearing interest at 6%, were payable within one or two years. In the period following 1928, a large percentage of the Morton customers offered notes in part payment. The Morton Company retained title until the notes were paid off, and losses were negligible. The company was in a strong financial position and could easily extend credit to its customers without resorting to bank borrowing.

Because of the critical importance of proper pricing to the success of the Morton Company, the price of new machines was set by the president of the company. It was the policy of the company not to set the price of the new machine above the price of the old machine by an amount proportionate to the difference in technical efficiency between the new and the old, but to give the textile manufacturers a substantial share of the advantages of the improvements and cost reductions. The prices of the various improved machines did not differ from one another by amounts commensurate with the differences in the additional technical efficiency. The prices of all the new machines were determined by the application of a substantially uniform markup to the total of factory cost and selling and administrative expense. Prices were based upon cost rather than upon value to the purchaser. The president of the company stated it as his conviction that pricing so as to secure a moderate profit per unit was the soundest policy for the company. Only prices determined on this basis, he declared, would induce textile manufacturers to

purchase the new machines in sufficient volume. In carrying out this policy, the markup was reduced one-fifth. In most instances, not only was the new machine priced to make it a more advantageous purchase than the corresponding machine in the old line but the price of the new machine was set below the price of the old. For example, one of the first improved machines introduced was priced at $470 and took the place of a machine which had sold for $600.[1] Once set, the list prices were not changed. In 1934, the first of the new machines was still listed at the same price as in 1928.

The prospective returns to textile manufacturers on the investment in new machines, as shown by the cost studies of the sales engineering department, ranged from 8% to 40% where old active machines were replaced and from 25% to 50% where idle machines were replaced. The differences in the rate of return were attributable both to differences in the machinery displaced and to differences in importance of the factor of flexibility.

Not all the special cost studies made by the sales engineering department were followed by sales of Morton machines. Apparently, however, the explanation was not to be found in differences in the prospective rate of return. The group of cost studies which were followed by sales did not show higher rates of prospective return than did the group of studies which were not followed by sales. In other words, there was no rate of prospective return above which manufacturers commonly purchased machines and below which they failed to purchase. The range of figures was much the same for both groups. The failure to obtain some sales despite the prospect of returns on the investment which had attracted other textile manufacturers was attributed by the executives of the Morton Company to the individual characteristics of the manufacturers, to variations in the importance of flexibility, and to differences in their financial condition. Many of the textile companies which had charged depreciation into operating expense had treated it as a bookkeeping operation and had not accumulated funds which could be used for replacing old machinery by new machines.

A company research report made in 1930 pointed out the need for development of machines which would operate at greater speeds. Excerpts from the report follow:

[1] The pricing policy of the Morton Company was different from that attributed to manufacturers of textile machinery by an executive in the industry. G. T. Jones, in *Increasing Return* [Cambridge (England), The University Press, 1933], p. 56, note 1, says: "The general manager of a large firm which has been manufacturing cotton textile machinery in Massachusetts since 1838 claims that the manufacturers of improved textile machinery have always charged prices which absorbed nearly all the benefit of the improvements."

Assuming that the textile industry can obtain capital with which to buy new machinery, the success of our sales efforts apparently is dependent upon our ability to demonstrate that to put new machines in a mill in the place of old machines is an advantage to the purchaser of the machinery. This advantage is principally a question of savings in the cost of manufacturing textiles.

Inasmuch as the prosperity of any business is measured by the relationship of its profits to the amount of capital invested, the savings should be similarly measured in presenting a sales argument to a customer. There are two bases for this measurement.

1. The saving can be compared with the capital investment in the new machines.

2. The saving can be compared with the total cost of the change from the old machine to the new; namely, the capital investment in the new machine plus the loss of fixed assets which results from writing off the undepreciated value of the old machine which stands upon the books of the company.

To illustrate the case, the following example was given:

If a Morton Machine Type S in 1930 is to replace an automatic machine of the old type built in 1918 the production of the Type S machine must be 128% of the production of the old automatic machine to yield a return of 10% on the investment in a Type S machine.

In this example, a life of 20 years is assumed for the old machine that was built in 1918. There are now, in 1930, 8 years of life in the old machine; in other words, 40% of the original cost of the machine remains on the books. Once the new machine is installed, the remaining value in the old machine must be written off and taken as a loss of capital assets except for the scrap value which may be realized. From the viewpoint of accounting, this loss should be taken in the year in which the replacement is made. Naturally some mills may not feel like taking the loss at once. For this reason, the figures of this study assume that the mill will be reimbursed for the loss in ten years, while at the same time making a return of 10%, 20%, or 30% upon the investment in the new machine. The problem here is to determine how much greater the production of the new machine must be than that of the old machine to justify these conditions. In the case of the example, the production of the Type S machine must be 143% of the production of the old automatic machine to give the return of 10% on the investment and to reimburse the mill in 10 years for the loss of capital assets.

. . . . . .

The figures also show that, on the basis of the assumptions of this report, the increase in production from the new machines must be greater as the age of the old machines which are to be replaced becomes more advanced. Here the items of depreciation, taxes, and insurance are responsible. Where very old machines are concerned, the machine prices were low; consequently the depreciation charge is low. Again with an old machine the annual charge for taxes and insurance is low because the

original value of the machine has been written off in a large measure and stands on the books at a low figure.

. . . . . .

Upon the basis of the figures of this report, the impossibility of showing an adequate return where new automatic machines replace old automatic machines is apparent. In order to show returns which are satisfactory to the mill, the new machines must run at a speed 50% to 75% faster than the speed of the old automatic machines. In some cases the speed should be even faster.

Relatives of the physical volume of sales of Morton machines from 1929 to 1934 were as shown in Exhibit 3. An important part

EXHIBIT 3

MORTON COMPANY

Physical Volume of Sales,* 1929–1934

(1929 = 100)

1929	100
1930	68
1931	67
1932	34
1933	103
1934†	62

* Sales of repair parts and supplies excluded.
† Eleven months.

of these sales represented machines for use with rayon, which was being manufactured in constantly increasing quantities. During the period of rapid expansion of rayon manufacturing capacity, the demand for new machinery grew very rapidly. This type of fluctuation in demand created many serious problems.

Were there any differences between the Morton Company's problem with respect to cotton manufacturing machinery and its problem with respect to rayon manufacturing machinery? Does a company in the textile machinery industry have a complicated problem of adjusting supply to demand because of any special characteristics of the demand? Assume, for instance, that a new development in the textile industry calls for new installations of machinery and that in each year over a five-year period the total number of machines installed exceeds by 50% the number installed in the preceding year. Assume also that at the end of the five years installations will cease except for replacement annually of 10% of the

total number of machines in use. How would the problem of the Morton Company be affected by such a development?

What was a suitable price policy for the Morton Company to follow in a period when the textile machinery business was depressed? In a period when the demand for textile machinery to equip new plants was active?[1]

How does the book value of an old machine affect the desirability of replacing it with an improved machine? For instance, assume that Company A has a machine which has a scrap value of $120 and which it carries on its books at a book value of $800, whereas Company B carries a similar machine, with the same scrap value, at a book value of $400; that in each instance the expected life of the machine is four years, and no change in scrap value is expected; and that the annual operating costs connected with production on this machine are $1,000. Assume also that a new machine with a prospective life of 10 years can be purchased for $1,400, and that the annual operating costs connected with production on this machine would be $600. For which company is it more desirable to replace the machinery?

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[1] In Volume 6 of the *Harvard Business Reports*, under date of October, 1927, Melvin T. Copeland commented as follows on the problem of a textile machinery company in a period of depression (the case of the Coffeyville Textile Machinery Company):

"This problem arose during the period of depression which followed a severe business crisis. The chief question, under these circumstances, was whether the company could have stimulated sales by reducing prices below cost.

"The sale of installations is governed by the demand for the products which the machinery turns out; the demand for the machinery, in other words, is a derived demand. In January, 1922, the textile market was depressed and stocks of yarn and cloth had been accumulating in excess of the demand. There was uncertainty also as to whether the manufacturing capacity in the textile industry had been expanded beyond normal market requirements. Under these circumstances the textile manufacturers, who constituted the market for the Coffeyville Textile Machinery Company, were seeking to liquidate surplus inventories of goods and to find means of securing orders which would enable them to operate their existing plants more nearly to full capacity. The conditions were not favorable to the construction of new mills or to the expansion of existing plants.

"A reduction in prices by the Coffeyville Textile Machinery Company below the cost figures, therefore, could not logically have been expected to stimulate sales appreciably. The company was receiving some orders for necessary replacements. If prices had been further reduced, the volume of sales would not have been influenced materially and the chief effect would have been to cause a loss to the company on the orders which it did receive."

III. SUPPLY—THE BEHAVIOR OF COSTS

SOME NOTES ON ACCOUNTING FOR MANUFACTURING COSTS

(C. L. B.)

These notes have a dual purpose: (1) to outline the procedures involved in the periodic determination of actual unit manufacturing costs and (2) to differentiate actual and standard unit costs.

Need for Determining Unit Manufacturing Costs

Periodic determination of unit manufacturing costs is necessary in order to value inventories of goods in process and inventories of finished goods for balance sheet and income statement purposes. Neither the cost of goods manufactured nor the cost of goods sold during a period can be ascertained unless unit manufacturing costs are known; the cost of goods manufactured is affected by the values of beginning and ending inventories of partially manufactured products, and the cost of goods sold is affected by these figures and by the values of beginning and ending inventories of completed products as well. Unit manufacturing costs may under some circumstances be useful also in the calculation of selling prices. Finally, when several products are manufactured, unit costs are of some help in determining the relative profitability of the various items and lines.

Procedures Involved in Determination of Actual Unit Manufacturing Costs

Manufacturing costs are divided into three main groups: (1) material, (2) direct labor, and (3) overhead costs or burden. Material costs are the costs of materials which are incorporated in the final product; they do not include supplies or fuel. Direct labor costs consist of the pay roll for employees engaged in the actual fabrication of the product. Manufacturing overhead costs, or burden, include all other manufacturing expenses, such as indirect labor, supervision, maintenance, supplies, insurance, taxes, depreciation, light, heat, and power.

When more than one product is manufactured, the determination of unit manufacturing costs involves the accumulation of costs by

manufacturing departments, either because all products do not pass through all departments or because the relative cost incurred for each product varies among departments. The total cost applicable to each manufacturing department cannot be determined directly, however, because not all manufacturing costs are incurred directly by manufacturing departments. Some departments of a business function as service units for the operating departments. The costs incurred by a service department ordinarily are not made up entirely of costs chargeable directly to manufacturing but include some selling and administrative costs as well. An example is afforded by a maintenance department responsible for maintaining the physical property of the business. To the extent that the maintenance is performed on manufacturing plant, the costs incurred are manufacturing costs. Some maintenance costs are incurred, however, in maintaining sales and administrative offices and equipment. These latter costs must be separated from the other maintenance costs, which are divided among the several manufacturing departments.

In general, to obtain manufacturing costs per unit of product, it is necessary to go through the following steps, in the order given:

1. Determine the costs incurred in each department of the business without regard to the function of the department.
2. For each service department, determine the costs which are applicable to manufacturing and allocate them to the manufacturing departments for which they were incurred.
3. After steps 1 and 2 have been completed, allocate the costs of each manufacturing department to the products manufactured in the department.
4. To obtain the total manufacturing cost of a particular product, add the costs for that product incurred in the several manufacturing departments.
5. To obtain the unit cost, divide the total (step 4) by the number of units produced.

If costs are to be accumulated by departments, it is necessary that records be kept of the material consumed and the direct labor and overhead costs incurred in each department. Departmental figures for material and direct labor costs can be determined directly since material requisitions can be prepared to show the value of materials entering each department, and a variety of labor records can be designed to show the labor cost incurred. The direct determination of the amount of overhead incurred in each department, however, is not always possible. While some overhead costs of a department—such as indirect labor; depreciation, insurance, and taxes on machinery and equipment; supplies; and possibly power—

can be determined directly, many overhead items are incurred jointly for several departments and must be divided among them on some reasonable basis. For example, several departments may be located in one building. The depreciation expense of the building is an expense of all departments using the building and must be divided among them. A common procedure in this case is to allocate the total depreciation of the building to the departments according to the proportions of the building used by the several departments, perhaps according to the floor space used. Taxes and insurance on the building may be divided in the same way. Similarly, the salary of the plant superintendent is a manufacturing expense and must also be allocated to the departments concerned.

When a service department incurs expense for the manufacturing departments, a way must be found of dividing the expense among these departments. Some of the costs can be charged directly; others must be allocated. If maintenance laborers enter a manufacturing department to repair a machine, records can be kept to show the amount of labor, supplies, and parts used, and these items can be charged directly to the department concerned. But the salaries of the maintenance superintendent and his clerks, as well as the time of the laborers not directly chargeable to the particular manufacturing department, must be allocated. The allocation frequently is made in ratio to the direct charges for maintenance to the particular manufacturing department.

At this point, direct labor, material, and overhead costs of each manufacturing department are known; and if the total manufacturing cost is desired, it can be obtained by adding together the costs of the several manufacturing departments.

The next step in the determination of unit manufacturing costs is to divide the total cost applicable to each manufacturing department among the several products passing through the department. Material and labor costs incurred for each product may be ascertained from records designed to furnish this information. The determination of these costs is comparatively simple, although the bookkeeping required may be expensive when the number of products involved is great. Overhead costs, on the other hand, are more difficult to allocate to products than to allocate to departments. It is usually impracticable to try to charge even the measurable overhead items directly to the various products manufactured. For example, although a meter may be installed to measure the electric power consumed in a particular department, it may not be worth the expense involved to try to measure the power consumed in manufac-

turing each product within the department. Also, while the total indirect labor in a department can be determined easily, it is impossible in most instances to determine directly how much of the total indirect labor was incurred in manufacturing each product.

For these reasons, approximate methods are used for determining the departmental overhead costs applicable to each manufactured product, and such methods are acceptable provided they give reasonable distributions of total overhead costs among the various products. In choosing a basis of allocating overhead to products, it is helpful to divide departmental overhead into two groups, as follows:

1. Expenses, such as depreciation, insurance, and taxes, which are fixed in amount for a specific period of time. These expenses vary directly with the passage of time.
2. The remaining overhead expenses, including indirect labor, supplies, maintenance, supervision, and power, which are not fixed but vary with the volume of production.

A satisfactory basis for allocating the first group of expenses is one which provides an accurate measure of the time spent in manufacturing the various products. Two common measures are "direct labor hours" and "machine hours," the first being used in departments where operations are manual and the second where the processes consist chiefly of machine operations.

For the second group of expenses, the basis of allocation must provide an accurate distribution of the total departmental volume among the several products. A unit which satisfactorily accomplishes this is not simple to find. Physical output is usually an unsatisfactory measure of volume because some products take more time to produce than others and therefore occasion more overhead. Merely counting the number of units of each product manufactured and dividing overhead in the proportions so derived would give equal weight to each unit of product manufactured. The best unit of volume is the one which measures most accurately the extent to which the facilities of the department are used in manufacturing the product. Therefore it should be closely related to the nature of the manufacturing process.

If operations are manual, as in a department where valve parts are assembled into finished valves, a satisfactory unit is direct labor hours. When this unit is used, it is assumed that proportionately more indirect labor, supervision, maintenance, and so forth, are consumed in manufacturing a product requiring 20 direct labor hours than one requiring only 10 direct labor hours. Obviously this is an approximation. The assumption may not apply equally well to all

overhead items, nor to the same overhead items at all times. Two products may consume equal quantities of direct labor, but use different quantities of indirect labor. More supervision may be required in manufacturing a new product than an old one. In a department utilizing machine processes, it is ordinarily desirable to use machine hours as a measure of volume because much of the overhead is incurred in running the machines.

From the foregoing discussion, it appears that the best results can be obtained in allocating departmental overhead to products when a time unit is used as the basis of allocation. The time unit is satisfactory for the fixed expenses which vary with the passage of time; and it provides a reasonable distribution of the total departmental volume, which is needed to allocate the remaining overhead expenses.

For a given company, an analysis of manufacturing operations may lead to the conclusion that in some departments machine hours should be used as a basis of allocating overhead expense and that in others direct labor hours should logically be employed. In practice, however, overhead frequently is allocated on a single basis in order to obtain the advantage of uniformity among manufacturing departments. Perhaps the most common unit used by businessmen is "direct labor dollars," because information concerning direct labor is more easily and quickly obtained when expressed in dollars than when expressed in hours. Direct labor dollars may not be so accurate a measure of volume as direct labor hours, because the direct labor used in manufacturing some products may be more expensive than that used in manufacturing others; yet it must be recognized that, whatever the basis of allocation, only approximately correct results will be obtained.

Standard Costs

The foregoing discussion outlines the steps in ascertaining the actual manufacturing costs incurred during a particular period in each department and for each product. The determination of such costs involves laborious allocations of overhead expenses to departments and to products. This is particularly true of allocations to products. Therefore, unless the management is convinced that the usefulness of actual product costs is commensurate with the expense involved in obtaining them, such costs will not be determined. Let us examine the usefulness to management of actual product costs.

When product costs are expressed on a unit basis (e.g., so much per article or per ton), the cost varies inversely with the volume manufactured; that is, as volume increases, unit costs decline. The

explanation of this relationship, of course, is that while the unit cost of direct labor and material remains constant as volume increases (except for changes in efficiency and in prices) the unit cost of overhead does not. Some items of overhead are fixed, at least in the short run. Depreciation, insurance, and taxes typically are in fixed dollar amounts. Therefore, when more units are manufactured, the fixed expenses are spread over a larger number of units and are lower per unit.

In view of their wide fluctuations, how useful are actual unit costs to the management? During periods of very low volume, unit costs may well exceed selling prices. Under such circumstances, should the inventory values given on the balance sheet reflect these high unit costs? In general, accountants answer this question in the negative, since in their opinion the current assets should not be shown at values exceeding the market value even though cost is greater than selling price. When volume is high, on the other hand, unit costs are lower than would be experienced during periods of normal activity. Thus, the use of actual unit costs as the basis for valuing inventories reported to stockholders and creditors through the financial statements is considered to be unsatisfactory.

Nor are actual unit costs very satisfactory from the standpoint of control, since changes in unit costs may be accounted for by changes in volume of production as well as by variations in prices and in efficiency of operation. It is no reflection upon the ability of a department head if his unit costs rise from one period to the next merely because in the latter period the fixed overhead was spread over a smaller number of units. It would be better, therefore, both for control purposes and for purposes of financial statements if the effect of changes in volume upon unit overhead costs could be segregated.

The use of standard costs is a step in this direction. Standard costs may be defined as normal, or average, unit costs. They are determined by averaging the unit costs incurred under the various conditions of volume encountered over the period of a business cycle.

It is possible to establish standard costs for material, for direct labor, and for overhead. Since unit costs of direct labor and materials do not vary much with volume, however, most manufacturers using standard costs apply them only to overhead. When standard overhead costs are used, each unit of a particular product passing through a department is charged with the standard amount or percentage of overhead for that product and that department. Often the standard overhead is a fixed percentage of the direct labor cost, representing the average relationship existing between overhead

and direct labor in the department. When this basis is employed, the standard overhead cost per unit for a particular product varies in amount if the direct labor cost per unit varies. Fluctuations are small, however, because unit direct labor costs do not vary widely.

During any accounting period, it is to be expected that the standard unit costs will differ from the actual unit costs. Such differences serve a useful purpose, however, since they indicate that some analysis needs to be made of the causes, whether they be the result of volume changes, changes in prices, or variations in efficiency of operations. When volume is at a high level, the standard overhead costs exceed the actual overhead costs; and when volume is at a low level, the reverse is true. When standard overhead costs are greater than actual costs, overhead is said to be "overabsorbed" to the extent of the difference. Conversely, when actual costs exceed standard costs, the difference is referred to as "underabsorbed" overhead. Over the period of a business cycle, theoretically the underabsorbed overhead should be equal to the overabsorbed overhead since the standard is set at the average to be expected over that period.

Several methods of reporting the differences between actual and standard costs are suggested by accountants. In general, there is agreement that such differences should be included at least once a year in the annual income statement; but there is little agreement as to the point at which they should be inserted in that statement.

SOME NOTES ON THE CONCEPT OF COST IN ECONOMICS

The term "cost" is likely on occasion to be used in different senses by the economist, the accountant, and the businessman. Care must be exercised to prevent errors which might be caused by a misunderstanding of the meaning of the word "cost" and other words used by economists, by accountants, and by businessmen to describe various kinds of costs.

Financial accounting has a specific task, namely, the analysis of the operations and status of a business in a period that is closed. Its main concern is with ownership (balance sheet) and with the origin and disposition of funds (operating statement). For these purposes, accounting uses more or less exact and unchanging definitions and categories. No profit and loss statement would be complete, for example, if it did not recognize depreciation as a cost. Accountants

recognize as a cost interest paid out on borrowed funds, but not imputed interest on owned capital. They recognize salaries or regular commissions paid to the executives of a business, but not compensation in other forms. In general, the accountants follow well-defined rules for the division between items called costs and the other items. They seek to put each item in its appropriate place at all times. They are, in general, opposed to considering an item as a cost under some circumstances and not under others. The economists' distinction between cost and other items, however, varies with the period and the problems under consideration; economists say, for example, that selling expense may be an economic cost under some circumstances but not under others.

Business executives not infrequently wish to make use of figures for purposes different from the strict purposes of financial accounting. They wish to determine, for instance, the most profitable rate of operation of a given plant or department; they desire to know what price to quote to a prospective customer; they need to know whether to accept a particular order; they want to know whether it will be profitable to buy a new machine; and so on. So far as these calculations are related to costs, the businessman is interested in the costs which *will be incurred*, those which lie ahead, those which are contingent on the particular proposal being considered; not those which have already been incurred, those to which the business is already committed. If it is a question whether to increase production by using a machine now idle, the costs of materials to be purchased and of direct labor to be hired obviously are factors in the calculation; but depreciation on the machine clearly is not a factor, and neither is the wage of a foreman who will continue to be employed in any event, whether the machine is operated or not. This distinction between the expenses which *have been incurred* and the expenses which *are to be incurred* is important to the reasoning of the business executive who is trying to determine a policy.

It is essential to recognize that the time span of the proposal under consideration has a significant bearing on the costs which the business executive needs to calculate. If it is a question of increasing output over a short period, probably the supervisory staff will not have to be augmented. But if the period for which the expansion is contemplated is a longer one, then an additional foreman may be needed. Similarly, so long as the contemplated expansion can be handled by the existing plant, the fixed expenses connected with the plant are not a consideration. But if the proposal is one which involves building a new plant, then all the fixed costs connected with

that plant must be taken into account, not merely all the items which good accounting practice would recognize, but also such other costs as the return on capital. The businessman in this situation is concerned with the problem of what will constitute the most remunerative use of his capital.

The list of costs which the business executive needs to consider, therefore, may be either shorter or longer than the customary list of items included in accounting costs. The following tabular view contrasts the list of costs which might be appropriate to a short-period problem with those appropriate to a long-period problem and compares both with the accepted costs in the accounting sense:

Short-Period Business Costs	Accounting Costs	Long-Period Business Costs
Direct Labor	Direct Labor	Direct Labor
	Indirect Labor	Indirect Labor
	Wages of Management—Actual	Wages of Management—Actual
		Wages of Management—Imputed
Materials	Materials	Materials
Spoilage	Spoilage	Spoilage
	Selling Expense	Selling Expense
	Rent—Actual	Rent—Actual
		Rent—Imputed
Taxes—Variable (e.g., on Income)	Taxes—Variable	Taxes—Variable
	Taxes—Fixed (e.g., on Real Estate)	Taxes—Fixed
	Insurance	Insurance
	Depreciation	Depreciation
Interest—on Funds Actually Used	Interest—Only Actually Paid	Interest—Actually Paid
		Return on Owner's Capital

The foregoing contrast is typically valid and useful, but there will be some exceptions in particular cases which can readily be discerned by those familiar with the reasons for the classification. For instance, selling expense may be a short-period cost in a case where salesmen are paid by commission or where it is necessary to employ an additional salesman.

In considering problems, the businessman, of course, makes use of figures obtained from his accounting department; but because of the differences in point of view just described, he may wish to revise the

accounting figures for his purposes. In some companies—indeed in a growing number—the accounting department itself may be concerned with the preparation and analysis of figures to aid executives in reaching decisions. For example, the purpose of the so-called flexible budget is specifically to furnish the types of figures required by business executives for use in planning operations; but the procedures used in this type of accounting work are to be distinguished from those which are characteristic of general financial accounting.

The economist's point of view on costs is close to the essential distinctions which the business executive must make, although these distinctions are not always expressed in the same language. In economics, the essential idea is that cost is a resistance point, that if price is below cost the quantity produced will be curtailed. Any payment to a factor of production which has to be paid the market rate to keep it at work producing the particular commodity—a factor which will resist, by moving to other opportunities for employment, the downward pressure of a decline in the demand for the commodity—is an item of cost. If it is a question whether or not to operate an existing factory during a given season, depreciation, rent, insurance, taxes, and other expenses—expenses which have already been incurred or which will be incurred regardless of the decisions on the question—are not resistance points. But if it is a question of building a new factory, all these expenses are resistance points. These are not the only ones; for the return on owner's investment must also be included as a resistance point. All these are forces which resist the putting to work of these particular factors of production. Another way of saying this same thing is that the price of the product has to be sufficiently high to induce labor, landowners, investors, technicians, and businessmen to forego other opportunities and to build and operate the factory. The entrance of these factors into the production of a commodity or their departure from it is often a long-drawn-out affair. It takes longer the more durable is the product and the more durable, expensive, complicated, and specialized are the human and material factors used in its production.

In the short period, some of the factors which would vary in a longer period are tied to the business and are inescapable if the business continues as a going concern. The most important of these are the specialized plant and equipment, the so-called "fixed," costs. These costs, which do not vary in the aggregate as the equipment is worked at a lower or higher rate—which go on, whatever the output of the plant—must be distinguished from the others by the businessman; for the short period, the economist does not call them costs,

although the accountant does. They represent factors which cannot be moved out of the way of a decline in demand and which, therefore, do not offer resistance to the decline in price caused by the decline in demand. The statement that manufacturers will temporarily sell "below cost" to cut their losses refers to costs in this category and is equivalent to the statement that these "costs" are not immediate resistance points to the fall in price.

If we leave out of account the important effect on present behavior of anticipating the future, we may safely say that the businessman tries to get the maximum difference between total receipts and total outlays. In setting his price and determining his output, he wants to know how his receipts and outlays will vary with the price charged or with the quantity put on the market. The so-called "fixed" costs, which do not vary with his price or rate of output, do not affect, or should not affect, his calculations.

Thus in the thinking both of the businessman and of the economist there is a distinction to be made between these two classes: those items which are costs for the period, or in relation to the project contemplated, and those which are not. A great variety of terms with various shades of meaning is in use to designate these two categories; note, for instance, the following:

Fixed	Variable
Indirect	Direct
Overhead	Operating
Inescapable	Escapable
Sunk	Current
Existing	New
Book	Out-of-pocket
Long-run	Short-run
General	Special
Supplementary	Prime

Most of these terms make some distinction between a short and a long period in which or for which the outlays are incurred. Among these terms, there are several which are sometimes distinguished from one another and sometimes used interchangeably. In practical usage, some of these terms are employed interchangeably even though an exact interpretation of their meaning would not sanction this habit. For instance, the term "out-of-pocket costs" is sometimes loosely used to mean the expenditures which will be incurred in a period if a particular program is followed, whereas it means, strictly, payments to outsiders as contrasted with, say, depreciation, which is not a current cash expenditure to an outsider. Out-of-pocket costs

and variable expenses are not identical classes; real estate taxes, for instance, are out-of-pocket costs which have to be paid anyway and do not vary with the rate of operation.

The terms commonly used by the economist to designate these two general categories of costs are "fixed" and "variable." Strictly speaking, the "fixed costs" are not, to the economist, costs at all for the short period; they are not necessary payments to keep production going; and if the economist speaks of short-period costs, the fixed costs are excluded and the variable costs are included. The term "variable" refers to those costs which vary *in total* as volume changes, whereas the term "fixed" is used to designate those costs which will remain unchanged *in total* for the period, irrespective of the volume of production or sales. It is to be noted that costs which are variable *in total* may be more or less fixed per unit of output, and conversely that costs which are fixed *in total* irrespective of output will naturally vary per unit of output. The proper use of these two terms is in the *total* sense.

Accurately speaking, variable costs are those which vary in total strictly in proportion to output; they may be called "proportionate costs." In actual practice, however, the term "variable costs" is employed to describe costs that vary with output if the variation is not far from strict proportionality. Sometimes businessmen make a third category, of semivariable expenses. But for business calculations looking into an uncertain future, the rough distinction between "variable" or "proportionate," on the one hand, and "fixed," on the other, is accurate enough for most practical purposes.

It is important to recognize that for the businessman and the economist "fixed" and "variable" costs are not unchanging categories always containing the same items. Rather they are labels for the period involved. For a short period, wages of supervisory labor are likely to constitute a fixed cost; for a considerably longer period, these wages may well be a variable cost. The distinction between the two periods, long and short, is, of course, merely a helpful oversimplification; between the two extremes there are periods of various lengths; what is cost for the particular period and for the particular problem must be determined in each case by reference to the outlays necessary to keep productive factors at work. The longer the period, the longer the list of costs which are variable, and *vice versa*. The accountant, on the other hand, is more likely to use such terms as "variable" and "fixed," "direct" and "indirect," or "overhead" and "operating" to designate unchanging categories always containing substantially the same items.

Figure 1 presents the problem for a short-run period, say, one year. Line *A* represents the total receipts; *B* the "total costs," in the financial accounting sense, including the fixed costs which will not vary at any volume of operation within the range considered; and *C* the costs for the short run, in the economic sense, excluding the fixed costs in order to arrive at the resistance point at which operations should cease. These costs, according to the economists' concept, are the "variable costs." At no rate of operation can this business make a "profit" in the sense of having total receipts cover both fixed costs *PO* and variable expenses. The best thing for this business is to produce the quantity *OM* and sustain the minimum loss *GH*. This fact can be seen more clearly if we ignore fixed costs entirely. At the rate of output *OM*, the company gets the biggest difference *HI* between economic costs *IM* and total receipts *HM*. The company would never produce more than *OL*, because at that point the total receipts just equal the economic costs *JL*. It is to be noted that this is a case where, by assumption, the market price is affected by the rate of operation of this particular business concern.

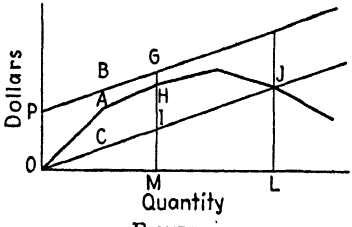


FIGURE 1.

The above illustration is artificially simplified by the use of straight lines to represent costs. The straight lines imply that the total variable costs vary in strict proportion to output. This is the assumption that the additional expenditure necessary to produce each additional unit is constant. Figure 2, based on the table shown on page 173, abandons these simplifying assumptions.

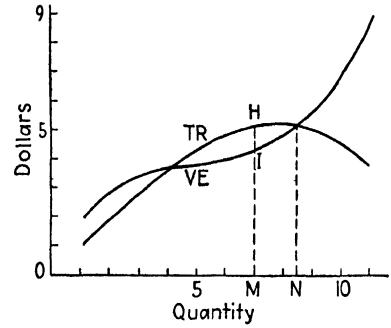


FIGURE 2.

Here the additional expenses of producing larger quantities are not constant per unit; they are first reduced as the company frees itself from the inefficiencies of abnormally small rates of operation, and later they advance as the company encounters the inefficiencies of abnormally high rates of operation. If the company operated at the high rate *ON*, there would be nothing left of the total receipts

A	*B*	*C* ($A \times B$)	*D*	*E* ($D \div B$)	*F*	*G* ($D + F$)	*H* ($G - C$)
Price	Number of Units Sold	Total Receipts	Total Variable Expenses	Average Variable Expense per Unit*	Total Fixed Expense	Total Expense	Loss
$1.00	1	$1.00	$1.82	$1.82	$2.00	$ 3.82	$2.82
0.98	2	1.96	2.92	1.46	2.00	4.92	2.96
0.95	3	2.85	3.42	1.14	2.00	5.42	2.57
0.91	4	3.64	3.68	0.92	2.00	5.68	2.04
0.86	5	4.30	3.80	0.76	2.00	5.80	1.50
0.80	6	4.80	3.96	0.66	2.00	5.96	1.16
0.73	7	5.11	4.27	0.61	2.00	6.27	1.16
0.65	8	5.20	4.80	0.60	2.00	6.80	1.60
0.56	9	5.04	5.67	0.63	2.00	7.67	2.63
0.46	10	4.60	7.10	0.71	2.00	9.10	4.50
0.35	11	3.85	9.02	0.82	2.00	11.02	7.17

* Short-period economic cost.

after the variable expenses. The most advantageous rate of operation is *OM*, where total receipts exceed variable expenses by the maximum amount *HI*. This is the point where the company obtains the largest "operating contribution," that is, where it cuts its losses to the minimum. The largest operating contribution is the greatest contribution to fixed costs and to profits. If the company is having profitable operations, at this point its profits are at their maximum; if losses, the losses are at their minimum.

It should be noted that the most advantageous rate of operation, the rate which gives the largest operating contribution, is at the point where the *TR* and *VE* lines are parallel, where both expenses and receipts are growing at the same rate. This may be restated as follows: the point of most advantageous operation is that at which the addition to total receipts, i.e., the increment receipts, is equal to the addition to expenses, i.e., the increment expenses.[1] Up to the point of maximum operating contribution, expansion of output brings increment receipts greater than increment expenses; the contribution is growing. Beyond that point, further expansion brings increment receipts smaller than increment expenses; the contribution is dimin-

[1] "Increment expenses" may also be described by the term "marginal costs." Both these terms designate the amount of the increase in the total variable costs.

ishing. At the precise point of the maximum operating contribution, the last unit adds nothing. The production of the last unit is a matter of chance, and to the businessman a matter of indifference. In Figure 2, the last unit of the *OM* units adds nothing to the operating contribution, which remains at 84 cents.

This situation may be illustrated by adding the increment receipts and increment expenses to the table already given, or by plotting the increment receipts curve and the increment expenses curve as shown in Fig. 3.

B	*I*	*J*
Number of Units Sold	Increment Receipts	Increment Expenses
1	$1.00	$1.82
2	0.96	1.10
3	0.89	0.50
4	0.79	0.26
5	0.66	0.12
6	0.50	0.16
7	0.31	0.31
8	0.09	0.53
9	−0.16	0.87
10	−0.44	1.43
11	−0.75	1.92

Here again, the most advantageous rate of operation is *OM*. Up to this point, the increment receipts (*IR*) curve lies above the increment expenses (*IE*) curve; more is being added to receipts than to expenses. Beyond this point, the opposite is true. This rate of operation contributes the most to the fixed "costs" and profits of the business; it is the rate of operation which maximizes the operating contribution.

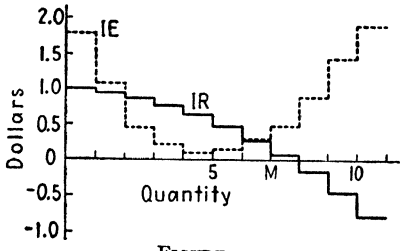


FIGURE 3.

It is to be borne in mind that whereas the foregoing discussion is concerned with the variation of costs in relation to output, there are, of course, factors other than changes in output which may cause costs to vary; for instance, changes in the general price level, cyclical

changes in business, taxes, inventions, improvements, and so on, all may change cost, expressed in dollars and cents, for the same output. In dealing with practical problems, consideration must be given to all these causes of changes in costs, as well as to those cost variations which are strictly related to the level of output.

Accounting typically treats cost from the point of view of the individual business, whereas the economists talk sometimes of the individual business, sometimes of a whole industry, and sometimes of all the businesses of a country taken together. Some economists when dealing with the entire economic life of a country prefer to treat the natural resources as a given supply and the price paid for their use, i.e., rent, as no part of cost, because the price paid does not affect the supply of land available. For purposes of business economics, which deals more with the problems of an individual company or industry, the exclusion of rent from cost is unnecessary and awkward, because the natural resources available for a company or industry are not fixed, and a price, rent, has to be paid to keep them from other businesses.

A. THE MEANING OF COST

1. Stann Company

PROPOSAL TO PRICE ADDITIONAL PRODUCT BELOW FULL COST

In 1919, the Stann Company bought at a receivership sale the plant and good will of the Devoe Beverage Company. Among the products of the Devoe Company was a high-price bottled beverage on which had been spent nearly $500,000 in advertising. The attempt to develop a profitable business, however, had met with little success. From the experience of the Devoe Company, it seemed useless to the Stann management to spend more money advertising this beverage, the sales of which were just large enough to enable the company to cover direct costs and barely meet the overhead charges of the plant purchased at the receivership sale. On the other hand, the manufacture of this beverage required only about 15% to 20% of the capacity of the plant. The experience of the Devoe Company indicated conclusively to the board of directors of the Stann Company that practically no additional sales could be obtained by a reduction in price, and that no increase could be expected from additional advertising.

The president of the Stann Company believed that the solution of the difficulty was to produce a different beverage. Accordingly, he made a preliminary investigation of the situation and found a beverage which he believed had a large potential sales volume.

This product was tried out for a short period, and the management was convinced by this trial that if the new beverage was to be marketed successfully it would have to be sold by retailers to the consumer at a price of 25 cents. To raise the price above this point would destroy the possibility of large sales.

The president had cost figures which showed that if only two direct manufacturing costs, namely, materials and labor, were charged against this beverage it could be produced to retail at 25 cents and made to return a small margin of net profit to the company. After carefully reviewing the cost figures, he suggested to the board of directors that the new beverage be produced, that no overhead expenses be charged against it, and that the manufacture of the old beverage be continued in order to cover overhead charges.

Two members of the board of directors took a stand against such a procedure. They maintained that it was a poor business policy and a breach of ethics to sell an article at a price which did not bear its full share of the manufacturing costs.

Should the president's recommendation have been followed? What were the important considerations in this case? Was there any difference between the short-run and the longer-run aspects of the problem?

2. Wolper Company

Revision of costs to avoid showing loss for a particular product

The Wolper Company manufactured rubber shoes, rubber boots, and tennis shoes. In the process of manufacture, practically all shoes went through the same production departments. After the component parts of the shoes had been cut from sheets of rubber and rubberized fabric, the parts for each model were assembled in a storeroom for the makers, who constructed the shoes on the proper lasts. In order to make the rubber tough enough to withstand wear and hard usage, after the finished shoes had been inspected they were heat-treated in large ovens. Before heating, most of the shoes were treated with an application of flour or varnish, to give them the

proper finish. Varnish applied to the rubber before heating gave the shoes a glossy finish; flour dusted on them gave a dull finish. Shoes with cloth tops were not treated by either method. After being removed from the ovens, the shoes were again inspected; and pairs were packed in individual cartons.

A cost accounting system had been developed which had proved entirely satisfactory. The cost accountant had revised and adjusted the system continually, and the management felt that it was accurate. For each type of product, the costs included payments for material and labor and an assigned share of the overhead expenses. Before new models were placed on the market, estimates of their probable costs were made; and these costs were important factors in determining the company's selling prices. On models which were similar to those of competitors, selling prices were adjusted to meet competition, regardless of the costs shown by the accounting system.

The Wolper Company developed and placed on the market a new type of shoe which was expected to become popular. On the basis of cost estimates prepared by the cost accountant, the selling price of that model was set at a point to yield the company its customary rate of profit. As the season advanced, the actual costs were found to be higher than those estimated. Furthermore, reductions had to be made in the selling price to meet the prices of competitors, who soon imitated the new model. As a result, the Wolper Company's profit was less than had been expected. In order to show a larger profit, the treasurer of the company requested the cost accountant not to include, in the cost figures for the model, the expenses for dusting the shoes with flour. That item amounted to approximately 3 cents on each pair of shoes. The treasurer requested that the expense be omitted from the cost of the new model and be allocated to the other shoes passing through the dusting process. The increased cost spread over the remainder of the product would amount to less than $\frac{1}{10}$ of 1 cent a pair. The treasurer pointed out that the selling price of the other shoes could more than cover that additional cost.

The cost accountant objected to this procedure. He argued that each model should carry its own burden of costs. He believed that the cost system which had been developed was accurate, and he pointed out that manipulations of costs between products would have no effect on the ultimate profit or loss of the company for the period as a whole.

Was the profit or loss of the company likely to be affected by the suggested change in the cost accounting procedure? If the cost

accountant was right in saying that there would be no effect on profits, had he any ground for objecting? Should the change have been made?

3. R. H. Degnan Company

REVISION OF COSTS TO MEET COMPETITION

In May, 1939, the R. H. Degnan Company received an unsolicited invitation to submit bids on a specially designed attachment for a machine tool. Specifications for the attachment were furnished by the prospective purchaser. The cost department, with the assistance of the production department, estimated that the total cost of the attachment would be $2.90 apiece in lots of 1,000. Under the company's usual pricing practice, an article costing $2.90 would be priced at $3.87. The sales manager of the Degnan Company, however, knew that on similar attachments a competitor had previously quoted a price of $2.50, net. Since it was the strict policy of the Degnan Company never to sell below cost, the sales manager suggested that the estimate of $2.90 be reexamined and revised downward in order that the competitor's price might be met.

The R. H. Degnan Company was a large manufacturer of machine tools, and frequently received requests such as this one to furnish special attachments made to the buyer's specifications. The company had an excellent reputation for quality and was definitely a leader in the setting of prices in the industry. Smaller competitors sometimes used the Degnan Company's list prices in order to avoid the expense of preparing their own. Not infrequently, because of the high quality of its products, the company was able to secure prices above those quoted by competitors for certain items.

With regard to the attachment under consideration, the sales manager believed that the cost of $2.90 was unreasonable. He was convinced that the competitor had found a way to make the product more efficiently than the Degnan Company. He argued, therefore, that the cost estimate should be adjusted so that the sales department could meet competition. He was confident that Degnan engineers could devise a production method better than that of the competitor and thus effect an actual reduction in cost. The estimate submitted by the cost department was as shown in Exhibit 1.

The sales manager proposed the costs which are shown in Exhibit 2.

EXHIBIT 1

R. H. DEGNAN COMPANY

Cost Department's Estimate of Cost of Manufacturing New Attachment for Tool

(Per unit in lots of 1,000)

Material	$0.28
Labor	0.56
Department direct expense*	0.57
Total direct expense	$1.41
Factory general†	0.52
Total factory expense	$1.93
Selling and administrative‡	0.97
Total cost	$2.90

* Includes department supervision, department clerks, rent, light, heat, local taxes, and depreciation.
† Calculated as 95 % of direct labor. This item includes outlays for control department, hospital, laboratory, planning, social activity, and general supervision.
‡ 50 % of total factory expense.

EXHIBIT 2

R. H. DEGNAN COMPANY

Sales Manager's Estimate of Cost of Manufacturing New Attachment for Tool

(Per unit in lots of 1,000)

Material	$0.28
Labor	0.56
Department direct expense	0.57
Total direct expense	$1.41
Factory general*	0.35
Total factory expense	$1.76
Selling and administrative†	0.48
Total cost	$2.24

* Two-thirds of the charge shown by the cost department.
† One-half the charge shown by the cost department.

The "total cost" as shown in each of these exhibits was intended to represent total cost before Federal taxes. The company normally tried to secure a markup of about 25% of the selling price to cover taxes and profit. The $2.90 cost, according to the company's policy, therefore, would call for a selling price of $3.87; the revised cost would indicate a selling price of $2.99. Even with the reduced cost, therefore, a selling price of $2.50 would lower the company's return from a desired 25% to 10.4%.

The charges for factory general expense and selling and administrative expense were made at standard rates which had been established after an examination of the company's actual experience over a

period of several years. At the normal rate of operation, the total factory general expense equaled 95% of direct labor expense, and selling and administrative expense in total amounted to one-half the total factory expense. These rates were therefore applied in costing individual units.

The sales manager argued that the cost of producing and selling a large order such as the one under consideration was not so great as the cost of producing and selling the usual orders. The sales manager pointed out that the production of 1,000 units at one time would permit a substantial saving in factory general expense per unit; and he insisted that it was logical to reduce the charge, as he had done in his estimate. He pointed out also that an order received by mail was cheaper to secure than one solicited by the company's salesmen. For this reason, he thought it was justifiable to reduce the selling and administrative expenses charged against this order.

The sales manager indicated that the prospective customer would probably use an average of 1,000 units per month. The company was a regular purchaser of Degnan machines; and whatever the decision of the Degnan executives regarding the pricing of this attachment, there was no danger that the friendly relations between the two companies would be jeopardized. The sales manager believed, however, that the Degnan Company would secure the order only by submitting a bid of $2.50 or lower.

Should the recommended procedure have been followed?

B. INCREMENT COSTS AND OPERATING CONTRIBUTION

4. Arnett Company

DECISION WHETHER TO BUY OR TO MAKE

The Arnett Company, a maker of electric motors and appliances, was frequently called upon by customers to provide motors with attachments necessary to adapt the motors to special purposes. One such request called for the addition of a sleeve which fitted on one end of the motor shaft. The motor itself was included in the company's regular line of products. This particular sleeve or adapter skirt, as it was called, was of special design and could be used only by companies in a particular industry. It was expected that orders for motors with this attachment would be received at irregular intervals and in varying quantities.

Although the company was well equipped to manufacture the adapter skirt, since the same lathes and grinding machines could be used as were used in the manufacture of motors, there was some question whether an outside firm specializing in the manufacture of machined parts could not provide the adapter skirts more cheaply.

EXHIBIT 1

ARNETT COMPANY

Summary Analysis of Costs for Adapter Skirt

	Size of Lot			
	500	1,000	2,500	5,000
Normal manufacturing cost (Exhibit 2)	$3.41 each	$3.37 each	$3.36 each	$3.34 each
Out-of-pocket cost (Exhibit 3)	1.42	1.41	1.40	1.40
Lowest delivered prices quoted by outsiders (quotations from one firm)	1.54	1.35	1.24	1.20

EXHIBIT 2

ARNETT COMPANY

Analysis of Normal Manufacturing Cost for Adapter Skirt

	Size of Lot			
	500	1,000	2,500	5,000
Machinery direct labor for 100 units	$59.33	$59.33	$59.33	$59.33
Setup direct labor for 100 units	1.48	0.74	0.30	0.15
Total direct labor for 100 units	$60.81	$60.07	$59.63	$59.48
Direct material	$ 0.41 each	$ 0.41 each	$ 0.41 each	$ 0.41 each
Direct labor	0.61	0.60	0.60	0.59
Indirect manufacturing expense (300% of direct labor)	1.82	1.80	1.79	1.78
Total	$ 2.84	$ 2.81	$ 2.80	$ 2.78
Development and engineering expense (20% of above total)	0.57	0.56	0.56	0.56
Total	$ 3.41 each	$ 3.37 each	$ 3.36 each	$ 3.34 each

The production of these adapter skirts would constitute only a very small part of the department's volume of output. After a few of these parts had been made by the Arnett Company, unit costs were computed for varying quantities; and price quotations were obtained from outside manufacturers. The cost comparisons which resulted are shown in Exhibit 1.

The company prepared two sets of cost figures, one showing total or normal costs, including an allocation of overhead to the product (Exhibit 2), and the other showing only the out-of-pocket costs applicable to the product (Exhibit 3). The overhead included in the total cost figure consisted of two parts. The larger portion, indirect manufacturing expense, was obtained by multiplying the direct labor cost by a standard percentage derived from past experience and representing, over approximately a five-year period, the relationship existing in the motor department between total direct labor and indirect manufacturing expense. The result of this calculation when added to the material and labor costs gave a figure which included all manufacturing costs except engineering and development costs. The

EXHIBIT 3

ARNETT COMPANY

Analysis of Out-of-pocket Manufacturing Cost for Adapter Skirt

	Size of Lot			
	500	1,000	2,500	5,000
Machinery direct labor for 100 units	$ 59.33	$ 59.33	$59.33	$59.33
Setup direct labor for 100 units	1.48	0.74	0.30	0.15
Total direct labor for 100 units	$ 60.81	$ 60.07	$59.63	$59.48
Indirect manufacturing expense (variable portion only—66.5% of direct labor) for 100 units	40.44	39.95	39.65	39.55
Total for 100 units	$101.25	$100.02	$99.28	$99.03
Direct material	$ 0.41 each	$ 0.41 each	$ 0.41 each	$ 0.41 each
Direct labor and variable indirect manufacturing expense	1.01	1.00	0.99	0.99
Out-of-pocket cost	$ 1.42 each	$ 1.41 each	$ 1.40 each	$ 1.40 each

smaller portion of the total overhead, engineering and development cost, was computed by multiplying the costs exclusive of engineering and development by a standard percentage, in this department 20%.

The variable manufacturing expense included in the estimate of out-of-pocket costs was likewise a percentage of direct labor; but the percentage was smaller, since it represented the average relationship between direct labor and those manufacturing overhead expenses which varied with volume.

Should the Arnett Company have planned to make the adapter skirts or to buy them?

5. Sperry Company

Decision whether to buy or to make

The Sperry Company began manufacturing fountain pens in 1922. Prior to that year, the company had made metal stampings of all sorts, but had specialized principally in the manufacture of metal parts for fountain pens, among which were included pen points, pocket clips, and ink levers. When it undertook the production of fountain pens, the Sperry Company continued to manufacture these metal parts for its own pens, but purchased from outside producers the penholders, the caps, and the rubber ink holders. The company still carried on its metal stamping operations and sold metal parts to other fountain pen manufacturers in addition to its production of stampings on individual order, but the growth in sales of its own fountain pens was so great that the stamping operations became a progressively less important part of the company's business. In 1928, the Sperry Company sold approximately 560,000 fountain pens. By March, 1929, sales had increased to such an extent that officials of the company believed the volume of sales for that year would be close to 600,000 pens.

During this period of rapid growth of sales, the company had maintained its original policy of buying from outside producers all parts except stampings. Some executives of the company had suggested from time to time that the other parts might also be produced and that increased savings might result from such a venture, but the president had contended that the sales volume was not sufficiently well established. He had been unwilling to undertake the risk of the increased investment to produce parts which the

Sperry Company was not particularly qualified, from the nature of its experience, to produce. In 1929, however, when sales for the year were expected to approximate 600,000 fountain pens, the president concluded that sales had reached such a volume that the production of some other parts might safely be undertaken.

The first part chosen for production was the pen cap. There were several reasons for this selection. In preceding years, the pen caps had been of uncertain quality, being peculiarly subject to cracking. Complaints concerning this defect always had been a source of trouble to the company, and criticisms had been growing more numerous with the increased sales of the pens. It was important that the company should secure better control over the quality of these caps.

On the basis of an annual production volume of 600,000 pen caps, the anticipated cost per cap to the Sperry Company was as follows:

	Cents
Bakelite cap	10.0
Clip	12.0
Labor	0.8
Mold amortization	0.5
Depreciation on machine	0.1
Overhead (including general supervision, allocation of executive salaries, and insurance)	2.7
Inspection	0.3
Material loss	0.3
Repairs	0.4
Power	0.1
Rent	0.3
Total cost produced	27.5
Cost purchased	40.0
Gross saving by own production	12.5
Profit on sale of clip to outsiders	1.0
Net saving by own production	11.5

The production of caps would not necessitate any additions to existing plant building or require a large investment of capital. The pen caps without the pocket clips would be produced under contract by outside manufacturers with molds furnished by the Sperry Company. One mold costing $3,000 was sufficient to produce 600,000 caps a year. It was assumed that the mold would last one year only. The pocket clips could be fastened on the pen caps by a new machine which the Sperry Company could purchase for $3,000, and which it was estimated would last five years. There was sufficient space in the plant to house this new machine.

The production of the pen caps was expected to reduce the costs of producing fountain pens. Hand labor previously had been necessary to insert the clips in the caps, and the expense of this operation had been partly responsible for the price of 40 cents per pen cap charged by the cap manufacturers. The installation by the Sperry Company of the new machine to insert the clips automatically was expected to cut the labor cost to such an extent that the total cost of the operation would be reduced. Against this saving would be offset the loss to the Sperry Company of the profit which it received from the sale of pocket clips to the company from which it purchased the pen caps. No net reduction in the number of pocket clips produced was expected, because the Sperry Company would use the clips instead of selling them and because the other customers for clips would continue their established practice of purchasing Sperry clips.

With the prospect of better control over quality than formerly, with little further capital investment necessary, and with anticipated savings of $69,000 annually, the Sperry Company undertook the production of the pen caps. When the results of the first year of operation were reviewed, it was discovered that the total cost per finished pen cap, after some small initial difficulties had been overcome and regular production had been established, were remarkably close to the original estimates.

Three years later, in 1932, the situation had changed substantially. Sales of Sperry fountain pens for the year, on the basis of sales for the first three months, were estimated at 150,000. At this volume, the cost of manufacturing each pen cap was estimated as follows:

	Cents
Bakelite cap	9.5
Clip	10.4
Labor	0.6
Mold amortization	1.5
Depreciation of machine	0.4
Overhead	2.7
Inspection	0.3
Material loss	0.3
Repairs	0.3
Power	0.1
Rent	0.3
Total	26.4

The suggestion was advanced that in order to increase the production of caps, an attempt be made to sell them to competing manufacturers of fountain pens. The sales manager pointed out, however,

that the Sperry Company had no contacts with these manufacturers, that it would be entering into competition with its own customers, that new molds would be required, and that the automatic insertion of clips would be more expensive if the machine had to be adjusted to different caps. Because of the objections of the sales manager, the suggestion was not considered further. As a result, a production estimate of 150,000 caps was accepted as final.

Outside manufacturers had reduced the price of pen caps from 40 cents in 1929 to 25 cents in 1932, and had made the quality of their caps as high and as certain as that of the Sperry product. Although the cost per cap to the Sperry Company was nearly the same in both those years, the cost in 1932 was higher than the price at which the caps could have been purchased from outside producers. Nevertheless the president determined to continue the production of pen caps. In computing the total cost of the fountain pen, however, he used a figure of 21.5 cents for the cost of the pen cap. This figure for the cost per cap resulted from omitting the charges for mold amortization, depreciation on the machine, overhead expense, and rent.

Did the Sperry Company make a correct analysis of the cost of producing pen caps at the time it prepared its estimates in 1929?

In 1932, was the president's estimate of costs based on correct analysis for the purpose of determining whether to continue to produce caps or to buy them from outside sources?

6. Stringham Manufacturing Company

DEPARTMENTAL PROFITS AND LOSSES

The Stringham Manufacturing Company had not shown a profit since 1933; and the profit and loss statement for the year ending December 31, 1936, as given in Exhibit 1, reported a loss of $68,338.

When this statement was presented to the board of directors on February 2, 1937, they decided that new executive ability was needed in the company. Mr. Jackson, a man experienced in the manufacture of products similar to those of the Stringham Manufacturing Company, was therefore elected president of the company to assume office on March 1. He was given full authority to make any necessary changes in order to put the company on a profitable basis.

The Stringham Manufacturing Company made only three products: *A*, *B*, and *C*. All three were industrial products used in the

EXHIBIT 1

STRINGHAM MANUFACTURING COMPANY

Profit and Loss Statement for Year Ending December 31, 1936

Gross sales		$4,235,762
Cash discount		62,631
Net sales		$4,173,131
Cost of manufacturing		3,011,903
Manufacturing profit		$1,161,228
Deduct: Selling expense	$735,295	
General administration	261,208	
Depreciation	183,376	1,179,879
Loss		$ 18,651
Add: Other income		8,426
Net loss before bond interest		$ 10,225
Deduct: Interest on bonds		58,113
Net loss after all charges		$ 68,338

manufacturing processes of other industries and were sold directly to the users by company salesmen, each of whom sold all three products but not in the same proportions. Salesmen were paid straight salaries without commissions.

The Stringham Manufacturing Company was one of 12 companies making products similar to *A*, *B*, and *C*. Most of the other companies, however, manufactured more than just these three products. In 1936, the Stringham Company had made about 10% of the industry's total sales of products of type *A*, 8% of *B*, and 12% of *C*. The selling prices were 98 cents per hundred pounds for *A*, $1.03 per hundred pounds for *B*, and $1.10 per hundred pounds for *C*. These prices were set by a strong competitor, the Brayden Company, which dominated the field. It was customary for the Brayden Company to announce its prices at the beginning of each year, and for all other companies to adopt the same prices. There was practically no price cutting in the industry, and the only reduction from the established selling price was in the form of cash discounts. Because the products of all 12 companies were quite similar and were consumed by industrial establishments, the management of the Stringham Manufacturing Company had always reasoned that it could not successfully increase its price. Although good will and established relations were of some importance, it believed that any increase in price would induce substitution of competitors' products, with the result that the company would lose business. Because the Brayden Company was in a strong enough financial position so that

EXHIBIT 2

STRINGHAM MANUFACTURING COMPANY

Analysis of Profit and Loss by Departments
Year Ending December 31, 1936

	Product *A*		Product *B*		Product *C*		Total (Thousands)	Direct	Allocated	Basis of Allocation
	Thousands	Per cwt.	Thousands	Per cwt.	Thousands	Per cwt.				
Rent	$ 235	11.02¢	$ 183	17.77¢	$ 155	15.70¢	$ 573	...	x	Square feet
Property taxes	25	1.17	20	1.94	16	1.62	61	...	x	Square feet
Property insurance	21	0.98	16	1.55	21	2.13	58	...	x	Value of equipment
Compensation insurance	33	1.55	23	2.23	18	1.82	74	...	x	Direct labor
Direct labor	517	24.25	356	34.57	275	27.86	1,148	x		
Indirect labor	159	7.46	109	10.59	85	8.61	353	...	x	Direct labor
Power	9	0.42	10	0.97	12	1.22	31	...	x	Machine hours
Light and heat	6	0.28	5	0.49	4	0.41	15	...	x	Square feet
Building service	4	0.19	3	0.30	3	0.30	10	...	x	Square feet
Materials	391	18.34	112	10.88	115	11.65	618	x		
Supplies	21	0.98	19	1.85	14	1.42	54	x		
Repairs	7	0.33	6	0.58	4	0.41	17	x		
Total	$1,428	66.97¢	$ 862	83.72¢	$ 722	73.15¢	$3,012			
Selling expense	364	17.08	183	17.78	188	19.05	735	...	x	Dollar value of sales
General administrative	138	6.47	52	5.05	71	7.19	261	...	x	Dollar value of sales
Depreciation	66	3.10	51	4.95	66	6.69	183	...	x	Value of equipment
Interest	21	0.98	16	1.55	21	2.13	58	...	x	Value of equipment
Total cost	$2,017	94.60¢	$1,164	113.05¢	$1,068	108.21¢	$4,249			
Less: Other income	4	0.19	2	0.20	2	0.20	8	...	x	Dollar value of sales
	$2,013	94.41¢	$1,162	112.85¢	$1,066	108.01¢	$4,241			
Sales (net)	2,067	96.94	1,039	100.91	1,067	108.11	4,173			
Profit or loss	$ 54	2.53¢	$ 123*	11.94¢*	$ 1	0.10¢	$ 68*			
Unit sales	2,132,191 cwt.		1,029,654 cwt.		986,974 cwt.					
Quoted selling price	$0.98		$1.03		$1.10					
Cash discounts taken (% of sales)	1.08%		2.03%		1.72%		1.48%			

* Loss.

it could sell below cost, if necessary, to meet competition and maintain its leadership, competitors only rarely attempted to cut prices. Whenever price cuts had been attempted, the results had been the same: the Brayden Company and all other competitors met the reduction in price, and the industry as a whole sold about the same number of units as always, but at lower prices. Thus everyone was worse off than before. This situation continued until the Brayden Company was again able to become the stabilizing influence in the industry either by the failure of the price-cutting company or by a general recognition of the futility of price cutting.

Mr. Jackson, after preliminary study, came to the conclusion that no immediate drastic action would be desirable. He decided to study past operating records and watch the results until the six months ending June 30 had elapsed. Accordingly, he called upon the accounting department to furnish detailed statements of earnings and expenses by products for the year ending December 31, 1936. Mr. Jackson also asked that these statements be accompanied by an explanation of the nature of the costs, with reference to their future behavior, especially in 1937.

The reports submitted by the accounting department are shown in Exhibits 2 and 3.

Such reports had never before been prepared, and Mr. Jackson transmitted copies to the board of directors in order that its members might be familiar with the method of analysis. The chairman of the board became much interested and recommended that product *B* be dropped from the line immediately, even before the period of preliminary investigation by Mr. Jackson was completed. He argued that it would be a practical impossibility to reduce expenses on item *B* 12 cents per unit (cwt.). He advocated, at the same time, the adoption of economy measures designed to make item *C* more profitable.

Mr. Jackson, however, invoked the blanket authority which had been given to him and insisted on continuing the manufacture of all three products. Meanwhile, in order to have better control of operations, he had the accounting department temporarily adopt as standard costs the costs per hundred pounds which had been arrived at in analyzing the profit and loss statement for 1936 (Exhibit 2), and furnish him with monthly profit and loss statements made up by using these standard costs. He employed these reports as a basis for recommendations for minor changes in production or selling activities, but still reserved decision on the major problems until the report for the six months ending in June should become available.

EXHIBIT 3

STRINGHAM MANUFACTURING COMPANY

Accounting Department's Explanation of Costs

Rent	Fixed	Amount of rent is established by a lease which still has 15 years to run.
Property taxes	Almost fixed	The lease requires that the Stringham Manufacturing Company pay the taxes; assessed valuation has remained constant since 1933, with a slightly increasing rate. Variation will be entirely independent of volume, and the amount of variation will be small within the next two or three years.
Property insurance	Fixed	This expense is fixed and paid in advance until June, 1939, under a three-year policy.
Compensation insurance	Variable	An established rate on direct labor and a slightly different rate for parts of indirect labor; but 5% of direct and indirect labor taken together should be a reasonably accurate figure.
Direct labor	Variable	Average costs as shown in Exhibit 2 are accurate; union workers are paid the going rate in the community. There are no present prospects of unusual labor demands.
Indirect labor	Almost fixed	The indirect labor is done also by union laborers, and the cost is very nearly fixed within range of operation between 1½ and 5 million dollars.
Power	Variable	Average costs as shown in Exhibit 2 are accurate; the rates are fixed under a long-term contract with the public utility corporation.
Light and heat	Almost fixed	This cost remains practically fixed at all scales of operation; the cost of electricity for light, which is about one-third of this item, is fixed by the contract with the public utility corporation. Heat, the remaining two-thirds of the expense, will vary slightly with the cost of fuel.
Building service	Fixed	This item includes miscellaneous building supplies, cleaning activities, and the like. So long as the business is maintained at a fairly normal rate of operation, this expense varies only slightly.
Materials	Variable	Materials are purchased at market prices; waste is allowed for, and the average costs as shown in Exhibit 2 are accurate.
Supplies	Variable	Supplies are purchased at market prices, and average costs as shown in Exhibit 2 are accurate.
Repairs	Variable	While the upper and lower limits of expenditures for repairs are fixed, this expense varies almost directly with volume within the normal range of operation.
Selling expense General administrative Depreciation Interest Other income		These items for all practical purposes are fixed within a normal range of activity. In other words, without a definite change in policy they will remain nearly fixed with a volume of output between 1½ and 5 million dollars per year.
Cash discounts		The average cash discount taken by customers on each product remains about the same from year to year. The percentages for *A*, *B*, and *C*, as shown in Exhibit 2, are approximately correct.

Exhibit 4

Stringham Manufacturing Company

Profit and Loss Statement by Departments, at Standard, Showing Variations of Actual Costs from Standard, January 1 to June 30, 1937

	Product *A*		Product *B*		Product *C*		Total Standard (Thousands)	Total Actual (Thousands)	Variations + = Standard Exceeds Actual − = Actual Exceeds Standard (Thousands)
	Unit* Standard	Total at Standard (Thousands)	Unit* Standard	Total at Standard (Thousands)	Unit* Standard	Total at Standard (Thousands)			
Rent	11.02¢	$110	17.77¢	$127	15.70¢	$ 79	$ 316	$ 286	+$30
Property taxes	1.17	12	1.94	14	1.62	8	34	31	+ 3
Property insurance	0.98	10	1.55	11	2.13	11	32	29	+ 3
Compensation insurance	1.55	15	2.23	16	1.82	9	40	41	− 1
Direct labor	24.25	242	34.57	246	27.86	140	628	633	− 5
Indirect labor	7.46	74	10.59	75	8.61	43	192	179	+ 13
Power	0.42	4	0.97	7	1.22	6	17	17	
Light and heat	0.28	3	0.49	4	0.41	2	9	8	+ 1
Building service	0.19	2	0.30	2	0.30	2	6	4	+ 2
Materials	18.34	183	10.88	77	11.65	58	318	315	+ 3
Supplies	0.98	10	1.85	13	1.42	7	30	30	
Repairs	0.33	3	0.58	4	0.41	2	9	10	− 1
Total	66.97¢	$668	83.72¢	$596	73.15¢	$367	$1,631	$1,583	+$48
Selling expense	17.08	170	17.78	127	19.05	95	392	369	+ 23
General administrative	6.47	64	5.05	36	7.19	36	136	131	+ 5
Depreciation	3.10	31	4.95	35	6.69	33	99	91	+ 8
Interest	0.98	10	1.55	11	2.13	11	32	29	+ 3
Total cost	94.60¢	$943	113.05¢	$805	108.21¢	$542	$2,290	$2,203	+$87
Less: Other income	0.19	2	0.20	1	0.20	1	4	4	
	94.41¢	$941	112.85¢	$804	108.01¢	$541	$2,286	$2,199	+$87
Actual sales	96.94	966	100.91	719	108.11	542	2,227	2,227	
Profit or loss	2.53¢	$ 25	11.94¢†	$ 85†	0.10¢	$ 1	$ 59†	$ 28	+$87
Unit sales	996,859		712,102		501,276				

* Unit = cwt.
† Loss.

Early in July, 1937, he received from the accounting department the statement shown in Exhibit 4. This presented the cumulative standard cost figures in the same form in which he had received them monthly, plus an analysis of variations of actual costs from standard.

After the successful operations during the first six months of 1937, the volume of business fell off during the last half of the year. Although the Stringham Manufacturing Company retained its share of the market, the sales of the entire industry dropped so that the company barely showed a profit in the last six months.

At the beginning of 1938, the Brayden Company announced that it was reducing its price for item *A* from 98 cents to 93 cents per 100 pounds. Mr. Jackson asked the opinion of the board of directors concerning the advisability of following the leadership of the Brayden Company; he estimated that if the Stringham Company reduced the price of item *A* to 93 cents, its sales for the first six months of 1938 would be approximately 1,000,000 cwt.; and that if it maintained its current price, sales would drop to 750,000 cwt.

Mr. Jackson pointed out that business activity was falling off and that there would in all probability be a general decline in prices. He reported that according to the accounting department's current estimates the standard costs which the company was using would apply during the next period except for the following adjustments:

Direct labor expenses would be about 2% below standard.
Materials and supplies would be about 5% below standard.
Light and heat would be reduced by a small amount, probably less than ½ of 1%.

The chairman of the board said that even with these cost reductions the selling price would be below cost if the new reduced price was adopted. He therefore favored maintaining the higher price which was then in effect, since no business, in his opinion, could make a profit selling an important product below cost.

Was the decision correct, in the spring of 1937, not to drop product *B*?

In early 1938, should the company have reduced the price of product *A* to 93 cents?

7. Larson Company

ACCEPTING ORDERS AT LOW PRICES TO HELP MEET OVERHEAD

In April, 1939, the Larson Company was approaching the end of its busy season and was seeking work to keep its factory running. The president had personally been doing the selling work involved in securing the necessary orders. In the course of his activity, he unearthed two possible jobs, either of which, in addition to the company's regular orders, would keep the factory operating at capacity for about six weeks. Both could not be accepted. To help him decide which order to take, he asked the accounting department to furnish him cost estimates on each of the jobs.

The Larson Company was a large textile manufacturing concern, producing a number of types of textile products, including blankets, sheets, and linings. Most of its output was sold to jobbers, chain stores, institutional buyers, manufacturers, and other purchasers of large quantities. At times, however, when the manufacture of goods for such customers did not keep the factory operating at capacity, the president sought other orders to prevent closing down part of the mill.

One of the two orders which was offered to the company in April, 1939, was from an institutional buyer for 27,000 dozen 63-inch by 108-inch sheets; the other was from a furniture manufacturer for 900,000 yards of grey goods to be used for linings. The proposed prices were $7.5095 net per dozen for the sheets and 22½ cents per yard for the grey goods. The estimates furnished by the cost department were as shown in Exhibits 1 and 2.

Exhibit 1

Larson Company

Estimated Cost of Order for 27,000 Dozen 63-Inch by 108-Inch Sheets

	Cents per Dozen
Labor (including 25.05 cents fixed labor costs)	250.45 cents
Expenses of manufacturing (including 101.42 cents fixed costs)	169.04
Process material	40.92
Raw material	282.40
Freight	8.95
Total factory cost	751.76 cents
Selling and administrative expense (5.6% of total factory cost)*	42.10
Total cost	793.86 cents
Selling price	750.95
Loss	42.91 cents
	×27,000 dozen
Total loss	$11,586

* Assigned by type of product on basis of past experience.

EXHIBIT 2

LARSON COMPANY

Estimated Cost of Order for 900,000 Yards of Grey Goods

	Cents per Yard
Labor (including 0.67 cents fixed labor costs)	6.81 cents
Expenses of manufacturing (including 2.32 cents fixed costs)	3.86
Process material	0.18
Raw material	11.31
Total factory cost	22.16 cents
Selling and administrative expense (6.3% of total factory cost)*	1.40
Total cost	23.56 cents
Selling price	22.50
Loss	1.06 cents
	×900,000 yards
Total loss	$9,540

* Assigned by type of product on basis of past experience.

8. RODNEY MANUFACTURING COMPANY

ACCEPTING ORDERS AT LOW PRICES TO HELP MEET OVERHEAD

Mr. Ward became president of the Rodney Manufacturing Company late in 1938. During the year, the profit of the company had been disappointing, largely because of the sharp decline in sales volume occasioned by the general recession in business. He therefore directed his immediate attention primarily to studying ways of improving the company's defense against cyclical movements in business.

The Rodney Manufacturing Company made special equipment, accessories, and parts used in the textile industry. During prosperous years, about 40% of the company's annual volume consisted of sales of parts and accessories, and approximately 60% of new machines. In depression years, the sales of accessories and parts declined only slightly from the prosperity level, but the sales of new machines ceased almost entirely. Mr. Ward attributed the maintenance of sales of accessories and parts to the fact that textile mills usually operated throughout depressions at not less than 75% of capacity; textile prices fell, but unit sales volume was maintained. Since accessories and parts were needed so long as textile mills were operating, that portion of the Rodney Company's sales was reduced only slightly. Orders for new machines, on the other hand, prac-

tically ceased, since the textile mills were unwilling to invest money in new equipment. Although the mills were operating at a favorable rate of capacity, they were losing money because of the low prices they obtained for their finished products.

The machines manufactured by the Rodney Company were highly specialized; consequently, selling expenses were large. A study revealed that, when equipment was installed in a new mill, standardized machines accounted for 80% of the mill's total expenditure for machines and tools and the Rodney machines accounted for the remaining 20%. Mr. Ward estimated, however, that the total selling expense for the Rodney machines was about equal to the total selling expense for the standardized machines. A substantial portion of the selling expense of the Rodney Company was incurred for engineering, such as planning the best type of installations and instructing the customer in the use of the machines. Because of the highly erratic course of its sales, the company paid its salesmen straight salaries. It therefore had a large fixed salary expense for salesmen as well as for its engineering staff.

In December, 1938, the Rodney Manufacturing Company was operating at about 50% of its 1937 rate and was producing only accessories and repair parts. Because of its inability to give prompt delivery of repair parts, the company occasionally lost some of this business to independent manufacturers located in the same cities with companies using Rodney machines. Mr. Ward believed that Rodney customers bought parts from such manufacturers, not because of price, but only because parts were necessary in order to keep their factories operating.

Early in 1939, the president outlined a three-point program designed to help solve the company's problems. This program comprised the following changes and objectives:

1. Reorganization of the company's routine for filling orders for repair parts and accessories to effect a reduction in time between the receipt of an order and the shipping of the part.
2. Addition to the company's line of a supply item to be manufactured for use by the textile industry. Mr. Ward believed that such a product, being similar to the company's own repair parts, would fluctuate only slightly in sales volume.
3. Acceptance of orders for manufacturing small parts for other industries at prices only slightly above factory costs. The president believed that, in order to compete with other machine shops, it would be necessary to include only factory costs in the calculation of prices, inasmuch as the Rodney Company's overhead, because of large selling and developmental expenses, was higher than that of general machine shops.

The first objective in this program was accomplished by changes in the staff, the physical equipment, and the routing of orders. By July, 1939, 60% of the orders for parts and accessories were being filled the same day that they were received, and 80% within two days. A definite increase in customer good will was noticeable; and although the results were intangible, the president believed that the change had been well worth while.

No supply item that would meet the company's requirements had been found by July, 1939.

The third part of the program received considerable attention from the president. In the course of the spring, he accepted from a radio manufacturer an order for 160,000 small parts. The price was 24 cents; delivery was to be made during June and July. The

EXHIBIT 1

RODNEY MANUFACTURING COMPANY

Cost Report of Department 17, May and June, 1939

	May	June
Indirect labor:		
Superintendent's salary	$ 200	$ 200
Superintendence (hourly)	91	330
Clerical	80	184
Setup time	400	460
Overtime cost	55	154
Inspection	388	417
Total indirect labor	$ 1,214	$ 1,745
Supplies	59	209
Small tools	365	948
Maintenance of tools	498	844
Total direct burden	$ 2,136	$ 3,746
Fixed charges*	789	789
Indirect expense†	3,966	3,966
Direct labor	3,265	6,886
Material	9,091	21,059
Total factory cost	$19,247	$36,446
Selling, general, and administrative expense‡	19,247	36,446
Total cost	$38,494	$72,892
Units produced:		
Rodney parts	64,000	60,000
Radio parts	.....	83,000

* Rent, local taxes, depreciation, and so on.

† Factory, administrative, and engineering expense assigned to the department at the beginning of the year on the basis of the direct labor expense in the previous year.

‡ 100 % of the factory cost.

president personally had secured the order; hence there had been no increase in selling expense.

On July 12, the president received the monthly cost report for the department in which the parts were manufactured. This report (Exhibit 1) showed data both for June, the first month in which the new parts were produced, and for the previous month.

Shortly after the middle of July, the Rodney Company learned that the parts as delivered were entirely satisfactory and that, if the price was maintained at 24 cents, the radio manufacturer would place an order for an additional 160,000 parts, for delivery during August and September. The customer also stated that, if the price was reduced to 23 cents, he would order 320,000 parts, for delivery during August, September, October, and November.

9. Shediac Company

Decision whether to meet competitive price

Shortly after the NRA was declared unconstitutional, in the late spring of 1935, the executives of the Shediac Company, a manufacturer of rubber footwear, were confronted with a pricing problem. They learned that on a highly competitive item of footwear, which had accounted for 10% of the company's physical volume of sales in 1934, other manufacturers planned to reduce their prices substantially for the next selling season. It was proposed that the Shediac Company either make some price reduction or discontinue manufacture of this item of footwear for the season. The Shediac Company had fairly steady sales and production throughout the year on its business in the aggregate; but this particular item was produced and sold only during five months in the fall and winter, when activity in some of the company's other product groups was relatively low. The item was trade-marked, but it was very similar in quality and service to several competing articles. It was advertised only as part of the company's general line.

From past experience, the Shediac Company had learned that attempts to sell this product at prices much above those of competitors resulted in large losses of sales. The sales manager estimated that if competing prices were lower than the Shediac Company's, unit[1] sales would be as follows:

[1] Throughout this case, the "unit" is one pair.

Shediac Company's Price	Expected Competitive Price	Estimated Units to Be Sold by Shediac Company
65¢	55¢	150,000
60	55	275,000
55	55	470,000

In the 1934 fiscal year, 470,000 units of the product under discussion had been sold to retailers at a net price of 65 cents per unit; retailers had secured a gross margin ranging from 30% to 35%. Under the NRA code, the price had been maintained at 65 cents net, and all producers had enjoyed steady sales. The sales manager was confident that for the next selling season the competitive price would be cut to 55 cents net per unit. The company had no lower-price items which it could effectively substitute in sales to retailers, because the latter were unwilling to attempt substitution of inferior goods. Retailers had found in the past that inferior goods of the Shediac line were not well received, since there were on the market products of approximately similar character that could be had at prices somewhat below the prices charged for the Shediac products. Superior quality of the product made by the Shediac Company and its competitors, so long as maintained, apparently was conducive to ready sales.

The sales manager of the Shediac Company did not expect that the volume lost by discontinuing the item under consideration would be replaced by any resulting increase in the sales of other Shediac articles. At the same time, he did not anticipate a general increase in the sales of other products to such an extent that there would be any production difficulties in turning out the product if the company decided to keep it in the line. On the infrequent occasions in the past when the company had refused to meet competitive prices and had temporarily discontinued manufacturing certain items, the sales of such products had been easily regained when, at a later time, the company resumed manufacture of the discontinued items in the line and offered them at competitive prices.

All the company's products were sold direct to retailers by the same force of salesmen. Salesmen were paid a salary and a commission of 1 cent a unit. Frequency of call and number of customers called on would not be affected, executives concluded, by the decision reached on the product under discussion.

The products manufactured by the Shediac Company all were made by nearly the same processing procedure. Each item in the

line went through the eight departments of the plant and required almost the same proportion of the total manufacturing time in each department. According to the company's usual method of cost calculation, the cost per unit for the next selling season would be 60.67 cents, made up as shown in Exhibit 1.

EXHIBIT 1

SHEDIAC COMPANY

Cost Schedule

(Per unit, based on 1934 quantity and 1935 cost rates)

Department	Burden Rate (Percentage of direct labor)	Direct Labor	Burden*	Direct Labor plus Burden
1	150%	$0.0020	$0.0030	$0.0050
2	200	0.0083	0.0166	0.0249
3	135	0.0099	0.0134	0.0233
4	143	0.0314	0.0449	0.0763
5	83	0.0431	0.0358	0.0789
6	92	0.0261	0.0240	0.0501
7	85	0.0328	0.0279	0.0607
8	110	0.0085	0.0094	0.0179
Total direct labor and department burden				$0.3371
Materials				0.1500
Supplies				0.0201
Packages				0.0175
Spoilage				0.0031
Royalty				0.0115†
Total				$0.5393
Sales expense (8.5%)				0.0458
Administration (4%)				0.0216
Total cost				$0.6067

* About one-third of total department burden was regarded as fixed over any period of a few years.

† On actual production only; no minimum.

Should the Shediac Company have discontinued the item for the next selling season?

If it continued production, should the company have planned to set the price at 65 cents, 60 cents, or 55 cents net per unit?

10. AFG Company

Decision whether to meet competitive price

The AFG Company, manufacturers of a wide line of consumers' goods, was the largest company in its field. Many of its competitors were small, and all had a much less extensive line of products. In July, 1934, the AFG Company had raised its price for item 623, an important and highly competitive article which was the sole product of one of its departments, from 75 cents to $1 in order to make the profit on this item comparable to that of the other items in its line. Although the company's current financial position was strong, the directors desired particularly to build up the company's surplus, which had been drastically reduced by a revaluation of plant and equipment. Competitors of the AFG Company had not advanced their prices on products similar to item 623 in 1934 or 1935. The AFG Company alone had taken this step, and the physical volume of its sales of this item had declined in 1934 and 1935. In the latter year, the industry as a whole had experienced an increase in volume of this type of product, as shown by the following figures:

Selected Fiscal Years July 1–June 30	Physical Volume of Production (Units)		Average Competitive Price	AFG Company Price
	Total for Industry	AFG Company Item 623		
1928–29	1,300,000	430,000	$1.00	$1.00
1929–30	1,200,000	400,000	1.00	1.00
1931–32	750,000	250,000	0.75	0.75
1933–34	1,000,000	330,000	0.75	0.75
1934–35	1,000,000	300,000	0.75	1.00
1935–36	1,250,000	250,000	0.75	1.00

The sales manager believed that, with continued business improvement, the total sales for the industry in 1936–37 would be at least 1,320,000 units. He was certain that the AFG Company could readily sell 25% of the total units to be sold by the industry if the company met the competitive price. And he was equally certain that the company would continue to lose volume if the competitive price were not met. He believed that, at the worst, the company's sales of item 623 would probably not go below 150,000 units, because

many consumers were convinced of the superior qualities of the AFG product and would not be led by mere price appeal to purchase other brands.

Up to July, 1936, competitors, following their usual practice of waiting for the AFG Company, had not announced their prices for the current year. If the AFG Company held its price at $1, competitors might raise their prices to that level; but the sales manager of the AFG Company was far from certain that they would. If the AFG Company again put its price at 75 cents, the sales manager believed that competitors would not cut their prices below that point because they all were known to have higher costs than the AFG Company and many were experiencing difficulties. It was the custom of the AFG Company annually to announce its prices in July for the following 12 months and to suggest retail prices of its leading items in letters to its retail customers. Once announced, the prices were changed only if radical changes occurred in business conditions. After the current schedule of prices had been sent out, all the retailers who handled the company's products were called upon by AFG salesmen, each of whom sold the company's full line. Salesmen were paid on a straight salary basis.

The budget director, when told by the sales manager that no reliable volume estimates for item 623 could be developed until the

EXHIBIT 1

AFG COMPANY

Estimated Cost of Item 623 for Different Volumes of Production

(Cents per unit)

	150,000	200,000	250,000	300,000	330,000	400,000
Direct labor	20.00¢	19.50¢	19.00¢	18.50¢	19.00¢	20.00¢
Material	10.00	10.00	10.00	10.00	10.00	10.00
Spoilage	1.00	0.98	0.97	0.95	0.97	1.00
Department burden						
Class A*	3.00	2.80	2.50	2.50	2.50	2.50
Class B†	20.00	15.00	12.00	10.00	9.00	7.50
General factory burden‡	6.00	5.85	5.70	5.55	5.70	6.00
Factory cost	60.00¢	54.13¢	50.17¢	47.50¢	47.17¢	47.00¢
Selling and administrative expense§	40.00	36.09	33.44	31.67	31.45	31.33
Total	100.00¢	90.22¢	83.61¢	79.17¢	78.62¢	78.33¢

* Indirect labor, supplies, and repairs.
† Supervision, depreciation, etc.
‡ 30 % of direct labor.
§ 66⅔ % of factory cost.

price question was settled, called for cost figures. The cost figures as submitted (Exhibit 1) gave the cost per unit of item 623 for different volumes of production, all corrected for current prices of labor and materials and for depreciation on adjusted book values. With the exception of the figures for production of 150,000 and 200,000 units, the figures were based on previous experience. The company had had no experience in producing fewer than 250,000 units.

The budget director studied the situation with the sales manager in order to formulate a joint recommendation to the president on the price of item 623 for 1936–37.

As a first step in preparing this recommendation, the two executives made calculations of the probable results of setting the price at $1 and at 75 cents.

In choosing between $1 and 75 cents, which price should the executives have selected?

What relation did this company's desire to build up surplus have to price or rate of operation?[1]

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[1] Early in 1927, a new manager was employed to take charge of the Eastern Fine Cloth Company. This step was taken because heavy losses had been incurred during the preceding six years and the directors believed that a change in management was necessary if the concern was to operate again on a profitable basis such as had been maintained before 1921.

The new manager found the plant in poor physical condition and the operating organization incompetent. He therefore set about developing an efficient staff and improving the property by the installation of labor-saving equipment. By the end of the year, the reorganization was fairly well completed and the company had attained a reasonable degree of operating efficiency.

Although the improvement in conditions brought about in this manner helped the general situation, it did not solve the problem which confronted the manager. The unit cost of making goods had been reduced by the improvement in the plant and organization; but even with selling prices based upon the new costs, only enough business could be obtained to operate the factory at one-half to two-thirds its normal rate; and at such a percentage of operation, profits could not be realized.

The company was selling its products in a highly competitive market; and although on the basis of its unit costs it could sell the high-price fabrics in competition with other mills, there was only a limited demand for such goods. On the other hand, the manager knew that the costs on low-price fabrics, where it was possible to get a large volume of sales, were higher for the Eastern Fine Cloth Company than for some of its competitors. Here, therefore, the company was at a disadvantage.

The available funds of the company, which had been obtained through the personal endorsement of the directors and chief stockholders, were becoming depleted. It was therefore the conclusion of the manager that, notwithstanding the disadvantages under which the company operated, it was necessary, in view of the financial condition of the concern, to run the plant at capacity volume, which was about 15% above normal. (For a widely contrasting situation, see the case of The International Nickel Company of Canada, Limited, p. 382.)

11. Stopford-Wynn Company

Utilizing the spare capacity of a machine

The Stopford-Wynn Company manufactured floor covering in attractive colors and designs. The floor covering was produced in two principal forms, with and without borders. The product with borders was called "the rug" and was more expensive to manufacture. The product without borders, called "carpeting," was produced in long rolls and sold in that form to be cut according to the consumer's specifications. The carpeting was produced in two widths, 6 feet and 9 feet. In January, 1930, the 6-foot width was in such demand that the production manager was using the 9-foot machine to turn out the 6-foot width. He was, therefore, confronted with the problem of utilizing the spare capacity of the machine.

He first considered the possibility of producing the 9-foot carpeting and cutting it into two rolls of 6 feet and 3 feet. The sales manager disapproved of this plan, because the 3-foot width would interfere with the sales of the 6-foot carpeting. If a great quantity of the 3-foot width were produced, it would have to be sold at lower prices. The 6-foot carpeting was selling at a satisfactory profit.

The sales manager suggested that the extra 3-foot capacity of the machine be used to turn out small rugs with borders. These rugs, 3 feet by 18 inches, could be made up in colors and patterns to match the larger rugs. They could be sold through the same outlets, as companion pieces to the larger rugs, to be used in corners and in places where wear was especially heavy. They would also command a good market as individual pieces.

The production manager called for a report on the factory cost of the small rugs. The cost of the 9-foot machine was $230,000 installed; including supplementary equipment, floor space, and so on, the process represented an investment of $1,150,000. The cost of the 6-foot carpeting on the 9-foot machine was given as $46.14 per hundred square yards, made up as follows:

Material	$30.40
Labor	4.28
Machine overhead	6.98
Other expenses	4.48
Total	$46.14

The cost of the 9-foot carpeting was $41.80 per hundred square yards. The expense of producing the 6-foot carpeting and the small rug together would be greater than the cost of the 9-foot carpeting

alone by $2.30 per hundred square yards, the cost of cutting and finishing.

On receiving the report of the production manager, the sales manager undertook to decide upon a sales price for the small rugs. The larger rugs were sold at $1.38 per square yard, the 6-foot carpeting at 94 cents per square yard, and the 9-foot carpeting at $1.04 per square yard. All the items were showing a reasonable profit.

What was the additional cost of producing the small rugs? Should any use have been made of this figure in pricing the small rugs?

12. Conmay Company

Negotiations for Purchase of Electric Power

The Conmay Company furnished local transportation for Hampton, Ohio, an industrial city with a population of about 100,000. The company's system, with 70 miles of track, used 9,300,000 kilowatt-hours of electricity annually. This was generated in the company's plant at a total annual cost of about $179,000. In 1922, the company was beginning to lose patronage because of the growing ownership of automobiles. The general manager, with a view to lowering expenses, suggested that the cost of power might be reduced by scrapping the power plant and purchasing energy from the station of the Hampton Power Company, which was less than a mile away.

Exhibit 1

Computed Cost of Generating Electricity in the Conmay Company's Plant, Based on an Annual Direct-Current Output of 9,300,000 Kilowatt-Hours with Coal at $6 per Gross Ton

	Cents per Kilowatt-Hour
Total costs, other than fuel	0.570
Fuel cost, coal at $6 per gross ton	0.724*
Total operating cost	1.294
Fixed charges on plant, $58,915 annually	0.633
Total cost per kilowatt-hour	1.927
Approximate total annual cost, 9,300,000 kilowatt-hours	$179,200

* Based on an estimated average use of 2.7 pounds of coal per kilowatt-hour.

The Hampton Power Company offered to enter into a cost-plus contract on terms which are described below. The general manager of the Conmay Company then undertook to determine the highest price at which the Conmay Company could afford to purchase its power.

On the basis of a coal cost of $6 a gross ton, a Conmay Company engineer computed the cost of power at the company's plant to be as shown in Exhibit 1.

The output of the Hampton Power Company's station, which supplied the city of Hampton and several neighboring communities, was about twice that of the Conmay Company. The generating equipment of the Hampton Power Company was ample to supply the Conmay Company's power needs, and was believed to be as reliable as that of the railway company. The average age of the Conmay Company's generators was 20 years.

The Conmay Company's load would increase the Hampton Power Company's output 50% and would lower its unit cost of production even if an additional generator had to be installed. The Hampton Power Company offered to take the Conmay Company's load at switchboard cost plus 20% for overhead and profit. Switchboard cost was defined as the actual average production cost for the total load at the Hampton Power Company's switchboard. The operating expense accounts to be included were specified. The proposed contract was to be for 20 years, subject to cancellation after 10 years.

If the Conmay Company accepted this offer and closed its own plant, its entire power requirements would be transmitted from the Hampton station through duplicate underground cables to a new substation which the Conmay Company would have to build. At that station, the electricity would be transformed from alternating current to direct current. The estimated cost of the substation was $110,000.

An estimate of the cost of power under the proposed contract was prepared by the Conmay Company's engineering department from data furnished by the Hampton Power Company, supplemented by estimates of the additional costs to be assumed by the Conmay Company. This estimate is summarized in Exhibit 2.

The book value of the Conmay Company's generating station less depreciation was $370,644, and the scrap value was estimated at $57,500. Annual taxes on this plant were $6,000, and insurance costs were $717; the remainder of the $58,915 annual fixed charges was depreciation on the plant.

EXHIBIT 2

ESTIMATED COST OF ELECTRICITY TO THE CONMAY COMPANY IF PURCHASED FROM THE HAMPTON POWER COMPANY ON PROPOSED COST-PLUS BASIS

	Cents per Kilowatt-Hour
Contract cost:	
Switchboard cost other than fuel for 20,000,000 kilowatt-hours output, alternating current	0.574
Switchboard cost other than fuel with output increased to 30,000,000 kilowatt-hours	0.383
Fuel cost, coal at $6 per gross ton	0.509*
Total switchboard costs	0.892
Plus 20% for overhead and profit	0.178
Total charge per kilowatt-hour by Hampton Power Company	1.070
Additional cost to Conmay Company:	
Margin against estimated loss of 10% in converting to direct current	0.119
Substation operating expenses, estimated at $5,000 annually	0.054
Fixed charges on new substation, 12% on investment of $110,000	0.142†
Total cost to Conmay Company	1.385
Annual cost, 9,300,000 kilowatt-hours	$128,800

* Based on an estimated average use of 1.90 pounds of coal per kilowatt-hour.
† Includes depreciation, taxes, insurance.

What was the highest price at which it would have been profitable for the Conmay Company to purchase its power?

What price per kilowatt-hour should the Conmay Company have suggested in its counter-offer?

C. COST AND DEMAND PROBLEMS

13. MILLMAN DRUG COMPANY

ALTERNATIVE PRICE AND PRODUCT POLICIES

In May, 1936, after the Millman Drug Company had installed a counter ice cream freezer in its Boston store, it was faced with the problem of establishing the price for Millman ice cream which would bring the largest profit.

The company operated two stores. The larger was in a secondary shopping area of Boston at the intersection of two traffic arteries. In the immediate vicinity, there were a few single residences and a large number of apartment houses, occupied, for the most part, by people with slightly higher-than-average income. The store building

itself was of a simple modern design, inside as well as outside. A unit of a cut-price drug chain was on an opposite corner; diagonally across was a unit of a local candy chain which sold high-quality ice cream of its own manufacture. The yearly sales volume of this Millman store was approximately $55,000.

The other store, located in a residential suburb whose inhabitants were in a distinctly higher-than-average income group, had been acquired in the early spring of 1936. Before the Millman Drug Company had purchased it, this had been an old-fashioned unit drugstore. Over a period of years, its annual volume had declined from a maximum of $22,000 to less than $12,000. Immediately the Millman Drug Company modernized the building and installed new fixtures. The management believed that the modernization program, together with the introduction of established Millman merchandising policies, would raise the volume of sales to the level attained by the Boston store.

Mr. Millman, treasurer of the company, was actively in charge of the Boston store. He attempted to operate the store according to sound policies, and regularly attended the annual retail druggists' conventions in order to familiarize himself with the latest suggestions on drugstore operation. He had not attempted to sell any general merchandise or electrical appliances, but had concentrated on those lines which, in his opinion, people traditionally expected to find in a drugstore.

Mr. Millman had always sought to serve high-quality ice cream both because he regarded it as good business policy to do so and because he, himself, had a taste for good ice cream and a strong dislike for any of inferior quality. He had regularly purchased from small manufacturers because he believed that they produced a better-quality ice cream than the larger ones. He believed that the smaller manufacturers, engaging solely in the ice cream business, made a better product than the larger ones, whose ice cream was more or less a by-product. In the years prior to 1936, Mr. Millman had bought ice cream from several small commercial manufacturers; but, one by one, these suppliers had all been absorbed by the larger companies. Mr. Millman thereupon had decided to install a counter freezer in the store and manufacture ice cream on the premises. The expenditures for new equipment amounted to approximately $2,000, which included, besides the freezer itself, storage cabinets, additional refrigerator capacity, and other incidentals.

In establishing the price policy for the new Millman ice cream, Mr. Millman believed that there were three possibilities open to him:

1. He could make an ice cream the same in quality as commercial ice cream at a cost below the price at which he could buy from manufacturers; sell it at the same price he had been charging for commercial ice cream; and thus increase profits by increasing the margin.
2. He could make an ice cream the same in quality as commercial ice cream, but, instead of maintaining the same price, try to obtain a larger volume of sales by selling at a reduced price, and increase profits by reason of the increased volume.
3. He could make an ice cream of higher quality than commercial ice cream but at approximately the same cost, maintain the same selling price, and trust that the public would recognize the better value and substantially increase its patronage.

The company had never kept very accurate records of its costs or the volume of its sales; but in the year prior to the installation of the counter freezer, the Boston store had sold 1,000 gallons of commercial ice cream. Sales of ice cream in the unit store at the suburban location had been practically negligible. The ice cream sold in the Boston store of the Millman Drug Company had cost 85 cents per gallon, and the retail price had been 60 cents per quart; sodas and sundaes had been sold at 10 cents. The ice cream served over the counter, whether plain or in sodas, sundaes, and ice cream drinks, sold at prices which were slightly higher in the aggregate than the bulk price of 60 cents per quart;[1] it was generally believed that the advantage in revenue from sales over the counter offset dipping losses.[2] The standard price of 60 cents per quart for commercial ice cream of regular quality was generally maintained in the neighborhood. In the chain drugstore on the opposite corner, however, packaged ice cream was sold for 55 cents per quart; and in the unit of the local candy chain, ice cream was sold for 80 cents per quart.

Before deciding upon a price for the new ice cream, Mr. Millman tried to gather as much information as possible from outside sources. Salesmen of counter freezers commonly estimated the cost of producing a standard-quality ice cream at about 75 cents per gallon; it was

[1] In the Millman store, a No. 12 scoop, which contained one-twelfth of a quart, was used for sundaes, and a No. 20 scoop, which contained one-twentieth of a quart, for sodas.

[2] In the manufacture of ice cream, a certain amount of air was forced into the ingredients by the beating process to give it smoothness and the proper lightness. When a scoop was dipped into a container of ice cream, it compressed the ingredients again and expelled a portion of the air, with the result that a given volume of scooped ice cream was greater, by weight, than a corresponding volume before the air was expelled. The loss, which was known as "dipping loss," might run as high as 30%.

The amount of air in ice cream depended on the "overrun," i.e., the expansion in volume allowed to take place during the beating. The common overrun was 90% to 100%. An overrun of less than 90% usually resulted in ice cream with too much body, more like a pudding, and an overrun much over 100% made it too airy and without sufficient body to maintain a pleasing flavor or texture. With a 100% overrun, for example, 2½ gallons of ingredients would make 5 gallons of ice cream, which, as explained above, might become only 4 gallons of "dipped" ice cream if the dipping loss was 20%.

their contention that a large portion of the cost of commercial ice cream manufacturers was absorbed in selling and delivery expense which could be eliminated by an independent manufacturer.[1] An estimate prepared by a salesman of counter freezers, showing the cost per gallon of producing 12,000 gallons per year with a counter freezer operated by a full-time employee, is given in Exhibit 1. When confronted with such estimates as this, commercial ice cream manufacturers commonly disputed the figures and insisted that the cost of producing ice cream in a counter freezer would be above their delivered price if proper charges for overhead, operating expenses, labor, and repairs were included. Mr. Millman found that most of the stores which had installed counter freezers had adopted the policy of producing ice cream as cheaply as possible, without stressing quality, and that, with a pure price appeal, volume had ordinarily been extended somewhat. He was unable, however, to obtain any reliable estimates. He was most impressed by the experience of another retail druggist who had undertaken to manufacture a very high-quality ice cream and sell it in competition with commercial ice creams at the prevailing price. This druggist reported that the volume of sales had more than doubled after the introduction of the high-quality product but that the cost per gallon was no greater than the price he had paid for commercial ice cream.

Mr. Millman estimated that, if he manufactured a high-quality ice cream and offered it at the prevailing price of 60 cents, he could sell 3,600 gallons a year in the Boston store and 2,400 gallons a year in the suburban store. Although the freezer which he had installed had a potential capacity of about 20,000 gallons per year, he prepared the estimates that are shown in Exhibit 2 on the basis of a yearly volume of 6,000 gallons. He included no interstore delivery charges in his estimate of expenses, because he planned that delivery from the Boston store to the suburban store should be made in the personal cars of employees and that no special trips should be made to deliver ice cream alone. A cost which was not shown in the calculations was that for dipping loss, which, from the experience of others, Mr. Millman estimated would run to about 25%. He anticipated no change in retail delivery costs. Although he maintained a delivery

[1] The International Association of Ice Cream Manufacturers reported that in 1934 the expense of ice cream manufacturers was distributed as follows:

Ingredients	35.00%
Manufacturing	23.22
Selling	10.87
Delivery and customers' service	23.79
Administration	7.12
	100.00%

service for the entire store, he had never encouraged customers to ask for delivery. By far the greater part of the business was on a cash and carry basis.

EXHIBIT 1

MILLMAN DRUG COMPANY

Estimates Furnished by a Counter Freezer Salesman Showing Cost per Gallon of Producing 12,000 Gallons of Ice Cream per Year in a Counter Freezer

	Total Cost for Output of 12,000 Gallons	Cost per Gallon without Flavoring
12% mix*	.....	$0.40
Power	.....	0.033
Other expenses:		
Depreciation (including delivery truck)	$ 450	
Insurance	50	
Taxes	35	
Repairs	135	
Delivery to branch stores (gas and oil)	25	
Salaries	1,600	
Rent	265	
Interest on invested capital (6% on $3,500)	210	
Promotion	160	
	$2,930	0.244
Total estimated cost (without flavoring)		$0.677
Estimated cost per gallon for flavoring:		
Vanilla		$0.006
Chocolate		0.036
Coffee		0.030
Strawberry		0.120
Maple walnut		0.092
Frozen pudding		0.110
Sherbet		0.272

* "Mix" is the basis of all ice cream and contains whole milk, eggs, sugar, and gelatin; the percentage figures (for example, 12 %) represent the percentage of butterfat content. Retailers with counter freezers purchase mix usually from some dairy or commercial ice cream manufacturer. It is impractical for them to make it themselves, because the law requires that mix be pasteurized and the cost of the pasteurizing equipment would be prohibitive. The Commonwealth of Massachusetts requires at least a 10 % butterfat content for all ice cream.

Before the installation of the counter freezer, there had been one soda fountain attendant. He had never been kept busy at all times and had frequently helped in other parts of the store. Mr. Millman estimated that no additional employees would be needed to manufacture the ice cream; the work could be done in a few hours during the morning when the soda fountain attendant had little else to do. If a yearly volume of 3,600 gallons were obtained in the Boston store, on the other hand, it would be necessary to have two soda fountain attendants on duty during the evening hours.

EXHIBIT 2

MILLMAN DRUG COMPANY

Mr. Millman's Estimates of the Cost per Gallon of Producing 6,000 Gallons of Ice Cream per Year in a Counter Freezer

	Total Cost for Output of 6,000 Gallons	Cost per Gallon without Flavoring
18% mix (one-half gallon at $1.10 per gallon with 100% overrun)	....	$0.55
Labor (4 hours labor to produce 50 gallons at 50 cents per hour)	....	0.04
Power	....	0.032
Other expenses:		
Depreciation (10% on $2,000)	$200	
Insurance and taxes	75	
Repairs	100	
Rent	175	
Advertising	100	
	$650	0.108
Total estimated cost (without flavoring)*		$0.730

* Of Mr. Millman's total output, 50 % was expected to be vanilla, 20 % chocolate, and 30 % divided among other flavors.

No unusual advertising was contemplated to promote the new ice cream, but an "ice cream window" was to be used during the summer months. Display material for similar windows had been furnished by the commercial manufacturers in prior years, but in 1936 the window was to stress the fact that the ice cream was home-made and of a special quality. No individualized or trade-marked package was to be used for the ice cream; from time to time, however, special seasonal flavors were to be advertised by fountain displays and window stickers.

What price and product policies should Mr. Millman have followed? Was he justified in buying the counter freezer?

14. DOBLEY HENDERSON COMPANY

DECISION WHETHER TO ACCEPT BUSINESS AT PRICES BELOW BIDS

In July, 1937, the Dobley Henderson Company, a firm of creative printers, was offered contracts for two jobs at prices which were lower than its standard rates. The company, in preparing quotations, applied standard rates based on the man-hours or machine-hours required to complete each mechanical operation. It also charged

on an hourly basis for creative work, such as the preparation of copy, layouts, and designs. Its standard rates had been revised upward on June 1, 1937, as shown in Exhibit 1.[1] The company's cost estimator had to decide whether it was advisable, under the circumstances, to accept the proffered business. Both the jobs could be run off by existing permanent crews on machines which would otherwise stand idle.

Job 1 was a reprint of 25,000 booklets. The Dobley Henderson Company had prepared the copy, layout, and designs for this booklet during 1936 and had run off the entire first edition. The electrotypes, however, were the property of the customer, who was free to order the additional booklets from the printer quoting the most satisfactory price, since reprinting was a purely mechanical job. He desired to give the contract to the Dobley Henderson Company if its quotation was sufficiently low. The company, however, submitted a bid of $452, which was substantially in excess of a bid of $400 obtained by the customer from a company which specialized in low-cost mechanical printing. The customer, in a counterproposal to the Dobley Henderson Company, offered it the contract at the competitor's price of $400. Details of the calculations on which the Dobley Henderson Company's bid of $452 was based are shown in Exhibit 2.

For several years, the Dobley Henderson Company had done all the customer's creative printing, that is, all work which entailed creative effort, such as origination of ideas and preparation of copy and art exhibits. Annual sales by the Dobley Henderson Company to this customer were about $25,000 a year. The Dobley Henderson Company's refusal to accept the reprint job at the $400 price would not in any way injure its standing with the customer, since the company held the account because of its superior knowledge of the customer's requirements on creative work. The customer's offer to give the company the contract was a friendly gesture and not an attempt to beat down its quoted price.

Job 2 was the printing of 5,000 boooklets, for which the Dobley Henderson Company had already prepared copy, rough layouts, and designs at the request of the prospective customer. This preparatory work was done with the understanding that the Dobley Henderson

[1] In July, after the new rates had been in effect for slightly more than a month, there was no evidence that the revised rates had resulted in a noticeable loss of business. The cost estimator did not know at what prices the competitive contracts not secured by the company had been let; but apparently the Dobley Henderson Company had been the first, second, or third lowest bidder on about the same percentage of bids as before the adoption of the new standard rates.

Company would be given the business if its creative work was satisfactory. Price was to be subject to later agreement. If the creative work was not acceptable to the customer, he was free to go elsewhere, in which case the Dobley Henderson Company, since it had accepted the risk of preparing copy for a speculative order, would have to absorb the costs already incurred. Until such time as the customer decided not to give the business to the company, however, he agreed not to negotiate with any other printers.

After he had received the copy, layouts, and designs prepared by the Dobley Henderson Company, the customer indicated his complete satisfaction with them. He thereupon offered to buy 5,000 booklets, provided they could be furnished at a price not to exceed $475. This was the first time that a price had been set by either party, the Dobley Henderson Company having understood that price would be subject to negotiation after acceptance of its plans. The price which the company had planned to submit was $622. The details of the calculations for this quotation, which was based on standard rates, are shown in Exhibit 3.

The customer for Job 2 was a comparatively new one, whom the executives of the Dobley Henderson Company hoped to make a permanent client. If they succeeded in this attempt, they would probably add about $10,000 to their annual sales.

EXHIBIT 1

DOBLEY HENDERSON COMPANY

Standard Rates Used in Preparing Quotations

	1929–1933	1934–1935	Jan. 1, 1936–June 1, 1937	June 1, 1937
	(Rate per Man- or Machine-Hour)			
Hand composition	$4.00	$4.00	$4.00	$4.00
Proofreading	2.00	2.00	2.50	3.00
Horizontal presses	5.00	4.00	4.50	5.00
Small two-color presses	Purchased in 1935		7.00	7.75
Small cylinder presses	Purchased in 1935		5.50	5.75
Large cylinder presses	6.00	4.00	4.50	5.00
Large two-color presses	8.00	7.00	7.50	7.75
Vertical presses	3.50	3.25	3.50	4.00
Job presses	3.00	3.00	3.00	3.00
Art and service	4.00	4.00	5.00	4.00
Creative	As valued	As valued	As valued	As valued
	(Percentage of material cost)			
Handling charge	25%	12.5%	15%	20%
Handling profit	15	10.0	10	10

The Dobley Henderson Company had always followed a practice of setting its standard rates at least as high as those current among printers in the section of the country in which it operated. On jobs for which its crews or its machines were believed to be more efficient than those of other printers, it charged higher-than-average rates but estimated fewer man-hours or machine-hours than its less efficient competitors. In cases where it believed the quality of its creative work to be especially high, the company added to its quotations flat sums which varied with each individual job, according to the cost estimator's appraisal of the value of the creative work to the particular customer. Although the company never submitted original bids based on rates lower than standard, the addition of these flat sums for superior creative work frequently made its bids higher than they

EXHIBIT 2

DOBLEY HENDERSON COMPANY

Calculations Relating to Job 1 (to be run on small cylinder press)

Estimates Based on Standard Rates

	Cost of Materials Used and Work Done Outside	Burden Charges for Materials Used and Work Done Outside*	Man-Hour or Machine-Hour Costs	Total Costs
Preparatory expense:				
Composition department				
5 man-hours at $4	....	...	$ 20	
Proofreading				
1 man-hour at $3	....	...	3	
Electrotypes†	$ 28	$ 8		
Press work—make ready				
8 machine-hours at $5.75	....	...	46	
Overlays	....	...	2	
Total preparatory expense	$ 28	$ 8	$ 71	$107
Running expense:				
Press work				
27 machine-hours at $5.75	....	...	$155	
Ink	$ 10	$ 3		
Paper stock	44	13		
Binding	81	24		
Total running expense	$135	$40	$155	330
Total plant cost	163	48	226	$437
Shipping expense	....	...	....	15
Total cost	....	...	....	$452

* On purchases made for individual jobs, the company added to the purchase price 20 % for handling charges and 10 % for profit.

† Customer to furnish master set, from which the set for actual printing would be made.

would have been if calculated purely on the basis of the standard rates.

Until 1930, nearly all the company's business had represented creative work based on its own ideas, copy, layouts, and designs. Contracts had been obtained either from old, established customers, without competition, or from less steady customers who gave their business to the printer who could satisfy their quality and price requirements most completely. In its territory, the Dobley Henderson Company had competed until 1930 with three other creative printing firms. During the depression, however, the competitive

EXHIBIT 3

DOBLEY HENDERSON COMPANY

Calculations Relating to Job 2 (to be run on large cylinder press)

Estimates Based on Standard Rates

	Cost of Materials Used and Work Done Outside	Burden Charges for Materials Used and Work Done Outside*	Man-Hour or Machine-Hour Costs	Total Costs
Preparatory expense:				
Art department				
Work already done	....	...	$100	
Layouts and dummies	$ 30	$ 9		
Engravings	105	32		
Composition department				
12 man-hours at $4	....	...	48	
Proofreading				
3 man-hours at $3	....	...	9	
Electrotypes	5	2		
Machine composition	35	11		
Press work—make ready				
13 machine-hours at $5	....	...	65	
Overlays	....	...	7	
Total preparatory expense	$175	$54	$229	$458
Running expense:				
Press work				
11 machine-hours at $5	....	...	$ 55	
Ink	$ 9	$ 3		
Paper stock	33	10		
Binding	22	7		
Total running expense	$ 64	$20	$ 55	139
Total plant cost	$239	$74	$284	$597
Shipping expense	....	...	....	25
Total cost	....	...	....	$622

*On purchases made for individual jobs the company added to the purchase price 20 % for handling charges and 10 % for profit.

situation had changed. Companies which had previously restricted their activities to purely mechanical printing involving no creative effort sought to compensate for the rapid decline in the volume of such work available by establishing creative departments and bidding for creative printing business. Conversely, firms which had formerly concentrated upon creative printing began to bid on purely mechanical printing jobs, in order to keep their labor forces and machinery more fully occupied. In general, the creative printers were able to maintain their position of supremacy in their special field because of the difficulties encountered by mechanical printers in obtaining and training personnel for creative departments; and the mechanical printers continued to get most of the mechanical printing jobs because they were more efficient in large-lot production. Each type, however, made some inroads into the business previously controlled largely by the other.

The Dobley Henderson Company was affected by this change in the pattern of competition, and in 1937 about 50% of its total sales volume represented mechanical printing business. Although it could not compete with large mechanical printers on orders above $25,000, its costs on orders below $25,000, while somewhat higher than those of large mechanical printers, were not so high as to preclude bidding. When business expanded to the point where mechanical printers returned to the 1929 practice of operating on a two-shift basis, their costs would be substantially lower, even on small orders, than those of the Dobley Henderson Company, since the latter would continue its long-established policy of working only a single shift in order to maintain its high standards of quality.

The Dobley Henderson Company expected to regain its lost creative printing business when demand revived and predepression conditions were restored. In fact, the creative printing business was expanding rapidly in 1937; and the company was unable to accept all the business of this type which was being offered to it, because of its inability to obtain trained personnel for its creative departments. Although it had carried all its employees in these departments throughout the depression, its existing force could handle only a fraction of the dollar volume of creative printing which it could have turned out in 1929, because during the depression the average order had been reduced to one-fourth its former size. During this period, customers had drastically curtailed their mailing lists, revised them more frequently, and subdivided them in order to reach specialized fields more efficiently. Therefore, although customers ordered more types of literature in 1937 than in 1929, they

ordered fewer copies of each type. Executives of the Dobley Henderson Company estimated that, if they could get the trained personnel to do the work, they could immediately obtain enough creative printing business to keep the plant fully occupied. Trained employees were not available, however, and education of new staff members was a slow process, taking at least five years. In the meantime, the company's problem was to obtain enough orders for mechanical printing to keep the plant busy until the creative staff could be enlarged.

Although the company's labor force had had to be reduced somewhat as business slackened during the depression, executives had endeavored to keep it as nearly intact as possible by dividing the available work among the employees. As business began to revive, a serious shortage of trained printers became apparent. Many men were said to have abandoned the trade and gone into industries which offered steadier employment. Because of the labor shortage, the Dobley Henderson Company had found it necessary, after 1934, to keep its crews on duty full time, even though there was no productive work for them to do.

What decisions should the Dobley Henderson Company have made with respect to these two jobs?

Did the company have a sound pricing policy?

15. Golden Canning Company (A)[1]

Assumption of Risk in Contracting for Acreage

The directors of the Golden Canning Company had to decide before April 15, 1938, the number of acres of corn for which the company should contract to fill its needs for canned corn during the 1938 canning season.

Normally, almost all the sales of the year's pack were made on a future basis by March 31, and the company simply contracted for an acreage sufficiently large to furnish enough corn, on a normal yield, to fill its orders. In the spring of 1937, for example, by April 10 the company had sold 230,000 cases on future contracts to wholesale grocers and chain stores; it therefore had contracted with farmers to plant 2,000 acres of corn, which it agreed to purchase at 2.5 cents per

[1] See also case of Golden Canning Company (B), p. 23.

pound[1] delivered at the cannery. This acreage was arrived at by the rule of thumb that one acre normally yielded about 2,500 cut pounds of corn, which was sufficient to pack 120 cases; in other words, about 21 pounds of cut corn were required to pack one case.

The acreage problem for 1938 was acute, however, because canners were unable to sell any future contracts. The refusal of customers to make future contracts was attributable to the heavy carry-over of corn in the United States from the 1937 pack. The pack of corn in the United States had been unusually large in 1937 —24,000,000 cases—and it was estimated that on August 1, 1938, there would be a carry-over of at least 5,000,000 cases. Comparative figures for the packs, sales, and carry-overs from 1925 through 1938 are shown in Exhibit 1.

EXHIBIT 1

CARRY-OVER, PACK, AND SALES OF CANNED CORN IN THE UNITED STATES AND PACK IN MAINE, VERMONT, AND NEW HAMPSHIRE, 1925–1938

(Thousand cases)

Year (August through July)	Carry-over	Pack	Total Supply	Sales	Carry-over	Maine, Vermont, and New Hampshire Pack
1925–26	240	24,320	24,560	18,740	5,820	
1926–27	5,820	19,069	24,889	15,989	8,900	
1927–28	8,900	10,347	19,247	15,497	3,750	
1928–29	3,750	14,497	18,247	14,997	3,250	
1929–30	3,250	17,487	20,737	17,487	3,250	1,668
1930–31	3,250	15,692	18,942	17,252	1,690	1,930
1931–32	1,690	19,415	21,105	14,415	6,690	1,245
1932–33	6,690	9,358	16,048	13,860	2,188	1,071
1933–34	2,188	10,193	12,381	11,624	757	1,055
1934–35	757	11,268	12,025	11,876	149	1,547
1935–36	149	20,691	20,840	20,007	833	1,931
1936–37	833	14,622	15,455	14,677	778	2,130
1937–38	778	24,323	25,101	11,849*	13,252†	2,054

* To January 1, 1938.
† On January 1, 1938. It was estimated that this would be reduced to 5,000(000) before the 1938 crop was packed.
Source: *Almanac of the Canning Industry.*

Statistics of the carry-over of New England corn were not available, but the disposal of the carry-over apparently presented no

[1] The price per pound referred to "cut pounds," that is, usable kernels cut from the cob. Some canners had adopted the policy of cutting from a selected sample and paying for an entire delivery on the basis of the sample.

special problem in the spring of 1938. Canners in other sections of the country had offered price concessions in order to dispose of their surplus stocks, but their efforts had been comparatively unsuccessful. Because the 1937 pack of Maine corn had been only normal, not unusually large as in the rest of the country, Maine canners believed that almost all their stocks would be ordered out under the future contracts which had been made in the spring of 1937; therefore they had not given price concessions. They had on hand small quantities which they would sell at spot, but the inventory situation was not serious.

On April 1, 1938, the Golden Canning Company had less than 25,000 cases on hand, and the management expected that these would be ordered out during the summer before the 1938 canning season had begun. The company in the past had had little difficulty with customers canceling contracts, probably because it did business year after year with the same customers and because it furnished New England corn for sale principally in New England, where there was a distinct preference for local products.

The real problem arose from the unwillingness of customers to buy futures for the 1938 pack. The president of the Golden Canning Company believed that there were three possibilities open:

1. The company could contract for about the same acreage as in 1937 and hope that it would be able to sell its entire pack in the fall. The low carry-over of the Golden Canning Company, the loyalty of its regular customers, and the New England preference for New England corn all were in favor of this policy.
2. The company could increase its pack in an attempt to maintain its total income or obtain a larger one. This procedure could be urged on two grounds. First, if lower prices prevailed in the fall, a larger pack would be necessary in order to maintain the total income. Second, if, for any reason whatsoever (e.g., drought, floods, and so on), the crop of the rest of the country was small, the market for Maine corn would be larger and it would be to the advantage of the Golden Canning Company to have as large a pack as possible.
3. The company could reduce the size of its pack in the hope that most of the other Maine canners would do likewise and thereby make a positive effort to eliminate the effect of the heavy carry-over on price and reestablish the industry on a sound basis in order that futures could once again be sold in the spring.

The spring future price which the Golden Canning Company had quoted in 1937 was $1 per dozen. After various quantity discounts,[1]

[1] During the 1937 season, the Maine canners had adopted a set of discounts designed to induce buyers to move out their corn at earlier dates and in more economical shipping

the net realized price averaged 93.6 cents per dozen. In view of the large carry-over in the United States, the president expected prices in 1938 to be under those of 1937; but he believed that all discounts except cash discounts would be eliminated by the Maine canners and that the actual net price to the Golden Canning Company would be somewhere between 90 cents and 93 cents.

For many years, the price paid to the farmers by all canners in the state had been uniform. As a result, either custom or transportation costs dictated the farmer's choice of the canner to whom he would sell his product. Within any one season, therefore, the canners experienced no difficulty in securing delivery, since the

EXHIBIT 2

GOLDEN CANNING COMPANY

Factory Cost of Corn, 1937–38

Dozen cans packed	472,976
Labor	$ 36,120
Corn	119,112
Supplies	16,032
Cans	128,832
Cases	11,840
Manufacturing expense	8,232
Rental of machinery*	1,200
Repairs	4,464
Foremen†	8,000
Taxes	9,720
Total factory cost	$343,552

* Established at an annual rate.
† Relatively fixed for the short canning season.

farmers could not obtain a higher price at any other cannery. The president was convinced that in 1938 the Golden Canning Company would readily be able to contract for enough acreage to meet the requirements of the cannery at any price which was at all reasonable.

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lots. These discounts were as follows:

	Discount
Type of Shipment to a Single Buyer	
Straight car (36,000 lb.), single size and item	3%
Assorted car	1
Less than carload lots of other sizes and items put in straight cars of single item take the assorted car discount of	1
Time of Shipment	
Apply to fancy grade only, except corn on cob	
Shipment before December 31, 1937	2
Shipment January 1 to March 1, 1938	1
Cash discount applying on net price	1½%—10 days

Because the farmers also were aware of the high carry-over, he believed that they did not expect to receive more than 2 cents per pound for their corn in 1938.

The president personally favored the third policy, of reducing acreage; and he set about figuring the lowest acreage which the company could plant without incurring a loss. He believed that the canners as a whole should realize the futility of continually increasing their pack in an attempt to maintain their income at lower prices. The factory costs of the Golden Canning Company for packing corn in 1937 had been as shown in Exhibit 2. These costs were not distorted by any unusual conditions. Cans constituted the largest single item of cost, and up to the middle of April, 1938, no significant decrease in can prices had become evident.

In addition to the costs shown in Exhibit 2, there were charges for depreciation, general administrative and office overhead, brokerage, and travel. For the 12 months ending April 30, 1938, these had been as follows:

Depreciation on building	$ 5,980
Depreciation on machinery	12,088
General administrative and office overhead	43,296
Brokerage[1]	10,076
Traveling	3,892
	$75,332

One of the directors urged the adoption of the second policy, of increasing the acreage. In his opinion, an increase in the quantity of corn packed by the Golden Canning Company would have little effect on the price of corn. He argued that it would be good policy for the company to have a large pack available for sale in the event that a small crop in the rest of the country caused the price of Maine corn to rise. In reply, the president remarked, "I think a small profit this one year would be preferable to taking too much risk."

The Golden Canning Company had been a borrower at the bank from June 1, 1937, to March 15, 1938, and its peak debt immediately after the canning season had been $182,000. The company had successfully liquidated all its bank loans by April, 1938. The president estimated that the borrowing requirements for the 1938 season would bear the same relationship to unit volume as had obtained in 1937.

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[1] Brokerage charges ordinarily amounted to about 2.5% of sales.

The canners in the state of Maine had adopted the policy of packing only fancy-grade[1] corn. The only Maine corn that was not

EXHIBIT 3

LOWEST SPOT PRICES FOR NO. 2 CANS, STANDARD-GRADE CORN, JULY AND JANUARY, 1915–1938

(Dollars per dozen)

Year	January	July
1915	.....	$0.625
1916	$0.65	0.75
1917	1.25	1.75
1918	1.65	
1919	1.50	1.45
1920	1.10	1.35
1921	0.85	0.90
1922	0.90	0.775
1923	0.85	0.85
1924	0.90	0.95
1925	1.40	1.40
1926	0.90	0.90
1927	0.85	0.90
1928	1.05	0.95
1929	0.95	0.95
1930	0.95	0.875
1931	0.90	0.90
1932	0.625	0.60
1933	0.60	0.60
1934	0.775	0.80
1935	1.00	1.00
1936	0.70	0.65
1937	0.85	0.775
1938	0.65	

Source: *Almanac of the Canning Industry.*

of fancy grade was a small proportion of each pack which accidentally failed to meet the quality requirements. Very little extra standard

[1] "Fancy" was the highest grade in a system of grading developed by the government. In descending order, the grades were "fancy," "extra standard," "standard," and "substandard." In grading corn, color, consistency, absence of defects, cut, maturity, and flavor were scored according to a predetermined schedule. Corn to be graded fancy had to obtain a score of at least 90 points; extra standard, 75 points; and standard, 60 points.

Fancy corn ordinarily commanded a premium of 20% to 30% above the price of standard grade; and Maine fancy corn typically sold at a premium of 5% to 10% above fancy grades packed in other parts of the country.

corn was packed intentionally. The Golden Canning Company had followed this policy; hence practically all the corn that it packed was of fancy grade.

The resulting reputation for the high quality of Maine corn over a period of years had built up a demand for Maine corn which was especially noticeable in the New England states, where there was a marked preference for locally grown vegetables. Distributors reported that this preference was reflected in the price of Maine fancy corn, which, f.o.b., the cannery, was 7½ cents to 10 cents per dozen higher than Mid-Western fancy corn. Transportation costs on Mid-Western corn were about 8 cents per dozen higher than on Maine corn, so that the selling price for the local product was only slightly higher than for corn from other sections of the country.

The range of prices from 1915 to 1938 for standard corn is shown in Exhibit 3.

On the assumption that the net price per dozen would be 91 cents, what acreage would have permitted the Golden Canning Company to cover its fixed costs?

For what acreage should the company have undertaken the risks of contracting?

16. Prouty Rubber Company

ALTERNATIVE PRICE AND PRODUCT POLICIES

The Prouty Rubber Company manufactured rubber and canvas footwear and rubberized fabrics. It sold the footwear direct to retail shoe stores and the fabrics direct to shoe manufacturers. In July, 1935, the production manager of the Prouty Rubber Company reported to the general manager that his department had finally perfected a new substitute for leather linings for shoes. This product, named Proutine, was intended for use as a lining material for women's shoes retailing for $2 per pair or less. The general manager was doubtful whether Proutine should be put on the market. If offered, it presumably would to a large extent replace the company's sales of Arcott, a rubber coated lining already in the company's line.

Arcott was not an individualized product of the Prouty Rubber Company, but was made and sold under that trade name by about

a dozen other companies also. The other producers of Arcott operated under a licensing arrangement with the owners of the patents governing the process of manufacture. Under the terms of their licenses and a private agreement among themselves, to which the Prouty Rubber Company was a party, the licensees for several years had held the price steady at 45 cents a square yard and had refrained from the development and sale of substitutes. A number of the Prouty Rubber Company's customers were complaining about the fixed price of Arcott and demanding a suitable substitute for it.

The field of substitute shoe linings in the Arcott price line and grade was dominated by approximately a dozen companies, which made more than 90% of the total sales of such substitutes. By 1932, it had become apparent that the most successful type of substitute was a rubber coated lining made of napped fabric impregnated with rubber. Production of napped fabric, if impregnated under pressure, was subject to licensing under a number of patents. The process of making napped fabrics impregnated without pressure, however, was not patented. The Prouty Rubber Company used the latter method.

The basic patents under the pressure process had at first been in the hands of patentees who granted licenses indiscriminately and made no attempt to control prices of the finished product. As a result, there had been keen competition among the many companies manufacturing the product; and in 1932 the price had dropped as low as 25 cents a square yard, a price at which no one could make a profit. The quantity of lining required for a pair of shoes cost about 3 to 4 cents.

Despite the price reductions, the Prouty Rubber Company had refused to lower its price below 30 cents a yard, preferring to keep its high quality reputation. Most of the Prouty Company's customers had continued to buy the higher-quality material, even at the comparatively high price.

In 1932, the pressure process patents had been purchased by a newly organized corporation, the Arcott Company, which immediately had informed the licensees that continuance of licensing under the patents would be contingent upon cooperation in the maintenance of prices at a profitable level; the licenses of price cutters would be revoked. This move, it had been explained, would allow licensees to make profits and the Arcott Company to charge higher royalties. The licensees had agreed to maintain the price of Arcott at a uniform level, originally set at about 35 cents a yard, and also to refrain from the development and sale of substitutes for Arcott.

Since the Prouty Company was operating under patents of its own rather than under the Arcott patents, it had taken no part in these first agreements. A spokesman for the Arcott group, however, soon had suggested that the Prouty Company become a party to the agreement for price maintenance and also to the private understanding barring the development and sale of substitutes. The spokesman had argued that, inasmuch as the Prouty concern was the only large manufacturer of the Arcott type of product then outside the licensees' group, its adherence to the agreement would make the position of all the producers much stronger, because the group would then control more than 90% of the total production.

Since there had been some doubt as to whether the Prouty Company's process might be held to infringe upon the Arcott patents, and since a license under the Arcott patents had been offered free of charge to the Prouty Company as the price of its cooperation, the company had agreed to become a member of the group and to subscribe to the agreements as to prices and substitutes.

From 1932 to the fall of 1934, the Prouty Rubber Company, because of its reputation for high quality and the absence of price competition, had been able to increase its sales of Arcott substantially at the expense of other members of the group. In 1932, it had been eighth in volume; in 1934, it was first. All the companies had made profits from the sale of Arcott under the terms of the agreement.

Starting in 1933, the cost of manufacturing Arcott had increased substantially as a result of the NRA, of raw material price advances, and of processing taxes. The price of Arcott had been advanced periodically in order to retain the profit margin, until in July of 1935 Arcott was selling for 45 cents a square yard.

In the fall of 1934, several members of the group violated the terms of the agreement by offering rebates to customers. Where such violations were proved, the Arcott Company withdrew the licenses. In at least one case, the withdrawal of the license did not result in cessation of production by the licensee; and in order to protect the other licensees and its patent rights, the Arcott Company took the matter to the courts in an attempt to force the offending manufacturer to cease manufacturing Arcott. In July, 1935, this case had still not been decided, because of delay in the courts; and the price-cutting manufacturer was selling in substantial volume at a lower price than those quoted by members of the group.

Several of the group members also were breaking the provisions of the agreement regarding the development of substitutes for

Arcott. Their products, however, had not been particularly successful. Meanwhile some good substitutes had been developed outside the group. The most important of these, known as Dukite, was made of unnapped fabric coated with rubber, and had a dull finish. Dukite was not so pliable as Arcott, and therefore a slightly different treatment was required in applying the lining to the upper; yet the product was moderately satisfactory from the shoe manufacturers' point of view. It sold for 40 cents a square yard, a price which after allowance for differences in quality and in costs of application was estimated to be equivalent to a price of 44 cents a yard for Arcott.

Dukite was manufactured by companies outside the Arcott group, which possessed limited capital and rather poor distribution facilities; hence its sales had not attained much volume. In the opinion of the general manager of the Prouty Rubber Company, however, this product, if aggressively sold by one of the larger companies, was capable of taking a considerable volume of business away from Arcott. Other substitutes had been developed from pyroxylin, but they were all in a higher quality and price range than Arcott, and therefore did not compete directly with it.

In the first half of 1935, the sales of the various substitutes for Arcott, as well as the sales of Arcott by group members at lowered prices in violation of the agreement, were estimated to amount to about 25% of total Arcott sales, and to be gaining relatively. Also some customers of the companies operating under the price-pegging agreement were becoming increasingly hostile to that policy, and were showing a tendency to accept substitutes for Arcott whenever prices were relatively lower after allowance for quality differences. Several of the largest shoe manufacturers making low-price shoes informed the Arcott Company that they were definitely planning to use Dukite, or some other substitute for Arcott, unless price concessions were made to them.

Officials of the Arcott Company were convinced that the large shoe manufacturers would carry out their threat and that the volume of Arcott sales would drop substantially unless the demands for price reduction were met. The Arcott Company therefore ordered licensees to offer the largest low-price shoe manufacturers a discount of 10%, provided their total quarterly purchases of Arcott from all members of the group exceeded a stated figure. The licensees protested against this arrangement, pointing out that it was not a true quantity discount, since an individual concern would be forced to

offer the lower price even though it might obtain only a small proportion of the total Arcott sales to a given manufacturer.

The Arcott Company, however, insisted upon the introduction of the quantity discount; and since retention of licenses was contingent upon its acceptance, the licensees reluctantly agreed to adopt it. Immediately, small purchasers of Arcott complained that they were being placed at a competitive disadvantage and demanded a lower price for all and no quantity discounts for anyone. When this request was refused, a number of them began to use substitutes as much as possible.

Several times in 1934, the Prouty Rubber Company's largest customer for Arcott had asked the company either to develop a substitute product or to reduce the price. This customer did not purchase in sufficient quantity to obtain the quantity discount introduced in 1935, although it purchased more Arcott from the Prouty Rubber Company than did several other shoe manufacturers who qualified under the discount arrangement. Since Prouty, under the terms of the Arcott agreement, was not permitted to develop a competitive substitute, it requested a waiver of the substitute clause. The licensee group, after examining the facts, admitted that the Prouty management could not reasonably refuse the customer's request, and therefore released the company from its agreement, though suggesting that too great haste in developing a substitute would not be seemly.

Proutine was the final result of the Prouty Rubber Company's subsequent research. Made of cotton fabric coated with pyroxylin on one side and rubber on the other, Proutine had a smoother surface than Arcott; and shoes lined with it were easier to slip on and less likely to raise blisters on the wearer's feet. Also, Proutine did not develop a friction drag after wear as did Arcott, and therefore was easier on stockings and more comfortable. The sales manager believed that because of Proutine's superior qualities the company's sales of that product would probably exceed its sales of Arcott by perhaps three to one, if both were offered at the same price, and that eventually it would supplant Arcott in the company's line.

Total annual sales of Arcott by all licensees were currently at the rate of approximately 6,000,000 yards a year, the Prouty Rubber Company's share being 20%, or 1,200,000 yards. Total annual sales of Dukite and other substitutes competing with Arcott for the lining business of low-price shoe manufacturers were estimated to be about 500,000 yards. The 10% volume discount offered to large

purchasers applied to about 2,500,000 yards a year. The Prouty sales subject to this discount were approximately 100,000 yards annually.

The value of Prouty's investment in machinery and equipment for the manufacture of Arcott was estimated at approximately $25,000, on the basis of reproduction cost less observed depreciation. Of this, $20,000 represented the value of impregnating equipment, and the remaining $5,000 represented investment in coating and finishing machines.

In order to provide facilities for the production of 1,200,000 yards of Proutine annually, it would be necessary to spend approximately $600 to fireproof the space required for Proutine production, because of the inflammable nature of one of the ingredients used, and to spend about $4,000 for the purchase of coating machines, inasmuch as the specialized coating and finishing machines used in the manufacture of Arcott were not convertible for use in the production of Proutine or of any other product then in the line. The Arcott impregnating equipment could be used in the production of Proutine.

Comparative costs for Arcott and Proutine (not including the additional equipment), as estimated by the cost accounting department, were as shown in Exhibit 1.

EXHIBIT 1

PROUTY RUBBER COMPANY

Estimated Comparative Cost of Manufacturing Arcott and Proutine

(Cents per square yard, on basis of annual production of 1,200,000 yards)

	Arcott	Proutine
Material	29.12¢	29.76¢
Direct labor	2.42	0.58
Factory burden* (200% of direct labor)	4.84	1.16
Factory cost	36.38¢	31.50¢
Spoilage (1% of factory cost)	0.36	0.32
General and administrative expense† (10% of factory cost)	3.64	3.15
	40.38¢	34.97¢
Selling expense‡	3.71	3.71
Total cost	44.09¢	38.68¢

* About 70 % indirect labor (e.g., foremen, clerical workers in plant, janitors, elevator operators, and truckers); 5 % power; and 25 % rent, depreciation, and so on.
† About 75 % salaries and wages and 25 % rent, depreciation, and other.
‡ Includes salesmen's commissions of 1.80 cents.

The percentages for factory burden, spoilage, and general and administrative expense were uniform throughout the proofing depart-

ment for all products processed there, and were adjusted from time to time to keep them in line with the amounts of actual indirect expense charged to the department. Selling of Arcott, however, was carried on by a separate sales organization, which handled no other products of the company; and the selling expense included in costs represented the average actual direct expenses of the Arcott selling division. The same organization would sell Proutine. Of the selling expense of 3.71 cents, 1.80 cents represented commissions to salesmen, all of whom were paid on a commission basis. The rate of commission would remain the same for Proutine as it had been for Arcott.

The process for manufacturing Proutine was not patentable. Development would take some time, however; and outsiders would not soon be able to supply this product in large volume, because of limited production facilities.

Should the company have put Proutine on the market?

On the assumption that sales of Proutine eventually would entirely replace sales of Arcott, what price would it be necessary for the company to get in order to be as well off?

What price should the company have placed on Proutine?

17. Birmingham Electric Company

RATES FOR OFF-PEAK POWER

The Birmingham Electric Company supplied electric light and power to Birmingham, Alabama, and the surrounding territory. The bulk of the company's power sales were made to industrial concerns, under a rate which comprised a demand charge based on maximum demand plus a fluctuating charge based on actual consumption. Schedule F, which defined this rate, was roughly as follows:

Demand charge: $1 per month per horsepower ($1.34 per kilowatt) of the customer's maximum 15-minute demand, but not less than $50 per month minimum. The maximum 15-minute demand governs for the 12 months' period following the establishment of such demand unless superseded by a higher demand.

Energy charge: 7.5 mills per kilowatt-hour for all energy consumed.

In 1917, the company had put into effect an off-peak power rate, known as Schedule I, which was applicable, within the limits of the

available supply, to any customer who complied with the conditions imposed, chief of which was that little or no energy would be used during the company's peak period. The Birmingham Electric Company purchased its power at a rate based in large part on its peak demand, and the new contracts (under Schedule I) were designed to dispose of surplus power available during off-peak periods. The "peak period" was defined as the time between 4:30 p.m. and 8:30 p.m. daily, except Sundays, during the four months from November to February, inclusive; between 4 p.m. and 10 p.m. during the 10 days before Christmas; and between 4 p.m. and 10 p.m. on not more than five other days of the year, to be selected at the discretion of the utility company. Among the concerns attracted by the new rate were artificial-ice manufacturing plants with a minimum demand for power in the winter months, and hotels and other enterprises which had some stand-by power equipment that they could use during the utility company's peak period. Customers under Schedule I who elected to use energy during the peak period were subject to a high demand charge based on their maximum 15-minute demand during the peak period.

The rates charged under Schedule I were briefly as follows:

Energy charge: 7.5 mills per kilowatt-hour for all energy consumed.

Primary charge: An annual charge of 15% of the cost of facilities necessary to serve the customer, payable in equal monthly installments with a minimum of $50 per month.

Demand charge for peak use: $20 per year per kilowatt of the customer's maximum 15-minute demand during the peak period.

The changing character of the load and the new business secured under the off-peak rate, Schedule I, soon absorbed all the available off-peak power; hence in 1921 the company formulated the following rule, which was approved by the Commission on August 1, 1921:

As the result of the terms and conditions under which the utility obtains its supply of power, and as a further result of the utility's use of power for its street railway system, the utility has for sale from time to time varying amounts of power to be sold in accordance with Rate Schedule I. In the event the requirements of this class of power are greater at any time than the amount available, the utility will keep a record of applicants for this class of power in the order in which they are received, and when sufficient power of this class is available, it will be offered to the first applicant, and in the event such applicant does not desire at that time to take advantage thereof, said application will be removed from the list, and the power shall be offered to the next applicant, and so on. Changes from peak to off-peak power service will be permitted by the utility only after the customer has taken peak power service from the utility for at least a full period of 12 consecutive months.

In 1924, the utility had a waiting list of five customers who desired this class of service. On November 24, 1924, one of the customers on the waiting list, the Terminal Ice Company, appealed to the Alabama Public Service Commission, alleging that the rates it was being charged for power were in excess of those charged to some other ice plants in the Birmingham district and requesting that the Commission compel the Birmingham Electric Company to show cause why the rates to the Terminal Ice Company should not be on the same basis as those to any other ice plant served with electrical energy.

At the subsequent hearing before the Commission, the president of the Terminal Ice Company testified that if his company had been permitted to buy power under Schedule I there would have been a saving of approximately $250 a month. Since his plant operated only a small 7½-horsepower motor (5.6 kilowatts) during the peak hours, a demand charge of $20 per year per kilowatt under Schedule I would have amounted to approximately $10 per month. To this would have been added the minimum $50 per month primary charge, since 15% of the cost of the facilities necessary to serve his company was less than $600 per year. Thus the total of the demand and primary charges under Schedule I would have been $60 per month, as compared with $312 per month actually paid as a demand charge under Schedule F for August, September, October, November, and December, 1924. The energy charge, however, was the same under both schedules, 7.5 mills per kilowatt-hour for all energy consumed.

Exhibits were introduced at the hearing to show that the Birmingham Electric Company was serving 21 customers under Schedule I, the off-peak power rate, and that 7 of these customers were ice plants. It was further shown that there were 9 other ice plants on the regular power rate, Schedule F.

The ice company rested its case on the grounds that other ice companies were purchasing power under Schedule I at a much lower rate than it was forced to pay under Schedule F, that the Birmingham Electric Company refused to serve it under Schedule I, and that therefore it was being discriminated against. The utility company did not dispute the facts as alleged by the ice company, but denied that they constituted discrimination.

The vice president of the utility testified as follows:

Off-peak power might be considered as a by-product under contract. We purchase all our power from the Alabama Power Company under a contract which provides for an annual demand charge. In other words, we buy power on a demand and energy basis, and pay an annual demand

charge based upon the average of the 5 highest 15-minute peaks of the year. . . .

The witness then testified that, because of the nature of its load, the peaks of the utility company almost invariably fell in November, December, January, and February, and he continued:

> For that reason, we figured out some time ago . . . that we had a certain amount of energy available to such customers as could stay off the line during those months when our peak occurred; and if they could stay off the line, we could furnish them energy throughout the year, except for the peak hours during the peak months, without imposing upon them a demand charge other than that necessary to take care of the cost to serve them, in the form of lines, transformers, substations, motors, and so on, and we offered that rate on that basis.

How should the Commission have decided this case? In the event that it approved the sale of off-peak power at a lower rate, what regulation, if any, should it have established of the manner in which the utility company decided what customers were to be served?

D. GROWTH AND DEVELOPMENT COSTS

18. William R. Warner v. Eli Lilly & Company[1]

USE OF TRADE-MARK TO PROTECT GROWTH COSTS

Eli Lilly & Company in 1899 began to make and sell a liquid preparation of quinine in combination with other substances, including chocolate, under the name of Coco-Quinine.

In 1906, another company began the manufacture of a liquid preparation which was substantially the same as Coco-Quinine, and which was put on the market under the name of Quin-Coco. Subsequently the ownership of this product came into the hands of William R. Warner & Company.

A suit was brought by Eli Lilly & Company to enjoin William R. Warner & Company from continuing to manufacture and sell the preparation if flavored or colored with chocolate, and also from using the name Quin-Coco, on the ground that it was an infringement of the name Coco-Quinine.

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[1] Supreme Court of the United States. Argued April 28 and 29, 1924. Decided June 9, 1924. 44 Sup. Ct. 615.

From the lower courts, the case came eventually to the Supreme Court of the United States. Excerpts from the majority opinion delivered by Mr. Justice Sutherland are as follows:

First. We agree with the courts below that the charge of infringement was not sustained. The name "Coco-Quinine" is descriptive of the ingredients which enter into the preparation. The same is equally true of the name "Quin-Coco." A name which is merely descriptive of the ingredients, qualities, or characteristics of an article of trade cannot be appropriated as a trade-mark and the exclusive use of it afforded legal protection. The use of a similar name by another to truthfully describe his own product does not constitute a legal or moral wrong, even if its effect be to cause the public to mistake the origin or ownership of the product.

Second. The issue of unfair competition, on which the courts below differed, presents a question of more difficulty. The testimony is voluminous, more than 200 witnesses having been examined; but, since the question with which we are now dealing is primarily one of fact, we have found it necessary to examine and consider it. Nothing is to be gained by reviewing the evidence at length, and we shall do no more than summarize the facts upon which we have reached our conclusions.

. . . . . .

. . . Petitioner did, in fact, produce a preparation by the use of chocolate so exactly like that of the respondent that they were incapable of being distinguished by ordinary sight or taste. By various trade methods an extensive and valuable market for the sale of respondent's preparation already had been established when the preparation of petitioner was put on the market. It is apparent, from a consideration of the testimony, that the efforts of petitioner to create a market for Quin-Coco were directed not so much to showing the merits of that preparation as they were to demonstrating its practical identity with Coco-Quinine, and, since it was sold at a lower price, inducing the purchasing druggist, in his own interest, to substitute, as far as he could, the former for the latter. In other words, petitioner sought to avail itself of the favorable repute which had been established for respondent's preparation in order to sell its own. . . . Sales to druggists are in original bottles bearing clearly distinguishing labels and there is no suggestion of deception in these transactions; but sales to the ultimate purchasers are of the product in its naked form out of the bottle, and the testimony discloses many instances of passing off by retail druggists of petitioner's preparation when respondent's preparation was called for. That no deception was practiced on the retail dealers, and that they knew exactly what they were getting, is of no consequence. The wrong was in designedly enabling the dealers to palm off the preparation as that of the respondent. One who induces another to commit a fraud and furnishes the means of consummating it is equally guilty and liable for the injury.

The charge of unfair competition being established, it follows that equity will afford relief by injunction to prevent such unfair competition

for the future. . . . It remains to consider the character and extent of this relief.

. . . . . .

Respondent has no exclusive right to the use of its formula. Chocolate is used as an ingredient, not alone for the purpose of imparting a distinctive color, but for the purpose of also making the preparation peculiarly agreeable to the palate, to say nothing of its effect as a suspending medium. While it is not a medicinal element in the preparation, it serves a substantial and desirable use which prevents it from being a mere matter of dress. It does not merely serve the incidental use of identifying the respondent's preparation and it is doubtful whether it should be called a nonessential. The petitioner or any one else is at liberty under the law to manufacture and market an exactly similar preparation containing chocolate and to notify the public that it is being done. But the imitator of another's goods must sell them as his own production. He cannot lawfully palm them off on the public as the goods of his competitor. The manufacturer or vendor is entitled to the reputation which his goods have acquired and the public to the means of distinguishing between them and other goods; and protection is accorded against unfair dealing whether there be a technical trade-mark or not. The wrong is in the sale of the goods of one manufacturer or vendor as those of another. If petitioner had been content to manufacture the preparation and let it make its own way in the field of open and fair competition, there would be nothing more to be said. It was not thus content, however, but availed itself of unfair means, either expressly or tacitly, to impose its preparation on the ultimate purchaser as and for the product of respondent.

Nevertheless, the right to which respondent is entitled is that of being protected against unfair competition, not of having the aid of a decree to create or support, or assist in creating or supporting, a monopoly of the sale of a preparation which everyone, including petitioner, is free to make and vend. The legal wrong does not consist in the mere use of chocolate as an ingredient, but in the unfair and fraudulent advantage which is taken of such use to pass off the product as that of respondent. The use disassociated from the fraud is entirely lawful, and it is against the fraud that the injunction lies.

. . . . . .

To what extent did the decree of the court give protection to Eli Lilly & Company?

What probable differences were there in the costs incurred by the two companies on these competing products? Were such differences merely temporary?

What are the business effects of the doctrine laid down by the court that "the petitioner or anyone else is at liberty under the law to manufacture and market an exactly similar preparation . . . and to notify the public that it is being done"?

Appendix

SOME NOTES ON GROWTH COSTS

Growth costs, sometimes called development costs or innovation costs, have a theoretical position very different from other costs. No growth costs are involved in a position of economic equilibrium, where consumption, price, cost, production, and production facilities are nicely balanced. In a condition of equilibrium, the so-called normal costs include the outlays necessary to maintain the equilibrium but not the outlays which have been necessary to reach the equilibrium. Many marketing costs are growth costs.

Growth costs are closely connected with business enterprise, especially new business ventures, and therefore with business profits. Through such devices as patents, growth costs of originators receive protection against the full impact of the competition of imitators. Growth costs are thus connected with the theory of monopolies. If the nature of growth costs is clearly understood, the paradoxical proposition that a certain amount of monopoly is a necessary condition of economic progress is seen to be no nonsense. Yet the protection of growth costs may account for some of the difficulties of keeping the economic system in perfect balance.

19. Carl Nelson

NEGOTIATIONS FOR SALE OF PATENT

In 1931, Carl Nelson, an inventor, was negotiating with the Worley Pen Company for the sale of the patent on a new type of fountain pen which he had developed.

Mr. Nelson, who was an engineer, had become interested in fountain pen design shortly after the war of 1914–1918. Between 1920 and 1922, he had spent his spare time working on models, and finally had developed a pen that would hold twice as much ink as did types in current use. The construction of pens with large ink capacity had long been a concern of the industry, and several devices had been developed. The new pens were of the plunger type, without a rubber sac, in which the plunger was surrounded by packing, in order to avoid leakage. The drawback of this construction, however, was that if the pen was not used for some time, the packing dried out and the ink leaked. Mr. Nelson's new pen was sacless, like the other pens of large ink capacity, but with a new feature.

Packing was relied on only for the action of pumping the ink into the pen and not for sealing the plunger against leakage. The inventor took models of his pen to the Worley Pen Company, where it did not meet with the warm reception that he had expected. Executives of the company pointed out to him that the pen was not completely foolproof, since considerable care had to be used in filling it.

Mr. Nelson had already spent about $200 for models and the preliminary patent expenses; but between 1922 and 1924, at a further expense for patents and models of approximately $700, he developed a method of making the pen completely foolproof. The improved pen was considered seriously by the Worley Pen Company. The company gave Mr. Nelson pen parts to work with in perfecting the product. In 1924, terms for the sale of the patent were being discussed. The company paid $1,000 for an option on the pen; and the contract provided that if, after more testing, the company was satisfied, it would pay $50,000 for the patent. Experiments quickly showed that the construction worked well in the largest of the four sizes of pens made by the company. When Mr. Nelson tried to adapt it to the "pastel" size, the smallest of the four pens, then much in demand, the construction was not satisfactory. Because of the nature of the capillary action and the surface tension of ink, the construction was inapplicable to the smallest size. The company, wanting the same construction in all the pens of its line, declined to go ahead with the contract.

The inventor then decided that he would have to develop an entirely new type of construction. At a further expense of about $300 for models and patent application costs, he succeeded in doing this in the following two years. This new pen was based on a somewhat different principle. Like his preceding pens, it was sacless and relied on packing for the pumping action, but it did not rely on packing for sealing the pen against leakage. Worley Company executives liked the pen, and the board of directors took it under consideration. This pen, too, however, was finally rejected, because both hands were required to hold it in filling. The pen was of the plunger type, and required the use of moderate force to pump the ink, a force which, should the user's hands slip, might easily overturn the ink bottle. Another objection to this model was that, because of its construction, it was heavy at the upper end and seemed unbalanced.

Between 1927 and 1929, at a further expense for models and patents of about $450, Mr. Nelson developed a pen which seemed to meet all objections. It was sacless, held twice as much ink as sac-

type pens, had no packing at all, was well balanced, and employed a filling mechanism which could be operated with the same hand that held the pen. This model was shown to executives of the Worley Pen Company in the spring of 1929, and they were definitely enthusiastic about it. The terms under discussion provided that the company pay Mr. Nelson $10,000 at once, $20,000 in six months, $20,000 twelve months later, and a royalty of 1 cent per pen manufactured, until a total of $100,000 had been reached. The company, in order to protect itself, had a patent search made at an expense of approximately $2,000. This search satisfied the company as to the validity of the patent, which was pending; but in the two weeks which the search required, control of the Worley Pen Company shifted substantially and the new principal stockholder declared that the terms of sale of the patent which had been tentatively agreed upon were extravagant. He directed that Mr. Nelson be offered $10,000 plus a royalty of 1 cent per pen manufactured up to a total of $100,000. Mr. Nelson, suspecting that the company might be planning to pay the $10,000 merely with the intention of putting the pen on the shelf in order to keep it from competitors, refused this offer. If the pen was not produced, there would, of course, be no royalty payments.

The inventor then approached other pen manufacturing companies. In the course of this activity, he became acquainted with Samuel Williamson, head of the Williamson Advertising Agency. This agency had the accounts of several large companies in various lines and previously had handled the account of the Wilkins Company, one of the large fountain pen manufacturers. Mr. Williamson felt that it was his efforts which had, in effect, built the Wilkins Company's business; and he considered that the recent shifting of the Wilkins Company's advertising business to another agency was rank ingratitude. Mr. Williamson had money to invest, was impressed by Mr. Nelson's pen, and wanted to go into the pen business. He believed that the manufacture of the pens could be started with an initial investment of about $25,000 but that some $300,000 would be necessary for the initial advertising splurge, even though the campaign were not on a national scale. At Mr. Williamson's suggestion, Mr. Nelson inspected several small plants, with an eye to buying one suitable for the pen business.

In the meantime, Morris Goldman, a friend of Mr. Williamson, had entered the picture. Mr. Goldman, president of one of the companies whose advertising was handled by the Williamson Agency, was a financier and promoter with an interest in several businesses. The group he headed had just come into control of an industrial

holding company that owned several manufacturing companies. Among the companies thus acquired was the Shepard Pen Company, one of the smaller fountain pen manufacturers. Knowing that his friend Mr. Williamson had had some experience with the fountain pen business, Mr. Goldman sought his advice on what to do with the pen company. Mr. Williamson advised Mr. Goldman to buy the patent for Mr. Nelson's pen and manufacture the pen, retaining the Williamson agency to handle the advertising. Mr. Goldman and the production manager of the Shepard Pen Company examined the new pen and in August, 1929, signed a contract with Mr. Nelson by which the Shepard Pen Company acquired, not the patent itself, but exclusive license for the manufacture of pens under the patent. Under the terms of this contract, Mr. Nelson was to receive $5,000 a year for the life of the patent (17 years) plus a royalty of 5 cents per pen on the excess above 100,000 pens sold by the company in any year. Mr. Nelson was paid $5,000 and was hired at $20 a day and expenses to come to the Shepard factory and make models adapted to pen construction of the three sizes, large, medium, and small, made by the company. Mr. Nelson worked at the plant about two months, at a cost to the company of some $1,000 in salary plus $500 for expenses; models constructed under his direction cost about $700; and a few hundred dollars were spent on preliminary plans for an advertising campaign.

In October and November, however, Mr. Goldman's affairs were thrown into confusion by the stock-market crash. Within a few weeks, he lost control of the Shepard Pen Company, and new management took over in January, 1930. In view of the uncertainty of the outlook, the new management decided to go ahead very cautiously. Production of the pen, which had begun on a small scale, ceased; and the planned advertising campaign was postponed.

By the following August, when another annual payment of $5,000 was due to Mr. Nelson, the company's affairs were in a bad way; and the company officials informed Mr. Nelson that the payment could not be made. On the advice of his attorney, Mr. Nelson offered to release the company from the contract, which still had many years to run, for $5,000. His offer was accepted. Inasmuch as the patent was pending, the invention was protected completely; and the inventor was free to license it to any other company. Because of the depression, which he believed probably would continue for some time, Mr. Nelson delayed engaging in any further negotiations, although between 1929 and 1932 he spent some $750 more on patent expenses and legal advice.

In 1931, the Worley Pen Company learned that the pen was again on the market and invited Mr. Nelson to discuss terms. Company executives believed that they were in a stronger bargaining position than before because the company had just been allowed a patent on a new pen. Mr. Nelson looked up their patent, noted its similarity to his, and promptly added to his pending patent application another claim on behalf of his revealed construction. This claim was accepted by the Patent Office, and acceptance in effect made the Worley Company's patent invalid.

With Mr. Nelson's permission, 200 pens were constructed by hand at a cost of $2,000 and distributed among officers and employees of the company, and their friends, for use and testing. The reports from these persons were unanimously favorable.

Terms were then discussed, and a tentative agreement was drafted, under which the company was to pay Mr. Nelson $5,000 at once. If at the end of a year the company was content that the pen operated satisfactorily, there was to be a further payment of $10,000 at that time, and one year later a final payment of $15,000. Under this agreement, Mr. Nelson would not receive any royalty. Some of the company officials believed that they could get substantially higher prices for the new pen in the three standard sizes than were then being received by them and other pen manufacturers for pens of corresponding size. The enhancement in price was appreciably larger than the slight increase in manufacturing cost; thus a substantial volume of sales would yield considerably increased profits. If the pen were to be launched and sold nationally, however, an initial advertising campaign costing at least $500,000 would be necessary. Consequently a question was raised by one of the directors as to whether competitive conditions in the industry would permit this sum to be recovered easily within a reasonable period. He pointed out that the company had sustained large developmental and advertising expenses in connection with its current model, as well as substantial costs in connection with the patent which had proved to be invalid. He thought that a reasonable spacing of new developments was essential to the company's financial stability. He personally did not, however, wish to go to the extent of proposing that the company should seek to acquire Mr. Nelson's patent rights and then withhold the pen from the market.[1]

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[1] In March, 1938, a bill (H.R. 10068) was introduced in the 75th Congress, 3d Session, to provide for compulsory licensing of patents. This bill included the following clauses:

"Sec. 2. . . . Every patent shall contain . . . a grant to the patentee . . . for

Should Mr. Nelson have accepted the Worley Pen Company's offer?

What basic considerations should have influenced the Worley Pen Company's decision whether to proceed with the production of the pen?

Does this case suggest a need for any changes in the patent laws?

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the term of seventeen years of the exclusive right to a royalty through the licensing of the invention or discovery or to vend the invention or discovery. . . . For the first five years of the patent grant the inventor shall have the exclusive right to make, use and vend, in addition to the rights enumerated above, the invention or discovery.

"Sec. 3. At any time after the expiration of five years from the date of issuance of a patent where satisfactory evidence is submitted showing that a patent is not being used or that the domestic supply is insufficient to satisfy the public demand or that unfair prices or trade practices prevail, any person may file with the Commissioner of Patents an application for a license under said patent, setting forth under oath his reasons why such license should be granted. The applicant shall file with the Commissioner of Patents—

1. Evidence that the applicant is an interested party, financially responsible, and able to manufacture such patent.

2. A statement that the public interest will be advanced by issuing him a compulsory license for such patent.

3. An offer which shall include specific terms, conditions, and royalties under which the applicant proposes to use such a patent, if his application for such license is granted."

The bill was referred to the Committee on Patents and was not reported out.

IV. SUPPLY AND DEMAND ANALYSIS

SOME NOTES ON FORECASTING THE PRICE OF A COMMODITY

(J. L. S.)

American industry is faced constantly with the risk of a substantial change in the prices of its materials and its products. In a list of 40 of the most important commodities in American industry,[1] there were 15 which fell in price by more than 50% from 1929 to 1932. Not one of the selected commodities showed a net gain during the period, and only six declined by less than 20%[2] These drastic changes were, of course, a part of the severe business depression of those years. But the prices of individual commodities have changed considerably, even in periods of comparative stability of the general price level. Thus, during the period 1922–1929 the maximum increase from one year to the next of the "All Commodities" index of the Bureau of Labor Statistics was 5.4%, and the maximum

[1] The selected commodities were as follows:

Farm products and foods
- Butter
- Cattle
- Coffee
- Corn*
- Cotton*
- Eggs
- Flour
- Hogs*
- Lard*
- Sugar
- Wheat*

Textiles
- Cotton gray goods*
- Rayon
- Silk*
- Worsted goods

Metals
- Copper*
- Lead*
- Pig iron
- Silver
- Steel†
- Steel scrap*
- Tin*
- Zinc*

Fuels
- Coal, anthracite†
- Coal, bituminous†
- Coke†
- Fuel oil
- Gasoline*
- Petroleum, crude

Building materials
- Brick
- Cement†
- Glass
- Linseed oil
- Lumber
- Structural steel†

Miscellaneous
- Hides*
- Leather
- Paper
- Rubber*
- Wood pulp

* Declined in price by more than 50% from 1929 to 1932.
† Declined in price by less than 20% from 1929 to 1932.

[2] The *monthly average* price for each year was used in the comparisons. The percentage changes were, of course, greater between the highest and the lowest *single months.*

decrease between consecutive years was 3.5%. In the list of 40 commodities, however, all but 8 (rayon, worsted goods, pig iron, silver, bituminous coal, brick, cement, and paper) showed more than a 10% increase between consecutive years at some time during the period; and all but 7 (cattle, butter, steel, anthracite, brick, cement, and paper) showed more than a 10% decrease.

The price risk can be shifted by industry to other risk-takers only in limited measure. Satisfactory hedging against price changes is feasible for comparatively few of the important products of industry.[1] Therefore buyers, sellers, and all others financially interested in commodity markets must make price forecasts.[2]

Nature of the Commodity and Its Market

Basic to successful price forecasting is an understanding of the nature of the commodity and its market. The price of a given commodity will fluctuate quite differently from the price of another by reason of characteristic and fundamental differences in supply or demand conditions. An understanding of supply and demand characteristics involves knowledge on such questions as the following:

1. Is the price set in the domestic or the world market? The answer to this question sets the geographic limits to the measurement

[1] In 1938, facilities for trading in futures on organized exchanges were available for 37 commodities, but even for this number the trading facilities did not in all cases permit a complete hedge. These 37 commodities, as listed by the Commodity Exchange Administration of the U. S. Department of Agriculture, were as follows:

Barley	Eggs	Rubber
Butter	Flaxseed	Rye
Canned goods	Gasoline	Silk
Cheese	Hides	Soy beans
Cocoa	Lard	Sugar
Coffee	Lead	Tallow
Copper	Millfeeds	Tin
Corn	Molasses	Tobacco
Cotton	Oats	Wheat
Cottonseed	Peanuts	Wool tops
Cottonseed meal	Pepper	Zinc
Cottonseed oil	Potatoes	
Crude oil	Provisions (bellies, ribs)	

[2] Although it is manifestly impossible to ascertain the measure of success achieved by private business forecasters, an indication of the accuracy of the published price forecasts of a number of commercial forecasting organizations is available in a study made by the American Telephone and Telegraph Company. (Results published by Seymour L. Andrew and Harold M. Flinn in the *Journal of the American Statistical Association*, March, 1930, *Supplement*.) The study examined the recommendations of each of four commercial services on the purchase of each of 10 commodities by months for the 4-year period 1925–1928 and, allowing for omissions, included over 1,500 separate forecasts. Each recommendation was placed in one of three categories according to whether the purchaser (1) would have saved money by following the advice of the forecaster, (2) would have about broken even, or (3) would have lost money, taking account of the customary policy as to commitments. It was found that 51% of the forecasts fell in the first class, 24% in the second, and 25% in the third.

of the price-determining factors. The prices of most of the important raw materials are set in the world market. Moreover, the prices of manufactured products, even those which are manufactured and sold domestically, are more largely influenced by world conditions than is often realized, foreign influences being transmitted through the raw material and the money markets.

2. Are there tariffs or other barriers to the free flow of the commodity in international trade; and particularly, does any change in this situation impend? Any important change in trade barriers against a commodity tends to widen or narrow its market and therefore has a stimulating or a depressing influence on its price.

3. Is the commodity a main product or a by-product? This makes a great difference in a price analysis. In the case of a by-product, the price is likely to fluctuate especially widely, since the supply of a by-product does not change sensitively to variations in demand for it, but changes according to variations in the output of the main product. Therefore, prospective production of the main product is a decisive consideration in estimating the future supply and price of the by-product. It may also be observed that in making a price forecast of a by-product no attention need ordinarily be given to its cost of production. The great majority of the important commodities of industry are, of course, main products. In the representative list cited on page 241, only hides, lard, and steel scrap are by-products.

4. Do changes in the price of the given commodity depend upon changes in the price of some related commodity? The prices of many manufactured goods are dependent upon the prices of their raw materials, being set on the basis of the cost of replacement. Cotton goods and leather typify this group. A price analysis of such commodities, therefore, resolves itself principally into an analysis of the price prospects for the raw materials in question. There are also many manufactured products of lesser individual importance whose prices change seldom and very little, notwithstanding appreciable changes in the prices of their raw materials. It is usually possible to ascertain with respect to a given manufactured product whether it falls in the first or the second group.

5. Can the supply of the commodity be changed rapidly, slowly, or only periodically? When a change in demand for the commodity takes place, the nature and extent of the price change will be determined very largely by the response of supply. This, in turn, depends upon the conditions of production, the extent of unused productive capacity, and the availability of transportation. The supply of manufactured products and products of the mines can ordinarily

be increased rapidly under the stimulus of rising demand.[1] It is possible also to curtail promptly the output of the factories and mines following a decline in demand; but there is a natural hesitancy to do so, which delays readjustment of supply. The supply of agricultural products, as a rule, cannot be adjusted rapidly in response to changes in demand. The prices of these products therefore tend to fluctuate widely.

6. Is supply predictable and controllable? It may be possible for the supply of a commodity to change substantially but for such changes to be neither predictable nor controllable. Crude petroleum is a case in point, although during the last few years some progress has been made in controlling the supply. Unpredictability of supply increases the element of uncertainty in the price outlook.

7. Is there political or other noneconomic control over the supply or price of the commodity; and especially, is such control likely to be changed? The existence of artificial control constitutes an unstable element in the picture because artificial control devices are constantly subject to breakdown. What appears to have been one of the most effective control schemes, but which nevertheless broke down eventually, was operated by the United States copper producing companies during 1929 and 1930, when the price held at 18 cents for 12 months despite increasingly difficult conditions. When control broke down, the price collapsed. Moreover, merely the prospect of a change in control may have an influence on the price. This was illustrated by the price declines in wheat, cotton, and other commodities under the control of the AAA following the decision of the Supreme Court in May, 1935, declaring the NIRA invalid.

8. What is the competitive situation among the producers of the commodity? If there is a dominant producer who leads the market, his probable price policy may be the preeminent consideration in making a forecast. If there is monopolistic competition among a few strong producers, price changes may be restricted within a comparatively narrow range. If, on the other hand, there is severe price competition with price cutting readily resorted to, price changes will be wider and more uncertain, particularly in a buyers' market.

9. Is there any organization among the buyers? A united front on the part of buyers would tend to restrain a price advance in a

[1] Among the 40 important industrial commodities previously referred to, there are 22 whose supply can be increased promptly: cotton goods, worsted goods, copper, lead, pig iron, silver, steel, tin, zinc, anthracite, bituminous coal, coke, fuel oil, gasoline, petroleum, brick, cement, glass, lumber, structural steel, paper, and wood pulp.

sellers' market and to intensify a price decline in a buyers' market. But a degree of unification on the part of buyers sufficient to have an important bearing on the market price is rare. Purchasing associations and large unit buyers are an approximation to the situation. Even here, however, the principal effect of unified buying is probably a lower price to these buying units rather than a change in the open market price.

10. Is there integration in the industry? Where the buyers of a commodity are financially affiliated with the sellers to any important extent, the price fluctuations of the commodity will be less sensitive to changing supply and demand conditions than is usually the case; bargaining in the market will be less intense. If the sellers dominate the affiliation, the price will tend to rise more sharply and fall less sharply than it would if no affiliation existed; whereas if the buyers are dominant, the price will tend to rise less sharply and fall more sharply.

11. Is demand elastic or inelastic? Information on this point helps the analyst in making an estimate of the probable *extent* of the price change resulting from a given change in the supply, or, more precisely, in the supply-demand relationship. Where the demand is elastic, a given change in the supply will bring a less severe change in the price than where the demand is inelastic.[1]

12. Is there a difference in the relative influence of supply and of demand upon price; and if so, which is more important? There are many commodities, agricultural products in particular, whose demand remains fairly constant but whose supply undergoes substantial changes. For such commodities, the price forecaster may well devote chief attention to a study of supply. There are also many commodities, principally manufactured products, whose demand changes drastically but whose supply is readily adjusted to changes in demand. For these commodities, the principal emphasis in the analysis should be placed upon demand. It is also true that for some commodities the relative importance of supply and of demand changes seasonally. In the case of cotton, for example, the supply factors appear to exert the dominant influence upon the price during the planting, growing, and picking seasons, whereas demand conditions are more important during the other portions of the year.

[1] The U.S. Department of Agriculture has done a considerable quantity of pioneering work on the problem of the statistical relationship between changes in supply and price for a number of agricultural products. References to these studies may be found in "Price Analysis—Selected References on Supply and Demand Curves and Related Subjects," *Agricultural Economics Bibliography, 48* (U. S. Department of Agriculture, 1933).

Characteristic Price Changes and Relationships

A study of the fluctuations during a period of years of the price of a commodity will often disclose some characteristic fluctuation which will be useful in current forecasting. There may also be discovered some helpful relationships with other business and economic factors. A discussion of several characteristic fluctuations and relationships follows:

1. Seasonal variation characterizes the price fluctuations of a number of commodities, notably in the groups of agricultural and food products. Seasonal variation in price would ordinarily be expected in those markets having a seasonal change in either the supply or the demand without a corresponding change in the other of these two price-determining factors. Seasonal variation in production, storage on a large scale being uneconomic, with a comparatively constant demand is more often to be found than seasonal variation in demand with a comparatively constant supply. Seasonal variation in the prices of manufactured commodities is not common for the reason that supply can usually be adjusted to changes in demand. In some cases, however, the price of a manufactured product will show a seasonal fluctuation because of a marked seasonal fluctuation in the price of its raw material. It should be noted also that for certain commodities there is a special sort of seasonal price fluctuation, brought about by seasonal changes in the quality of the product rather than by changes in the supply-demand relationship. Hides and potatoes are illustrations in point.[1]

2. Differences in characteristic amplitude of cyclical price fluctuations are exhibited by commodities. Information as to whether a given commodity has usually fluctuated widely or narrowly will, consequently, be of value in forecasting. With a cyclical change in demand, those commodities whose supply cannot be adjusted easily will tend to exhibit a wider price fluctuation than those whose supply can be adjusted easily. As noted at an earlier point, there appears to be a contrast between the prices of agricultural commodities and of manufactured products, the former tending to show the wider amplitude. In those markets where there is close control over the supply of the commodity, little or no change in price may follow a substantial change in demand. This does not necessarily imply control over the supply by a monopoly. Competing pro-

[1] Comments on the seasonal price fluctuations of various commodities specifically may be found in Simon Kuznets, *Seasonal Variations in Industry and Trade* (New York, National Bureau of Economic Research, 1933).

ducers have on occasion curtailed output sharply in response to a fall in demand and thereby have been able to maintain the price.[1]

3. It is sometimes possible to discover a time relationship during a representative period between the fluctuations in the price of the commodity and in some other economic series. For example, by comparing the price fluctuations of individual commodities with the fluctuations of the average price level, it has been discovered that certain commodities are "early movers" at cyclical turning points while others are "late movers." Professor Mills, in his study of the price fluctuations of some 200 commodities in the United States during the period 1890–1925,[2] found that, among others, cattle, hogs, sheep, hides, leather, wool, silk, copper, and lead were early movers; while cotton, print cloths, coal, both anthracite and bituminous, petroleum, and steel rails were late movers. Pig iron and steel billets were late at the cyclical upturns and early at the downturns. Moreover, there are a few economic series outside the field of commodity prices which tend to anticipate commodity prices at turning points. The average price of high-grade bonds and the average price of industrial common stocks are important instances. In forecasting the price of a commodity, it is useful, therefore, to ascertain whether it is an early or a late mover during cyclical fluctuations, and to give special attention to those economic series which are particularly sensitive to impending developments.

4. A comparison of the current price with the "normal" price for the commodity may often be of value in forecasting. The existence of a normal price implies a tendency for the actual price to move in the direction of the normal whenever there is an appreciable difference between the two. If the actual price should be far above the normal, for example, this fact might be the dominant element in a forecast that the price will decline. But it is always difficult and often impossible to determine the normal price. For some commodities, it is possible to ascertain approximately the marginal unit cost of production. The figure must be approximate because the cost of production is difficult to ascertain and is defined differently under different business circumstances, and also because the marginal supply is impossible to designate precisely. Neverthe-

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[1] This situation has been described as an "administered market." For a discussion of the significance of "administered" prices, reference may be made to a report on *Industrial Prices and Their Relative Inflexibility* made by Gardiner C. Means and submitted to the Senate by the Secretary of Agriculture, January 15, 1935.

See also the case on Price Rigidity, p. 389.

[2] FREDERICK C. MILLS, *The Behavior of Prices* (New York, National Bureau of Economic Research, 1927), Appendix Table XI.

less, if used with discretion, an estimate of the normal price on the basis of the marginal cost of production may be helpful.

Another measure of normal price, applying to agricultural products, has been developed by the Department of Agriculture. On the basis of supply-price relationships over a period of years, but also taking into account other factors, the average price to be expected for a crop year may be estimated early in the year, as soon as the supply for the year is rather definitely known. This expected average price taken as a normal may then be used as the basis for interpreting current price levels and forecasting changes in those levels during the year.[1] Where it is not possible to estimate either the marginal cost of production or the average price for a crop year, the average price over a period of years, making allowance for any long-time tendency to rise or fall, may serve as a rough indication of the normal price.

Supply and Demand Analysis

Knowledge of the commodity and its market, of any characteristic price fluctuations, and of any relationships that may exist between the price movements of this commodity and other economic series is important in price forecasting, but is somewhat in the nature of background. The most important approach in making an actual forecast is the supply and demand analysis.[2]

The Importance of Data on Commodity Stocks. Data on commodity stocks constitute the most important item of information in making a price forecast for certain commodities, namely, those for which the demand is reasonably stable and the supply irregular and not readily adjustable. Unfortunately, there is a marked reticence on the part of business organizations to divulge the facts on inventories. There appears to be a widely-held conviction that secrecy in this matter may strengthen the bargaining position, which in itself is a commentary on the forecasting value of stocks data. There are, to be sure, many commodities—those produced only on order and those whose supplies can be adjusted very easily to changes in

[1] See, among other statements issued by the Department of Agriculture, *A Description of Price Forecasting* presented at a conference with State representatives, annual outlook meeting of the Bureau of Agricultural Economics, January 26, 1928; and the statement by Lloyd S. Tenny, Chief of the Bureau of Agricultural Economics, at the hearings before a Senate subcommittee, Seventieth Congress, First Session, pursuant to Senate Resolution 142, A Resolution to Investigate the Recent Decline in Cotton Prices (U. S. Government Printing Office, 1928).

[2] This statement would not apply to forecasting by the commodity speculator who tries to catch the short swings. Although the speculator keeps informed on the statistics of supply and demand, he regards such data as too insensitive for his needs. He is inclined to stress "psychological" factors and analyses of the "technical" position.

demand—for which comparatively little attention need be given to inventory data. In forecasting the prices of such commodities, the principal emphasis should be placed upon prospective demand.

Seasonal Variation in Stocks. In the use of data on commodity stocks, seasonal variation should be recognized where it exists. For those commodities whose consumption is reasonably steady throughout the year but whose production is on a seasonal basis, seasonal variation in stocks is unavoidable. A great many commodities, primary products of the earth which enter without elaborate fabrication into human consumption, fall in this class. Seasonal variation in stocks may also exist because of seasonal variation in consumption accompanied by steady production throughout the year. Seasonal variation in stocks may or may not bring appreciable seasonal variation in the price of the commodity, depending principally upon the practicability and cost of storing the stocks.[1]

Normal Stocks. The determination of the significance of commodity stocks at any given time is usually difficult because of the absence of a reliable indication of the size of normal stocks. It is often assumed that a certain number of weeks' or months' supply at the current rate of shipment constitutes a normal supply and consequently that the price will tend to rise or fall when actual stocks are below or above the assumed normal. This procedure has a certain rough and ready usefulness, but it contains pitfalls. For the purpose of price forecasting, a given number of weeks' supply does not have the same significance when shipments are at a high rate as when shipments are at a low rate. A six weeks' supply, for example, may be wholesome at a time of average activity but may be dangerous at a time of great activity because of the ever-present probability of a sharp falling off in demand. It is necessary, therefore, to consider the size of inventories with respect to probable changes in demand, as well as with respect to the current rate of activity.

Invisible Stocks. One of the most serious limitations of the data on commodity stocks is their failure to include stocks at all positions. Stocks in the hands of the original producers are customarily included and quite often also stocks in the hands of dealers and handlers, but it is very rarely that stocks in the hands of consumers are added. There is, therefore, very inadequate coverage of the total supply. The invisible stocks, which never get into the figures, may oftentimes be decisive in a price change. Where the consumers are industrial establishments equipped to stock ahead, there may be in

[1] There may be found in Kuznets, *op. cit.*, monthly seasonal index numbers of stocks for a large number of commodities important in the industries of the United States.

existence a considerably larger unused supply of the commodity than the inventory statistics indicate. The copper industry illustrates this limitation. Statistics on stocks of refined copper are not available for any positions beyond the refinery, although the refinery sells to the so-called fabricators, who in turn sell to industrial consumers, such as public utilities, automobile plants, and electrical manufacturing companies. Both the fabricators and the industrial consumers have apparently stocked copper heavily at certain times when advances in price were expected. Such was the case during 1928 and the first part of 1929. Although the stocks in the hands of fabricators and consumers were of great importance in estimating the probable movement of the price, the statistics did not reveal the facts. It was possible in that situation to reach a rough estimate of the size of the invisible stocks by comparing the shipments of refined copper with the rate of activity in the important consuming industries during preceding months.

Even where more than the producers' stocks are included, stocks at the different points are ordinarily not published separately. The advantage of separation may be exaggerated since the most important information is the size of total stocks available for use; but where there are differences in the financial strength of producers, dealers, and consumers it has some bearing on the price estimate to know whether the stocks are held at points of financial strength or weakness.

Prospective Supply and Demand. It is too often forgotten in price forecasting that, in addition to the measurement of supply and demand conditions prevailing at the time the forecast is made, the supply and demand conditions during the period covered by the forecast must be estimated. If a six months' forecast, for example, is being attempted, the probable conditions of supply and demand during the ensuing six months must be estimated carefully. The following lines of attack will ordinarily be of assistance in making estimates of prospective supply:

1. A comparison of the current volume of production of the commodity with the industry's total possible production should be made in order to discover the facts as to excess productive capacity. A large excess of capacity creates a persistent tendency toward overproduction and acts as a restraint upon a rise in price following an increase in demand. The financial condition of the producers and the competitive situation among them will largely determine the extent to which the excess capacity will be employed. A strong financial condition and a far-sighted competitive attitude may counteract the natural tendency toward overproduction. Then, too,

transportation conditions may at times make it impossible to bring to market the volume of output which might actually be turned out. There is also the question of actual or probable governmental control over production in view of excess capacity.

2. The existing cost-price relationship may throw light on prospective supply. Speaking very generally, there is a tendency for individual producers of a commodity to curtail or suspend their operations when the price of the commodity has fallen below their respective variable costs of production. Total new supply comes to market, therefore, in reduced volume. On the other hand, when the price has again risen above the variable costs of the higher-cost producers, these producers once more enter the market and add to the total supply. Special stimulation is of course given to production when the cost-price relationship is such as to afford an attractive profit. These tendencies are modified in practice by many factors. Costs are often not known accurately; and numerous internal situations and external competitive conditions also help to determine the scale of operations in individual establishments.

3. For most of the agricultural commodities, estimates of prospective supply are made public by the crop-reporting service of the Department of Agriculture. The market prices of these commodities respond sensitively to the crop reports and to some extent discount them in advance. The Outlook Reports, also issued by the Department of Agriculture, supplement the statistical estimates of prospective supply.

An estimate of prospective demand may be arrived at by examining the need for the commodity, the purchasing power of the buyers, and their willingness to buy:

1. It is very difficult to measure the need for a commodity, but a presumption as to its size may be set up by comparing the actual consumption of it during the recent past with the average or normal volume of consumption. Moreover, following a period of subnormal consumption it may be presumed that a greater need has accumulated for durable commodities than for perishable commodities, and for luxuries than for necessities.

2. But even though it may be clear that a substantial need for the commodity exists, the need will not develop into actual demand unless both the power and the willingness to buy are present. With respect to commodities ready for personal rather than for industrial consumption, data on wage payments and employment conditions will throw some light on purchasing power; but it is also important to look ahead to the prospective conditions of employment. As to

purchasing power for industrial commodities, the cash position of important buyers and the credit and capital situations are significant guides. Fortunately, it is possible to ascertain whether or not credit and capital are available. The *attitude* of bankers and investors is of great importance in this connection. There may be a large supply of potential credit which is not offered by bankers and a large supply of capital which is not being invested in industry.

3. Willingness to buy depends upon such considerations as whether the price of the commodity is attractive or otherwise. A low price is not necessarily attractive. In actual practice, a price is attractive to buyers when they believe that a higher price will shortly prevail. It is at such times that larger commitments are made. Conversely, a reduction in the volume of buying will take place, not so much because the price has risen to a high level, as because there is indication that it will decline. The probable price movements of substitute products will also influence buyers in making commitments in a given commodity. Moreover, the degree of confidence in the general business and political outlook on the part of industrial buyers may have a decisive influence on the volume of purchasing. One of the clearest lessons from the depression of the 1930's is that lack of confidence in the political and economic future may postpone commitments in commodity markets, even though both the need and the purchasing power be present.

There may also be discovered in the demand for certain commodities a long-time trend, which should be taken into account in estimating prospective demand. In the case of cotton, for example, the U. S. Department of Agriculture found an upward trend of demand during the period 1920–1926 which amounted to approximately eight-tenths of a cent per pound per year.[1]

General Business Conditions

General business conditions may be at times the most important influence on commodity prices. It is essential in forecasting the price of a commodity to include a general business forecast as a part of the price analysis. But it is equally essential to recognize that the prices of individual commodities are affected in different ways and in different degrees by general business conditions.[2] General

[1] U. S. Department of Agriculture, Technical Bulletin 50, *Factors Affecting the Price of Cotton* (Washington, Government Printing Office, 1928).

[2] Comparisons of the prices of individual commodities over a period of years emphasize the great variety of price reactions to such *general* cyclical movements as may be discovered. This is one of the "two significant facts" to which Professor Mills drew

conditions affect the price of a commodity only in so far as they induce changes in the supply and demand relationships in the market for the commodity. It is a necessary part of the price forecast, therefore, to ascertain as precisely as possible how the general conditions to be expected will affect the market for *this* commodity. The effect of general conditions may be approximated by statistical comparisons over a representative period, with allowance for such new factors as may have entered the picture.

Other Factors

Among the many things that must be considered in making a price forecast, three others may be cited briefly:

1. There is an emotional element in a commodity market, which, expressing itself sometimes as speculative rapaciousness and again as devastating fear, often lifts or depresses the price far beyond the limits indicated by the economics and common sense of the situation. This emotional factor should be included in the analysis, and it is usually wise in forecasting a price change to expect movement beyond the point which the economic analysis alone would suggest.

2. The bargaining situation in the market is an independent influence in price changes. In estimating the future price of a commodity, it is important to know whether the buyers or the sellers are the better bargainers.

3. A sensitive and accurate "feel" of the market, which supplies a judgment on factors that are not measurable statistically, is an indispensable element in successful price forecasting. It epitomizes the art of forecasting in contrast to the science. Ability to feel the market is based partly on native shrewdness and partly on long experience. It cannot be acquired rapidly by means of economic and statistical studies.

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attention in his study of prices during the period 1890–1925 (Mills, *op. cit.*, p. 438). Dr. Tintner concluded as a result of his study of prices in several countries covering a period of more than half a century prior to the war of 1914–1918 that "the cyclical movements are less general and more varied than is usually supposed. In several countries certain industries show a cyclical course and rhythm which is quite different from those of other industries. The international connection of the national cycles of prices is in some respects not very close. We conclude that the cyclical movement of prices is not uniform enough to be expressed in a general index number." Gerhard Tintner, *Prices in the Trade Cycle* (Vienna, Springer, 1935), p. 80.

A. COPPER PRICE ANALYSIS

Forecasting the Price of Copper in 1929

In the *Engineering and Mining Journal* for April 6, 1929, appeared the following article entitled "What Will Copper Do?" by Arthur B. Parsons, Vice President of the Mineral Research Corporation:[1]

Early last August I wrote for the *E. & M. J.* an article captioned "Copper Outlook Brighter; Industry in Strongest Position Since the War." The concluding sentence was, "The stage seems set for an era of

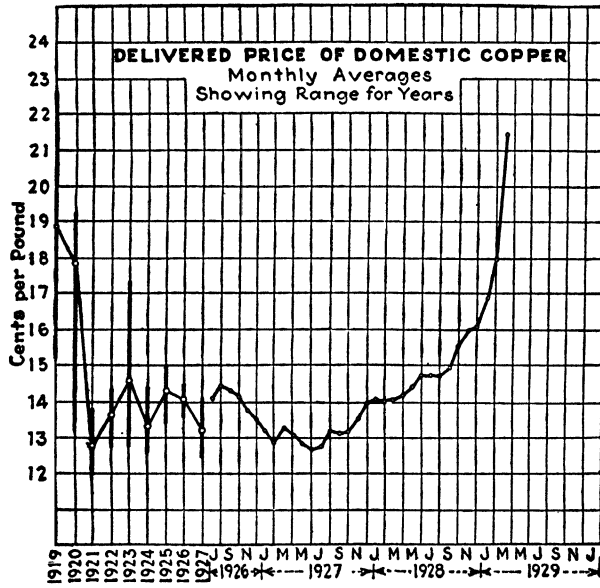


Exhibit 1.—Trend of Copper Price in Recent Years.

better times in copper." I ventured to predict a substantial increase in consumption and higher prices for the metal, with consequent prosperity for the producers. Other less optimistic "students" of the copper market suggested that I must have been wearing rose-colored glasses. Copper was then selling at 14¾ cents delivered, and world's production and apparent consumption for the preceding five months had been at the average rate of 1,828,000 tons per year. As this is written the price is 24 cents (by the time it is in print this price may be but a memory), and the average rate of production and apparent consumption for five months has been 2,135,000 tons, an increase of 16.8%. Assuming that the average cost of production is 9 cents per pound, the earnings of the copper industry at the moment would then be at the rate of $640,000,000 per

[1] Reprinted from J. L. Snider, *Business Statistics* (New York, McGraw-Hill, 1932).

year, compared to $210,000,000 last August. I am fully aware of the fact that the companies have not sold, and are not likely for a long time to sell, a year's production at 24 cents, but the comparison serves to delineate the present position—a position which most will agree is abnormal.

When I wrote the bullish (as most called it) article in August I did not dream of a condition like that existing today; nor do I think that the most optimistic among the producers had any serious notion that copper would reach 24 cents, or for that matter 20 cents; for the advance above 20 cents is the result, more or less, of mere momentum.

The questions that many would like to have answered are these: (a) How long will copper stay at 24 cents (or 26 or 27 cents—wherever it may find a top); (b) how fast will it go down when it does start down; and (c) at approximately what price range ought it to reach reasonable stabilization over a period of several years? No one can supply the answers with any assurance—certainly I will not hazard any definite guesses. It is interesting, however, to enumerate and examine some of the factors that have a bearing on the subject. That I shall attempt to do, and the reader can make his own conjectures.

One must of course start with the fundamentals: (a) Consumption: What the needs of industry will be, and how these needs may be affected by price; (b) Production: What can be produced, and what will be produced under the stimulus of certain prices for the product; (c) Unit cost of production: The price of a commodity for which there are numerous substitutes, which is in universal use, and in the production of which there is no monopoly, is going to coincide roughly with the cost of production of the "marginal" supply—that is to say, the most expensively produced metal that is needed to meet the demand. The smaller the proportion that high-cost production bears to the total, the less likely the price is to remain at high levels.

In addition to these three fundamental economic factors, there are four collateral factors that must be taken into account, both in explaining the recent behavior of the metal market and in analyzing the future. These are: (a) The market for shares in metal-mining companies. "As the metal goes, so go copper shares"; and as many important producers are interested to a more than incidental extent in the share market, this factor is important. (b) The Copper Institute, an organization through which comprehensive statistics of production, sales, selling prices, and consumption of copper are made available to producers and sellers of the metal. (c) The progress in the merging of producing companies and the vertical integration in the copper industry whereby activities in mining, smelting, refining, fabricating, manufacturing, and marketing come under a single control. (d) The "psychology" of buyers, taken collectively, that induces them to become panicky on a rapidly rising market and make purchases in large—even excessive—volume and for many months in advance.

Each of the foregoing factors either has had some influence on the phenomenal climb of the price of copper or will have an influence on the descent that seems certain to eventuate. Naturally, the interplay between the various forces has been rather complex, but they will be considered in order as logically as possible.

Consumption. In considering this factor a distinction must be drawn between "apparent" and "actual" consumption. The American Bureau of Metal Statistics compiles monthly a reliable figure showing shipments of refined copper to domestic (U.S.A.) consumers. This gives a means of ascertaining apparent consumption in the United States. To get monthly data on world consumption the only practicable method is to adjust the figure representing production by the amount of change in stocks in the hands of producers. These include supplies at smelters and refineries in North and South America and at warehouses in Great Britain, Havre, and Japan. Stocks (see Exhibits 3 and 4) have changed only a little

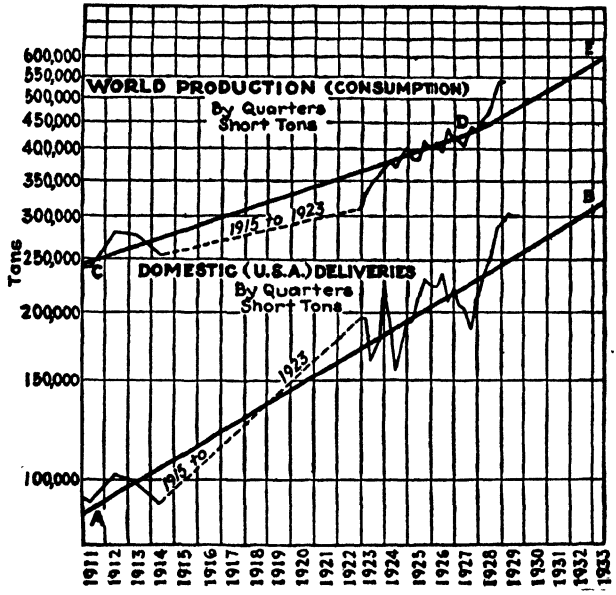


EXHIBIT 2.—Trends of Domestic and World Consumption.

since June, 1928, so that from a practical standpoint apparent consumption has synchronized with world production—which, as already pointed out, has been at a record-breaking rate during the last five months. The accompanying chart (Exhibit 2) shows graphically domestic deliveries and world production by quarters. The plotting is on a logarithmic scale, so that a trend line that is straight represents a uniform acceleration in the rate of increase. The line AB indicates the trend of domestic consumption; the slope is such that the figure for each year is exactly 6% higher than that for the preceding year. The portion CD of the line representing the trend of world production shows a less rapid acceleration, but it is assumed that by the middle of 1927 European economic conditions had been readjusted to such an extent that the trend line for the next few years might reasonably be projected on a slope showing 6% annual increase. This line is DE.

The feature of the chart is the rather startling behavior of the broken lines showing the consumption in the last quarter of 1928 and the first quarter of 1929. The points representing the final quarter of 1928 were apparently abnormally high, but not to such an extent as to cause surprise. However, the fact that, instead of turning back toward the normal, the "curves" continued upward warrants some speculation as to possible explanations. There are two: (a) that, as a consequence of activity on the part of electrical manufacturing, automobile, and public-utility companies, and in a dozen lesser industries, this vastly increased amount of copper has found its way into the possession of the ultimate consumer—into actual consumption; or (b) that somewhere between the copper

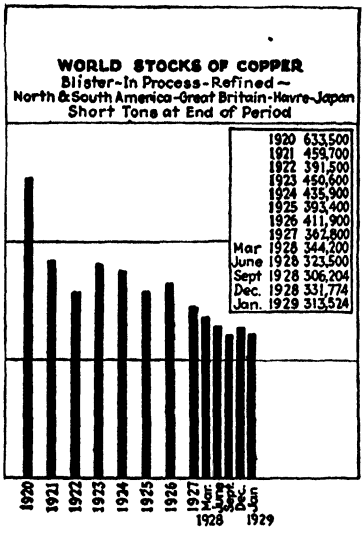


EXHIBIT 3.—World Stocks of Copper in Recent Years.

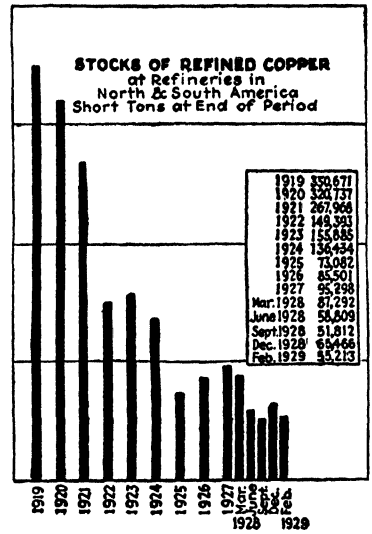


EXHIBIT 4.—Refinery Stocks Show Little Decline in Eight Months.

refinery and this ultimate consumer a substantial accumulation of stocks has taken place. Producers insist that their immediate customers—the so-called fabricators—have not accumulated copper to any great extent; but it must be recalled that five or six months ago the policy of hand-to-mouth buying was being followed to the utmost, and that even a modest realignment in this respect on the part of scores of fabricators would in the aggregate account for a good tonnage of copper. Further down the line are the manufacturers and even jobbers in whose hands a lot of "unconsumed" copper may have accumulated. Those who are inclined to think that the actual consumption is very much less than apparent consumption argue that with a commodity in such large, diversified, and general use as copper, an increase in *actual* consumption of 20% in a period of a few months is contrary to economic experience.

The importance of the answer to the question whether actual is much less than apparent consumption lies largely in its bearing on the approxi-

mate date at which the downward readjustment of present prices will commence. If the shipments from refinery reflect closely the actual rate of ultimate consumption, the present demand and high prices should continue for many months. If the contrary is true, the decline should start at a much earlier period. The reaction seems sure to come; the element of uncertainty is that of time.

The optimist declares that the cumulative results of the recent years spent in disseminating propaganda in behalf of the use of copper are only now coming to the surface; the pessimist retorts that present prices will alienate much of the favor that has been won. He can point to the fact that one of the largest companies in the United States, ranking within the first half dozen in the quantity of copper it consumes, recently issued instructions to all its manufacturing managers to make a special effort to substitute other metals or alloys for copper, because of the "exorbitant and unjustified" price being asked for the metal.

Except for a small quantity of secondary or salvaged metal that finds its way into the plants of primary producers, the statistics are concerned only with primary or newly mined copper. Under the stimulus of higher prices there undoubtedly has been marked expansion in the activities of collectors and smelters of secondary metal. No one is quicker to take advantage of a rapidly rising market than the "junk" dealer. He will hang on to his scrap copper till he thinks the peak price has been reached, then sell it to the smelter of secondary metal. The smelter, appreciating this condition, has sold casting copper for future delivery but has hedged by buying electrolytic. As the scrap comes out the electrolytic is released, thereby suddenly adding several thousand tons to the market supply when it is believed that peak prices have been reached.

The situation resembles that which arose several years ago when lead was selling at from 9 to 10 cents and a world shortage was predicted. With copper now, as with lead then, salvaging operations increased markedly, and they will tend to prevent the demand for virgin copper from increasing as rapidly as it otherwise would.

On the whole, therefore, it seems reasonable to project the lines of probable consumption through 1933 as shown on the chart. Certainly if the data available included only those through the third quarter of 1928, the forecast for future consumption would be no greater than that shown. The period since then has been abnormal for copper in several respects; and five months is too short a period to establish with any definiteness a radical change in the trend of consumption. The assumption that domestic consumption will continue to expand at the rate of 6%

EXHIBIT 5

ESTIMATED CONSUMPTION OF COPPER

Year	Short tons
1929	1,900,000
1930	2,010,000
1931	2,130,000
1932	2,260,000
1933	2,400,000

cumulative per annum, and that commencing sometime in 1927 this rate became applicable to the entire world, appears to be justified. Whether this view is too conservative or not, only the future will reveal. On this basis the approximate figures of consumption may be read from the chart as shown in Exhibit 5.

Production. Heretofore the problem that has confronted producers has been this: How soon will world demand be such that productive operations can be conducted at the maximum of equipped capacity without resulting in a burdensome increase in stocks of metal in the hands of producers? In the article published in August, I attempted to estimate the equipped capacity of the important copper producers in the world. At that time I estimated that world production in existing plants could amount to 2,076,000 tons and that this could be realized without sacrificing efficiency of operation. As a matter of fact the actual production, based on the performance of the last five months, has been at the rate of 2,135,000 tons per annum. If this rate can be maintained (and I am satisfied that it can), there is no need to fear any shortage of copper until 1931, even if the estimates of consumption shown in the foregoing table fall short of

EXHIBIT 6

POSSIBLE PRODUCTION IN 1929

(Short tons)

Anaconda	150,000	Andes	100,000
Arizona Commercial	3,000	A. S. & R. (Mexico)	10,000
Calumet & Arizona	35,000	Boleo	12,000
Calumet & Hecla	72,000	Braden	100,000
Consolidated Coppermines	12,000	Bwana M'Kubwa	8,000
Copper Range	13,000	Cerro de Pasco	50,000
California Copper	6,000	Chile Copper	180,000
Ducktown (including Fontana)	6,000	Furukawa	18,000
East Butte	3,000	Granby Consolidated	30,000
Inspiration	55,000	Greene-Cananea	40,000
Kennecott (Alaska)	20,000	Howe Sound	25,000
Magma	20,000	International Nickel	30,000
Mason Valley	6,000	Mansfield	30,000
Miami	35,000	Matahambre	18,000
Mohawk	11,000	Mazapil	6,000
Mother Lode Coalition	10,000	Moctezuma	20,000
New Cornelia	45,000	Mt. Lyell	8,000
Nevada Consolidated	163,000	Naltagua	6,000
Old Dominion	10,000	Namaqua	3,000
Phelps Dodge (U. S. A.)	95,000	Noranda	35,000
Quincy	6,000	Poderosa	2,000
Shattuck Denn	3,000	Sumitomo	18,000
Seneca	2,000	Union Minière du Haut-Katanga	120,000
Tennessee Copper	6,000	Total foreign	869,000
United Verde	85,000		
United Verde Extension	25,000		
Utah-Apex	4,000	U. S. and foreign	1,966,000
Utah Copper	190,000	Unlisted	325,000
Walker	6,000		
Total U. S.	1,097,000	Total short tons	2,291,000

the real figures by 10% in 1929 and 6% in 1930. The accompanying table shows the principal producers of copper and an estimate of what each is prepared to produce in 1929, and what each will produce if nothing of an untoward nature in the metal market develops (see Exhibit 6).

If the economic incentive (in plain language, high metal prices) exists, producers of copper will find ways and means of meeting the demand. One company is mining and milling upward of 75,000 tons of ore daily, against about 40,000 a year ago. Others have increased output by from 10% to 40%. Several measures are available: the plant capacity measured in copper can be increased by mining ore of somewhat higher average grade, or the through-put frequently can be increased by a small sacrifice in the fineness of grinding and the percentage of recovery in the concentrate.

Smelter capacity in the aggregate is substantially in excess of any likely production, because of the great increase that has taken place in the average grade of concentrates produced. In some quarters there is a tendency to question the adequacy of refining capacity. Within reasonable limits this can be expanded to meet all requirements. Several new electrolytic plants have been completed recently, and at least three others are in process of construction.

Much has been said of the tendency of higher prices for the metal to stimulate the opening of the small high-cost mines that cannot work profitably when lower prices prevail. This of course is a factor, but it is a small one compared with the increases in production that can be effected by the large established producers when and if they can see an outlet for the increased output. Because of the comparative simplicity of present-day concentrating plants, a large increase in capacity can be attained by the addition of a comparatively small amount of equipment.

Looking ahead to 1933 it appears that less than 125,000 tons in addition to the tonnage listed in Exhibit 6 will be required. To provide this there will be available new production from Africa and Canada, which alone should easily provide the necessary metal.

Thus far no account has been taken of expansion in plant by the present important producers. Even if the estimate as to the rate of consumption is found to be, say, 10% or 15% low, the fact will develop soon enough to permit the installation of such equipment as is needed to speed up production at producing properties. What the situation may be ten or even eight years hence is not so easy to foresee; but it is decidedly difficult to demonstrate that there is any likelihood of a famine for copper prior to 1935.

Unit Cost Production. No better proof of the abnormality of the present price of copper could be adduced than the fact that considerably more than 95% of the current supply is produced at a cost, exclusive of depletion, of 14 cents or under. It is highly improbable that ½ of 1% of the total costs 17 cents. Theoretically, a situation such as this corrects itself automatically: the high price stimulates increased production, the supply outstrips demand, and the competition among sellers to dispose of their product forces the price to recede. As the price goes down those who are unable to produce at a profit normally stop producing. The progressive withdrawal of high-cost producers as contributors to the supply causes an equilibrium to be reached between supply, demand,

and price. A few producers who can just "break even" continue to turn out metal because it is expensive to shut down mines and they have hope that an increase in consumption and demand presently will raise the price so that they can again operate at a profit. In theory, it is the production cost of these so-called marginal producers that establishes the price. If, on the other hand, consumption has a decided upward trend, production may lag behind and the bidding of buyers against each other raises the price. As the price goes up, the progression is reversed, and more and more of the higher-cost producers become contributors to the supply. When enough of these have begun to operate, equilibrium is again established and the price is fixed approximately at their cost of production. Naturally, in practice this fundamental economic law does not operate with perfect precision and promptness. For example, if consumption (or apparent consumption) increases with great rapidity, and if for any reason production cannot be or is not increased rapidly, a situation may be created where for the time being sellers can obtain almost any price. That apparently is what has happened in the copper industry during the last few months. It seems safe to predict that in due time there will be a readjustment, and that a reasonable relationship between selling price and the production cost of a not inconsiderable "marginal" supply will be restored. At what price level this relationship will be established no one can say; but I will hazard the guess that it will be under 17 cents. How a readjustment can fail to take place, unless some artificial obstruction is put in the way, is hard to see. Parenthetically, one may recall that it was not so long ago that certain important producers openly declared that the copper industry could thrive on a market ranging between 15 and 15½ cents; they went so far as to say that higher prices would be unfortunate for the industry. As to this they may of course have changed their views.

EXHIBIT 7

DISTRIBUTION OF 1929 PRODUCTION ACCORDING TO ESTIMATED COST

Cost per Pound	Per Cent of Total	Cumulative Per Cent
7¢ and under	26.0	26.0
7 to 9¢	24.0	50.0
9 to 11¢	36.0	86.0
Over 11¢	14.0	100.0

The 325,000 tons shown as unlisted (Exhibit 6) is included in "over 11¢" distribution.

This leads to a consideration of the four collateral factors that have been enumerated. To a remarkable extent prices for shares in copper-mining companies gyrate in synchronism with the price for the metal. If, for any reason, bankers or others who dominate the affairs of copper-mining companies desire to stimulate keen public interest in copper stocks and to increase the market price of shares, they must have favorable prices

for the metal. It may be said that several of the large copper "interests" have had various definite and obvious reasons for desiring a sharp and sustained advance in share prices; and consequently they have looked with favor upon an active upward movement in the market price for the metal. On the other hand, some of the producers, feeling that the eventual reaction would be harmful, looked with disfavor on some of the advances in price; but it is obvious that they could not in their own interest fail to follow the market. The only practicable means available for retarding the advance was to increase their output, and the evidence is clear that they have done their utmost in this respect.

The second factor, aside from those factors of consumption, production, and unit cost, is the information made available by the Copper Institute, supplementing Copper Exporters, Inc. Membership in this organization includes companies that produce about 95% of the American production of copper—essentially the same group as compose Copper Exporters. The purpose as set forth broadly in the constitution is "to aid the copper industry through wider knowledge and clearer understanding of the economic factors affecting the production, manufacture, distribution, and consumption of copper and copper products." The principal activity thus far has been the collection, compilation, and distribution among its members (and, incidentally, *only* among its members) of very complete and informing statistics concerning production, prices, sales, and deliveries of copper. Presumably it is more than a coincidence that, following the launching of the Institute in November, 1927, a radical change took place in the policy of the important sellers. Whereas suspicion of each other, a habit of shading prices, and resort to seemingly futile competitive methods had always been a characteristic of copper sellers, the year 1928 was marked by an era of sane marketing. On three occasions during the early part of 1928, periods of five or six successive weeks were allowed to elapse during which aggregate sales were meager in the extreme, but during which the large producers persistently held to a price until they were rewarded by huge buying waves. Prior to that time some seller under similar circumstances always had lost his nerve and had precipitated a general decline in the market by shading his price. As soon as weakness became apparent, the buyers had the upper hand and took full advantage of it. Under the Institute régime each seller was given at frequent intervals an accurate statistical picture of the market position as a whole; he was able to gage the latent demand behind the market and thereby was enabled to shape his selling policy intelligently. In the same way the mining companies had complete information with which to guide their production policy. No collusion was necessary; but each group was enabled to act for its own best interest on the basis of the data supplied by the Institute.

No less apparent are the results of both horizontal and vertical integration of the industry. Gradually a considerable number of the smaller mining units have disappeared as separate entities, either through mergers or through the passing of control to one of the larger groups. This has tended to concentrate the formulation of broad policy—as of production, for example—into fewer hands and has thereby reduced the number of conflicts of interest, no doubt to the advantage of all. Also, the progress made by mining and smelting companies toward allying themselves,

corporately or otherwise, with fabricating companies has had an influence (potential at least) on the behavior of the market. Normally the two "sides" of the copper market are the mining and smelting companies as producers and sellers, and the so-called fabricators as consumers and buyers. It is not difficult to see that if a substantial element of the buying group is absorbed by the selling group, the tendency is to weaken the forces that make for a sharp definition of the market price. In a tight market the existence of "buyers" who are not interested in keeping down the price may easily help the market up.

The last of the collateral factors is the "psychology" that induces buyers to rush into a rapidly rising market. This applies to buyers all the way down the line to the jobber of copper or brass products. It applies to European consumers as much as or more than to those in the United States. When the price of a commodity has shown a substantial advance, and when the air is full of propaganda that much higher prices are likely, it is human nature and good business perhaps to anticipate the further advance by purchasing somewhat more than enough to meet current needs. When the financial papers have repeatedly broadcast prophecies of advance, and when these prophecies have been fulfilled according to schedule, the buyer naturally believes in the accuracy of further forecasts. The producers declare—and in the case of many they are probably correct—that their immediate customers have taken only current needs, but the customer's customers and buyers still further removed from the producer have probably accumulated stocks of metal. It is on the assumption that they have that the hypothesis is based that apparent consumption has exceeded actual consumption by an appreciable margin.

It is maintained frequently—and stoutly—that since the 18-cent level was passed the producers have been helpless and that consumers ran the price up by their insistence in buying. Some producers, I am sure, would have liked to see the price kept down; others perhaps were glad to see it soar and will be still more glad if it soars higher. But in any event the persistent demand on the rising market helped the price up.

From a purely economic point of view, the one uncertain factor in the situation is this: Has actual consumption—huge though it is—been substantially less than apparent consumption? If the phenomenal increase in shipments reflects a corresponding increase in ultimate consumption, and if the rate of increase is sustained, the market may remain in the producers' hands for many months, and they will be able to obtain fancy prices (anyone will agree that a price above 20 cents is fancy) for a considerable period. But if any producer today looks for 20-cent copper a year hence, he is not bold enough to say so.

If, on the other hand, actual consumption is much less than apparent, there should be a very substantial increase in stocks in the hands of producers, to be revealed in the statistics in the third quarter of 1929; and that will alter the entire outlook. It must be remembered that producers already are well sold for July, so that there will be no strong compulsion to cut prices for several months. When the decline does begin, it may be drastic and rapid or it may be slow and orderly. This much may be said: that the character of the "retreat" will depend entirely upon the action of the producers. Through the data obtained from the Institute they will be able to foresee any marked divergence between the rate of

production and the probable demand. If, as a group, they exercise even a small part of the common sense, patience, and restraint that they displayed during the year 1928, it should be possible to stabilize the market in a comparatively narrow price range that should be satisfactory to producer and consumer alike. To close this article with a note of optimism:

Whatever develops during the next nine months, the records will show 1929 to have been a banner year for the copper-mining industry.

The average price of copper for 1930 was 18 cents. During 1932, the price of copper dropped as low as 5 cents. In his analysis, did Mr. Parsons overlook or fail to emphasize any important factors?

B. DAWSON COTTON MILLS COMPANY

Forecasting the Price of Cotton in 1932

Early in October, 1932, the cotton buyer of the Dawson Cotton Mills Company asked the president, in view of the existing low price of cotton, to authorize a substantial purchase in excess of current requirements. From the spring of 1929, when a long decline in cotton prices had set in, the Dawson Cotton Mills Company had followed a strictly hand-to-mouth buying policy. The price had reached a low of 5 cents in June, 1932, then had advanced to 9.2 cents in August, and had receded to 6.5 cents early in October. The cotton buyer had become convinced that at this time the company should purchase ahead of current requirements. As he explained to the president, his recommendation was not the result of an analysis made the day before, but represented his final evaluation of many developments which had been taking place over a period of several months, tempered by a "feel" or judgment of the market built up through years of experience. In making this purchase, it was not the buyer's plan to use the cotton at once, but rather to hold it until prices had risen. In the meantime, current buying for immediate manufacturing needs would be continued.

In each year of the depression, as shown in Exhibit 1, production of American cotton had exceeded consumption. The crop in the 1931–32 season, furthermore, had been unusually large. Thus the stocks of American cotton had been built up to record levels; and the price of cotton had declined not only with the prices of other commodities but also as a result of the pressure from the large excess stocks. By October, 1932, however, the supply situation appeared

to be somewhat changed. The 1932–33 crop was estimated at 11,945,000 bales, a figure 29% below that of the previous season. This estimate could be accepted as approximately accurate since by October it was possible to determine fairly closely the size of the total crop of American cotton for the current season.[1] Meanwhile also world consumption of American cotton had begun to increase from its depression low. During each month of the 1931–32 season, consumption had been equal to, or somewhat above, that of the corresponding month in the previous year; and consumption for September, 1932, had been 10% above that for July, 1932, even after seasonal adjustment.

EXHIBIT 1

TOTAL SUPPLY AND WORLD CONSUMPTION OF AMERICAN COTTON, BY SEASONS, 1928–29 THROUGH 1932–33

(Thousands of bales)

	1928–29	1929–30	1930–31	1931–32	1932–33
World carry-over (August 1)	5,206	4,517	6,187	8,919	13,323
Production	14,555	14,716	13,873	16,877	11,945*
Total supply	19,761	19,233	20,060	25,796	25,268
American consumption	6,778	5,803	5,084	4,744	
Foreign consumption	8,448	7,218	6,029	7,667	
World consumption	15,226	13,021	11,113	12,411	

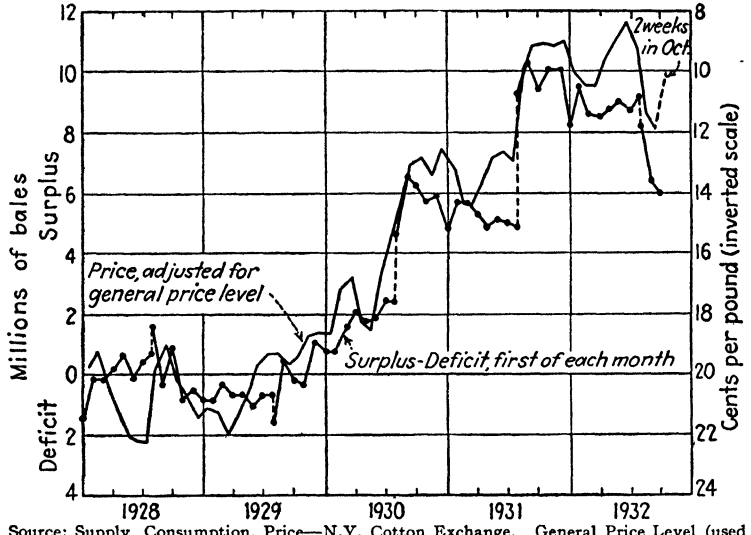
* Estimated.
Source: New York Cotton Exchange, *Cotton Year Book, 1932*, pp. 4, 5, 28.

For some time, the cotton buyer had made a practice of calculating currently the surplus or deficit in the supply of American cotton and of charting the figures with data on price. Three of his charts were as shown herewith (Exhibits 2, 3, and 4).

From a study of past carry-overs and consumption, it was apparent to the buyer that the normal carry-over was equivalent to 4 months' consumption. Inasmuch as the new crop should be equivalent to 12 months' consumption, the normal supply on August 1 would be equivalent to 16 months' consumption. On the first of each succeeding month, the supply should be lower by one month's consumption, until the following August 1, when, with the new supply added, the total supply should again be equivalent to

[1] The cotton season, or year, begins on August 1, and the supply of cotton on that date is known as the carry-over. Ordinarily about 80% of the crop is ginned and sent to market during September, October, and November.

16 months' consumption. The surplus or deficit figure for the first day of any month the buyer determined by dividing the actual consumption for the previous month by the seasonal index of consumption for that month and multiplying the quotient by the figure representing the proper number of months' supply for the particular date. This figure for the supply which should be on hand to meet requirements for consumption at the current rate he compared with the supply actually on hand, in order to determine the surplus or deficit. For example, to calculate the surplus or deficit as of Septem-



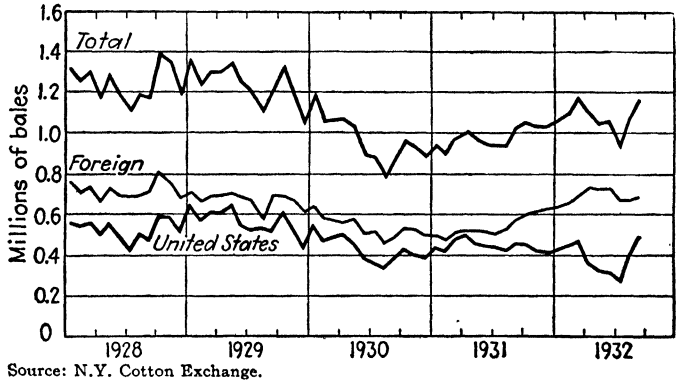
Source: Supply, Consumption, Price—N.Y. Cotton Exchange. General Price Level (used to deflate cotton price)—U.S. Bureau of Labor Statistics.

EXHIBIT 2.—Surplus or Deficit of American Cotton in World, and Average Monthly Cotton Price.

ber 1, 1932, the August consumption of 1,067,000 bales was divided by the August seasonal index of 94 to get an adjusted monthly consumption of 1,135,000 bales. On September 1, the supply should have been equivalent to 15 months' consumption, or 17,025,000 bales. The actual supply on that date was 23,593,000 bales. Thus there was a surplus of 6,568,000 bales. Again, on October 1, 1929, as shown in Exhibit 2, supply and consumption had been in equilibrium. By July 1, 1930, however, the rate of consumption had declined; and even though nothing had been added to the actual supply, a surplus was shown of 2,500,000 bales above the quantity needed to support consumption at the existing rate. The surplus and deficit figures for the first of each month from January, 1928, to

October, 1932, determined on this basis were as plotted in Exhibit 2. For August 1, one figure was calculated on the basis of 4 months' supply and another on the basis of 16 months' supply, as shown by the vertical dotted lines. The surplus-deficit for August 1 each year was charted at two levels, the difference representing the amount by which the new crop was above or below a 12 months' supply at the current rate of consumption.

In order to study the influence of the surplus-deficit supply situation on the price of cotton, the buyer plotted also the monthly average price (see Exhibit 2). In doing this, so far as possible he eliminated the effect of changes in the general price level by dividing



Source: N.Y. Cotton Exchange.

EXHIBIT 3.—Monthly Consumption of American Cotton.

the monthly average price of cotton by the monthly index of the wholesale prices of all commodities constructed by the U.S. Bureau of Labor Statistics.

In showing his charts to the president, the cotton buyer called attention to several significant facts. He pointed out that for two years total consumption of American cotton had shown a rising trend, as indicated by the upward movement of the lines in Exhibit 3, and by the downward inclination of the surplus-deficit line in Exhibit 2. In August and September, 1932, consumption had been unusually heavy, and had reduced the surplus very appreciably, as shown by the sharp drop in the surplus-deficit line in Exhibit 2. If consumption should continue at the July rate, the 1932–33 crop was not sufficient to meet the year's requirements. Therefore it appeared that the peak of excess supply had definitely been passed. The surplus as of October 1, 1932, was only 60% as great as it had been at the peak, on September 1, 1931. Furthermore, the price

had reacted sharply from the September high; and the buyer believed that at the existing figure cotton was underpriced.

Although he centered his attention on American cotton, the buyer also took account of the supply of foreign cotton, inasmuch as a large increase in that supply would depress its price to a point where it would be more attractive to foreign mills than American cotton. The foreign crop for 1932–33 was estimated at 10,400,000 bales, a figure 17% higher than that for the previous season, but the carry-over was much lower than in previous years, with the result that the total supply of 14,300,000 bales was only 4% above that of the previous year. The buyer saw nothing in this situation which would cause a further decline in the price of American cotton.

The supply of American cotton for the current year was essentially fixed; and it would be 6 months before any definite information on the 1933–34 crop, in the form of a report on the acreage planted, would be available. There was, however, some expectation in October, 1932, of a reduced 1933–34 crop. The low price for the current crop might influence some farmers to curtail acreage and would certainly result in their buying less fertilizer. There was, moreover, a threat of damage from the boll weevil. Nevertheless the buyer believed that it was too early to begin estimating the probable 1933–34 crop; any opinion at that time could be only a guess.

The domestic outlook for consumption was decidedly encouraging. The depression low seemed to have been reached in July, 1932 (see Exhibit 3). The revival had been sudden; September consumption had been about equal to the 1931 average, and activity of mills during October was continuing at September levels. Mill stocks of raw cotton on September 30 had been considerably higher than those of the previous year. Distributors' stocks of finished goods were low, despite the increased buying of finished goods from mills during August and September; and with the elimination of the fear of lower prices, there was strong possibility of increasing replenishment of distributors' stocks. Consumption of clothing by the public had been restricted, and indications were that the pent-up demand would make itself felt before long. There was also indication of a slight improvement in the activity of industrial consumers of cotton, especially the automobile industry. (Industrial consumption constituted about one-third of the total American demand for cotton.)

In a consideration of consumption, the foreign situation was important also, since foreign mills had consumed 56% of the Ameri-

can cotton produced during the previous five years. Foreign consumption seemed to have passed its depression low point (see Exhibit 3). It had been increasing steadily during the season just ended, averaging 647,000 bales a month as against 502,000 bales a month for the previous season. The current activity of foreign mills was continuing strong. Mill stocks of cotton were not large. Foreign exchange rates appeared favorable. There was, furthermore, indication that general business abroad was improving.

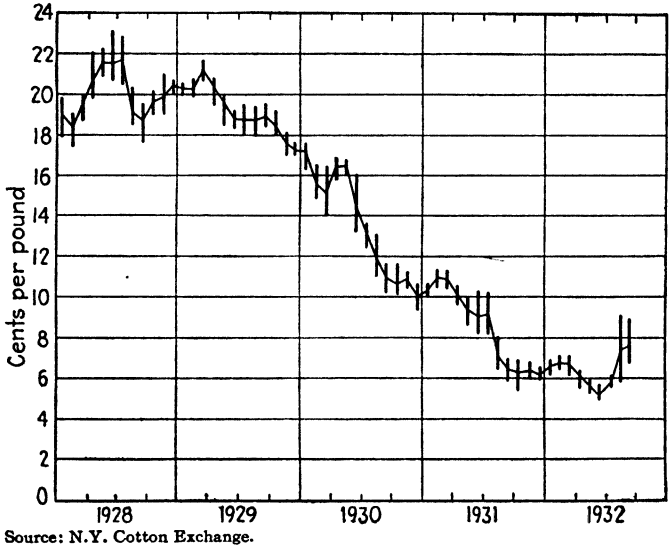
In recent issues of the *International Textile-Apparel Analysis*, the activity of foreign mills, especially those on the continent, had been emphasized, and the fact noted that economic events in Europe justified increased consumption. A favorable report was given on the British exchange position and on the increased activity of British mills. No slackening in Japan's activity was foreseen. On the whole, the possibility of further increases in foreign demand was reported as excellent.

The cotton buyer also studied the general business outlook. He placed considerable reliance upon the stock market as an indicator of business and financial sentiment toward the future. The Standard Statistics index of 421 industrial, rail, and utility stocks (expressed as a relative with 1926 equal to 100) had risen from 34.0 in June to 58.2 in September, a development which seemed favorable. The cotton buyer also took into consideration current gossip concerning the stock market, as well as editorials in financial papers such as *Barron's* and the *Commercial and Financial Chronicle*. The feeling thus revealed was varied; some persons believed that recovery was definitely at hand, while others were convinced that business would continue at the existing low levels for some time. The Standard Statistics Company had just released the results of a field survey of the opinions of executives of 530 business concerns as to the outlook. The conclusions drawn from this survey were as follows:

1. Revival has been genuine in the industries directly concerned with the replenishment of depleted consumer inventories.
2. A generally improved sentiment has, as a result, pervaded the industrial fabric of the country—hopes for the future are better, in an abstract way, than at any time since the full force of the depression was felt.
3. These hopes are modified, however, by an inherent skepticism which is preventing management from abandoning its previous policy of extreme conservatism.
4. Actual improvement has been decidedly spasmodic in character—largely limited to the textile and shoe industries, and to the territories in which these industries are mostly concentrated.

5. The forces which set the recovery in motion were largely seasonal or temporary in their origins.
6. These same forces will be spent in another month or two, and must be supplanted by other equally effective stimulants to prolong the advance.
7. Preliminary indications of new forces of equal intensity are decidedly scanty and quite inconclusive.[1]

The cotton buyer was inclined to believe that business would continue at the September, 1932, or at a slightly higher, level until spring. He was somewhat encouraged by the action of the stock market. The impending presidential election was another factor



Source: N.Y. Cotton Exchange.

EXHIBIT 4.—High, Low, and Average Price, New York Spot Cotton.

which the buyer considered. He was of the opinion that the outcome of the election would not materially change the general business situation. There might be a temporary advance or reaction, but the basic factors would not be affected.

To complete his analysis, the cotton buyer made a survey of the recent behavior of the cotton market. As shown in Exhibit 4, the market had risen from its June, 1932, low of 5 cents to a high of 9.2 cents in August, and then had receded to about 6.5 cents in October. The rise had been caused by the news of the 1932–33 short crop, and had gone beyond the point justified by the facts. The cotton buyer

[1] Standard Statistics Company, Inc., *Standard Trade and Securities Service*, General Section, Vol. 66, No. 8, October 19, 1932, p. 12.

believed that the decline in reaction to the speculative rise had about run its course, and that the price would soon begin to rise again on the basis of the favorable facts in the situation. Moreover, the recent rise in price had had the effect of demonstrating to the buyer that the market could rise swiftly upon the receipt of favorable news.

The cotton buyer's reasons for asking the president to authorize a forward commitment might be summarized as follows: the small 1932–33 crop and rising consumption had effected a substantial reduction in the surplus of cotton; the outlook was for increased domestic demand and continuing, or slightly increased, foreign demand; the general business outlook, although not clearly favorable, showed scattered signs of improvement and would not be an impediment to increasing cotton prices; and the cotton market was at an attractive level, the commodity being apparently underpriced.

From a price of 6.57 cents in October, 1932, cotton dropped to 5.95 cents in December, stayed below 7 cents until April, 1933, and then rose irregularly to over 11 cents in January, 1934. The Dawson Cotton Mills bought cotton speculatively in October, 1932, and put this cotton into production in January, 1934. Did the cotton buyer make a sound forecast, or was there a large element of luck in the favorable outcome of this venture?

C. KINE LEATHER COMPANY

Forecasting the Price of Hides in 1939

On April 10, 1939, the Kine Leather Company received and accepted an order from a large shoe manufacturer for 6,000,000 square feet of side upper leather. Delivery was to be made in equal installments on the first and fifteenth days of August, September, and October; but the price for the entire quantity was established at the time the order was accepted.

The president of the Kine Leather Company knew that the shoe manufacturer, anticipating a rise in hide prices, was buying in advance of current needs. He recognized, therefore, the necessity of studying the market carefully before scheduling the purchases of hides from which to make the leather for this order.

The Kine Leather Company, which had been established early in the twentieth century by the consolidation of several independent tanneries, had sufficient plant capacity to produce the leather within

the specified time. The necessary financing also could be arranged without embarrassment. The shoe manufacturer from whom the order was received was a regular customer and a good credit risk. The principal problem facing the president of the Kine Leather Company, therefore, was the selection of the proper dates for making commitments for raw material.

Ordinarily the Kine Leather Company speculated in hides and attempted to concentrate its buying when prices appeared to be low. In accordance with this policy, the company intended to buy hides for the order of April 10 when prices were most favorable. Because the company's stocks of hides on hand and leather in process were relatively low at the time, leather for the order would have to be made from hides purchased specifically for the purpose.[1] Four weeks were required for the delivery of hides after they had been ordered, and processing took an additional six weeks.[2]

The assistant to the treasurer was asked to do the following:

1. Write a report on the probable course of hide prices during the ensuing six months.
2. Make a recommendation as to whether the company should fix the price of hides for the order of April 10 immediately or at some later date.

His report follows.[3]

I. General Background—Nature of the Commodity and Its Markets

Hides are produced throughout the world and priced in a world market. In so far as the United States is concerned, however, the market is a partially restricted one, for tariff barriers have been set up that tend to prohibit the free flow of hides. The supply of hides in the United States is not self-sustaining, however; and importing takes place, especially when domestic prices are attractive or when foreign stocks are abnormally high.

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[1] Leather for the order of April 10 would be made from light cowhides averaging 35 pounds to 40 pounds each, such as the "green salted packers' light native cows in Chicago" as traded on the Commodity Exchange.

[2] Although hides had to be purchased at least 10 weeks in advance of the delivery of the leather, the company, by use of the Commodity Exchange, was able to avoid fixing the cost of its raw material on the day it purchased the hides for actual delivery. This was accomplished as follows: The company purchased hides for actual delivery whenever production requirements made that necessary; if, however, it expected lower prices in the future, it sold at the same time on the futures market a quantity equivalent to that which it had bought for actual delivery. Then, when the low point of the market appeared to have been reached, the company bought futures to close the transactions on the exchange and thereby fixed its raw material costs at the low point. If the low point was reached before the company had obtained sufficient hides to fill the order, futures were bought in advance of physical purchases, and later sold when hides were bought. In either event, the company was able to fix the cost of its raw material whenever it chose, regardless of the actual purchases of hides.

[3] Adapted from a report written by J. H. Langley.

For many years hides were on the free list, but under the Tariff Act of 1930 they are now subject to a 10% *ad valorem* duty. In 1932, 56,668,000 pounds of cattle hides were imported, the lowest on record. Imports of cattle hides in 1926 represented 15%[1] of domestic consumption and in January, 1939, about 15.5%. During these 13 years the percentage of importation to consumption of leather has fluctuated widely.

Because hides are a by-product of meat production, changes in hide prices depend upon changes in meat prices. An additional factor contributing to the uncertainty of hide prices and causing wide fluctuations is that the supply cannot be rapidly increased as in the case of a mineral or a manufactured commodity like structural steel. The supply of cattle can be increased only by breeding; it takes about three years for beef cattle to reach marketing weight. Since 1934 there has been very little government activity in the control of beef production, and the trend of cattle supply and calves on farms has been slightly upward.

The producers of hides, the packers, are few, and operate under a plan of "monopolistic competition" in so far as the Federal inspection of slaughterhouses is concerned; but oftentimes control by the "Big Four" is ineffective because uninspected slaughter (i.e., slaughter on farms, in small packing centers, foreign, and so on) makes up a high percentage of the total supply of hides. In January, 1939, uninspected slaughter was equal to 44.3% of the total for the month.

An example of monopolistic competition and possible demoralizing effects on the market of concerted action by the Big Four is found when the history of hide prices in 1937 is examined. Prices went up steadily and rapidly during the first seven months of 1937 from 13.75 cents per pound to 17.25 cents per pound. The packers, especially the Big Four, held their hides as a speculation. The general business situation weakened in August, 1937, and with it hide prices. The packers, with one accord, started liquidating their tremendous stocks of green hides, with the result that prices dropped at first as fast as, and in proportion lower than, the indices of general business conditions. The packers allowed the precipitous decline of prices to continue beyond all reason because, although in most instances they are willing to sell their hides at cost, in the early months of 1937 they saw a chance of speculative profit by storing green hides. When the prospect of this profit vanished during the severe break in general business conditions of August, 1937, the packers were content simply to "get rid of" the hides at any price above costs. The ever-present possibility of such alternate withholding and dumping of hides by the large packers is just another obstacle in the way of arriving at an accurate forecast.

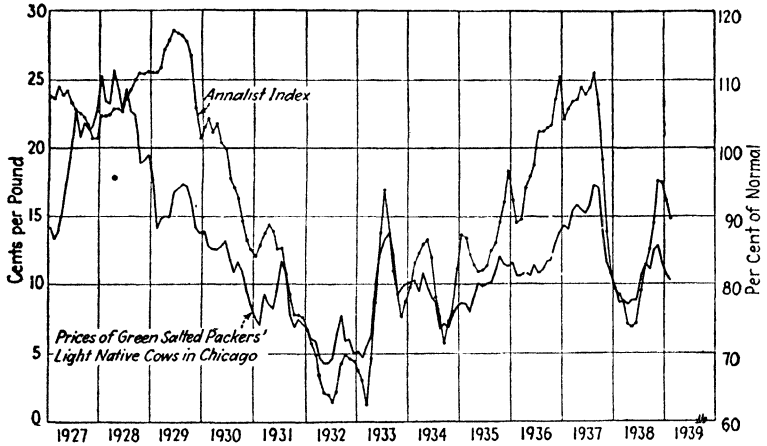
There is little organization among hide buyers, even though most of the skins are bought by one type of consumer, the shoe industry. This industry is highly competitive in all its phases, especially that branch of it where the greatest risk and greatest possible reward are present—speculation in purchase of raw materials.

There is a close correlation between hide prices and general business conditions. Exhibit 1, Hide Prices and Annalist Index of Business

[1] WARREN F. HICKERNELL, *Financial and Business Forecasting*, (New York, Alexander Hamilton Institute, 1928), p. 358.

Activity, January, 1927–February, 1939, illustrates this point. It will be noticed that in the periods of rapid improvement (spring, 1933, first seven months of 1937, and summer of 1938) hide prices went up higher, and in the subsequent "readjustment periods" fell lower, than the index of general business activity. This happening may be attributed, first, to the tendency toward speculation in hide prices on the part of the meat packers, as illustrated in the 1937 incident mentioned above and, second, to the inability of packers to adjust supply closely to demand.

The point which needs to be emphasized in this discussion is that if general business can be reasonably well predicted and shows signs of sharp improvement, it is reasonable to expect (supply factors being equal) that



Sources: Hide Prices, Commodity Exchange Monthly Statistical Supplement
Annalist Index, Survey of Current Business

EXHIBIT 1.—Hide Prices and *Annalist* Index of Business Activity.

hide prices will forge ahead of general business indices. Conversely, if the general business outlook is weak, hide prices will probably decline.

There is also a close correlation between total consumption of all domestic tanned cattle hide leather and production of boots and shoes other than rubber (see Exhibit 2). This relationship indicates that the demand for hides depends directly on the demand for shoes.

Exhibit 3 shows the inverse relationship existing between hide prices and finished stocks in all hands. This relationship is pointed out in order to illustrate graphically the effect of lowered stocks of leather on hide prices. As their inventories of tanned hides diminish, tanners buy raw hides to put into process. This cause and effect has worked out closely during the past three years. In June, 1936, finished leather stocks began to decline, and in August, 1936, hide prices began to increase. These diverse trends continued until August, 1937, when hide prices broke because of the collapse in general business conditions and dumping by the packers. This break in prices in August and a decline in consumption discouraged buying by tanners; hence leathers from the tanning process

began to swell the supply of finished stocks. This accumulation of finished stocks continued until tanners practically ceased tanning operations in

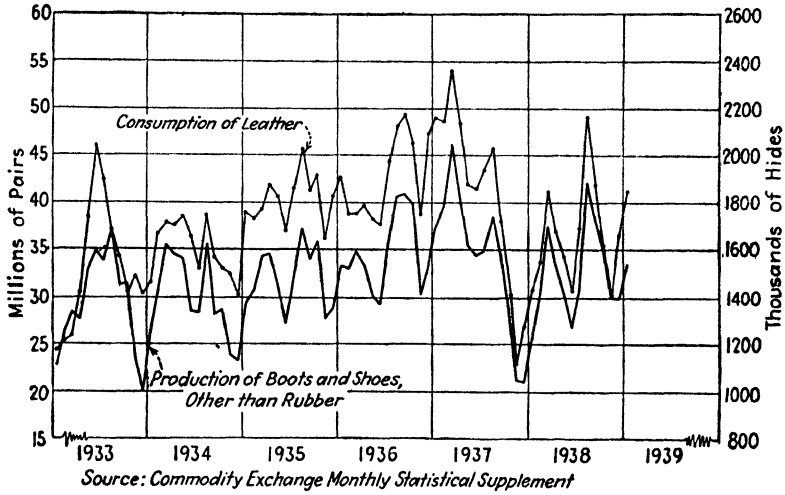


EXHIBIT 2.—Total Consumption of All Domestic Tanned Cattle Hide Leather and Production of Boots and Shoes Other than Rubber.

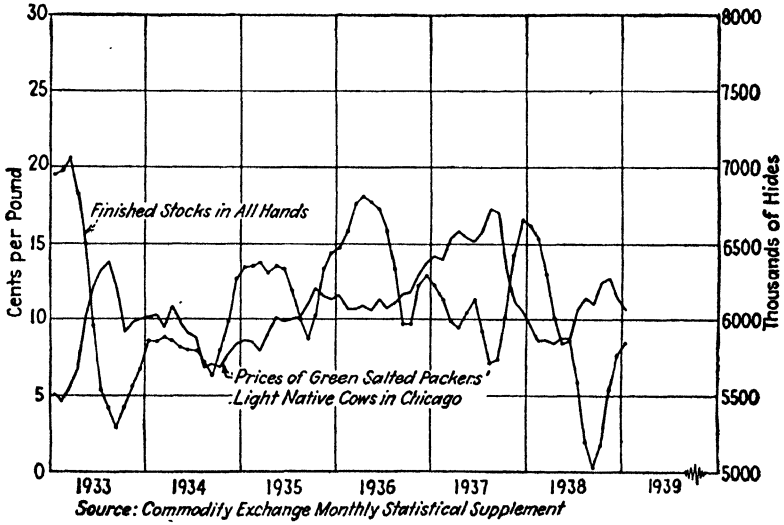


EXHIBIT 3.—Hide Prices and Finished Stocks in All Hands.

February, 1938, and resolved on a policy of liquidation. Such liquidation has continued to the present time, stocks now being at a relatively low level.

Why have prices not risen to match the recent fall in stocks? As will be pointed out in the section on general business conditions, the entire business world is "marking time," watching the chess-like war moves in Europe. The volume of trading in hide markets, both spot and futures, is entirely hand-to-mouth buying at present because buyers know that a holocaust in Europe would completely disrupt all commodity prices in this country for an indeterminable time. In the opinion of leather men just as soon as the war clouds pass over, buyers, recognizing the low stock conditions, will buy aggressively. This action should raise prices rapidly unless other clouds in the business sky threaten.

The following quotation from *Hide and Leather and Shoes*, issue of April 8, 1939, page 5, will lend support to the above statements:

"Leather markets continued to show discouraging traces of weakness and many price quotations were purely nominal and subject to trading. In spite of continued high shoe production, at least a fairly good demand for leather, and indications of a better-than-usual leather year, some tanners still regard the situation as uncertain, and this attitude is reflected in the leather market."

This "uncertainty" seems to be a general uncertainty prevailing in all markets, not a specific doubt of the one industry.

II. Analysis of the Prospective Supply of Hides—1939

Summary of Factors Influencing Supply.

a) Number of cattle and calves on the farms
b) Price of beef
c) Price of cattle feed
d) Slaughter
e) Packers' raw stocks
f) Hide movements into sight
g) Stocks on hand—raw (tanners)
h) Stocks on hand—in process
i) Stocks on hand—finished
j) Imports

The number of cattle and calves on the farms has increased from 66 million as of January 1, 1938, to 66.8 million as of January 1, 1939. This is an increase of 1.2% and is the first increase since 1934.

The price of beef has been declining steadily during the past months, thus tending to discourage shipments of cattle to market. The combination of the low prevailing prices of beef and the abundant supplies and low prices of feeds has caused some increase in cattle feeding this year. If the demand for beef can strengthen (brought about by an increase in consumer purchasing power), market supplies of grain fed cattle can be expected to increase more than seasonally during the spring and summer months. Cow and heifer slaughter, however, will be seasonally small during this period; and this fact, plus the withholding of breeding stock for the purpose of increasing herds, will serve to more than offset the increase in grain fed cattle and result in net cattle slaughter less than that of one year ago. Less cattle slaughter naturally means a lower supply of cattle hides.

A discussion of packers' raw stocks, hide movements into sight, and raw, in-process, and finished stocks on hand, is best presented when all these items are considered together. It makes little sense to get into a maze of conflicting economic "ifs" in each group when it is the *finished* and *in-process* stocks of leather on hand that are important in answering our question about short-run (i.e., six months) hide prices. For this reason finished stocks were shown in Exhibit 3, rather than the sum of all stocks. That finished leather stocks have diminished to very low levels has already been pointed out above. The following quotations, however, serve to illustrate the fact that this condition was also recognized by members of the industry.

"Declining supplies are reported in raw stocks, in-process stocks, and finished leather stocks."[1]

"The February statistics for hide and leather were more favorable—showing further declines in stocks of finished leathers and leathers in process."[2]

One factor contributing to the decline in hide prices in recent weeks is the upward trend in imports of raw hides. This is the basic reason why a supply and demand analysis based upon domestic stocks on hand is incomplete. The import duty of 10% *ad valorem* on hides is not a prohibitive tariff—most European and South American countries can undersell domestic meat packers, even after they have paid the tariff. Recent conditions in the hide market seem to show the effect of imports as indicated in the following quotation:

"Despite this favorable statistical picture, there has been a considerable decline in hide prices. One factor in this price decline is the upward trend in imports of raw hides."[3]

Perhaps the recent price declines will discourage imports, but any rapid rise in domestic supply will meet resistance in the form of new, low-cost hides, especially from the Argentine.

Conclusion as to Supply Factors

Because of beef and feed prices, cattle are currently being withheld from market, causing a decrease in the supply of hides. Net cattle slaughter is estimated at less than a year ago, and finished leather stocks have diminished to very low levels, both serving to indicate higher prices for hides. On the other hand, imports have been considerable and may continue to be so. The conclusion, therefore, is that supply is low; and the present technical position of the market indicates a continued lowering of domestic supply for three to four months.

III. Analysis of the Prospective Demand for Hides—1939

The most important demand for leather comes from the shoe industry. That leather consumption and shoe production fluctuate together is brought out by an examination of Exhibit 2.

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[1] *Hide and Leather and Shoes*, April 8, 1939, p. 10.

[2] *Economics Statistics Bulletin*, April 8, 1939. Quoted by permission of Economics Statistics, Inc.

[3] *Ibid.*

The shoe industry, contrary to most industries, has been enjoying good business in recent months mainly because government expenditures continue at high levels. These expenditures give purchasing power to those people whose greatest need is for consumers' goods such as shoes. "February shoe production statistics released by the Bureau of the Census revealed that the industry's output rose 22.6% during the month, as compared with January. Total output was 35,157,017 pairs in February."[1]

Still another element of strength in the shoe demand picture is that inventories in the hands of retailers are considerably lower than they were a year ago and are not now burdensome.

These two factors, government spending and low inventories, indicate that demand for shoes will continue strong throughout the coming months. The opposing factor, and the one I feel to have most effect, even on shoe consumption, is the general business picture.

IV. Appraisal of General Business Conditions and Outlook for the Next Six Months

A proper appraisal of general business conditions can only be made by bringing together, first, a great mass of statistics concerning all parts of the country and all types of business and, second, a great many opinions of various business leaders. Usually the latter are far more important and significant, because it is opinion and belief that control the policy of business and not aggregations of figures.

Since time did not permit a complete independent statistical analysis of business conditions, for the purpose of this report I have brought together the studied conclusions of the three following authorities: National City Bank of New York *Letter on Economic Conditions; Cleveland Trust Company Business Bulletin; The Annalist.*

One conclusion is certain from consideration of the above sources, and that is that the main reason for our country's failure to recover from the recession has been the repeated war scares in Europe. The scope of this report is far too narrow to attempt an answer to that problem; hence the following forecast of business conditions is subject to the statement "barring a general war in Europe."

The National City Bank of New York *Letter on Economic Conditions* for April, 1939, on page 37 states the following:

"Testimony as to business sentiment over the country indicates that it is conservative, although not pessimistic. Expectations that the sidewise trend will sooner or later give way to improvement are common, but little is being done in anticipation.

". . . Many businessmen had hoped that the arrival of Spring might bring signs of resumption of last Fall's upswing; and early in the month a pickup in buying in a number of lines, together with a firmness in commodity prices, furnished some support for these hopes. However, the improvement has made little headway. On the whole, factory operations have not made as much seasonal gain as usual, and when the month's figures are compiled the adjusted indexes of industrial production, which allow for seasonal expectations, probably will show a small decline for the

[1] *Hide and Leather and Shoes*, April 8, 1939, p. 8

third month in succession. Nor have the industries been provided with a backlog of orders sufficient to promise any marked rise in April."

The *Cleveland Trust Company Business Bulletin*, March 15, 1939, contains the following statements:

"Increasing volumes of new construction make up the most encouraging factor in the present business situation. In the first quarter of 1937, when business activity was at its highest recent levels, the Federal Reserve index of building construction averaged 60. In the first quarter of 1938, when the depression had returned, the index averaged 50. For the last three months of November and December, 1938, and January, 1939, the average stood at 98. . . .

". . . the high and rising level of new construction is important and encouraging. The greatest present need of business is more durable goods production, and building helps in that direction.

". . . This shortage of production of durable goods reflects the most vulnerable feature of our present recovery, which is that business activity is now too greatly dependent on pump priming, or the contributions government is making to consumer purchasing power, and is not adequately developing new private investments in productive enterprise."

The Annalist, April 12, 1939, carries the following paragraph in the column "Business Outlook":

"Until this week, our cyclical raw material price index has been remarkably steady, suggesting that there had been too little diminution in the underlying demand for raw materials, despite hand-to-mouth buying policies to indicate the probability of anything more than a mild and brief business recession. This week, however, declining tendencies in raw material prices have become somewhat more pronounced. Hide prices have declined sharply. The price of lead has been reduced. Wool prices have declined sharply. Steel scrap prices are slightly lower. The recent reduction in the price of copper has not resulted in any perceptible increase in demand from domestic industrial consumers. The market for cotton cloth remains dull."

These comments concerning the various branches of business are concise and strike at the heart of the entire matter. National City's analysis of the industrial picture is neither hopeful nor pessimistic; the Cleveland Trust's hopeful picture of building has been spoiled by publication of February and March building contract figures which show a sharp drop because of decreases in PWA loans and grants to states. *The Annalist's* discussion of raw material prices is definitely discouraging. Why prolong the sad story? The incontestable fact is that, even with unlimited supplies of men, materials, and money, business is neither getting better nor showing signs of getting better.

How long will the present declining trend last? As long as there are war scares, political alarms and excursions, and deep pessimism among business leaders, there will be no recovery. There is every indication today that these clouds will not clear up during the next six months.

Conclusion

Regardless of the favorable supply-demand position of hides, and the many statistical indications within the industry that prices of hides

should rise, we have seen that higher hide prices are impossible unless business activity increases. The opinions of three of the best authorities in the country have been presented. The conclusion reached is that the outlook for business over the next six months is very poor.

In summation, hide prices depend mainly upon general business conditions, and all indications of future general business conditions warrant no optimism at all. The shadow of a general war in Europe overhangs all. The conclusion is that hide prices will follow the decline further and probably drop to the 7- to 8-cent levels reached in 1934.[1]

Interpreting the results of this analysis of the probable course of hide prices during the next six months, I recommend that the company fix the price of hides for the order of April 10 *after* the market goes below 8 cents. The exact date will depend upon further study of the market at that time, but no long delays should be tolerated. To accomplish the desired results the company should proceed as follows:

1. Physical hides should be purchased whenever the operating department needs the raw material for the most efficient scheduling of the production to meet delivery dates. Special consideration should be given to the necessity of obtaining the desired quality.
2. Futures should be sold against all purchases of physical hides made before the time when it is decided to fix the price (roughly, that is, before the market goes below 8 cents).
3. All such futures should be covered when it is decided to fix the price.
4. If the physical requirements have not been completely taken care of at that time, futures should be bought to cover the necessary hides remaining to be purchased.
5. These futures which are bought *after* the price has been fixed should be sold as physical hides are purchased.

D. CEMENT INDUSTRY ANALYSIS

Forecasting the Outlook for the Cement Industry in 1932

The following report on the cement industry was submitted to a firm of investment counselors in February, 1932. The preparation of such analyses of particular industries was a regular responsibility of the research department.

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[1] Editors' Note: Monthly average prices of green salted packers' light native cowhides in the Chicago spot market for the remainder of the year 1939 were as follows:

	Cents per Pound		Cents per Pound
April	9.31	September	15.14
May	10.17	October	15.02
June	11.00	November	13.99
July	11.25	December	14.64
August	11.12		

(Figures furnished by the Commodity Exchange, Inc.)

The Cement Industry

I. Supply Factors

A. Trend of Production 1895–1932

Since the year 1895, when the use of powdered coal for kiln firing was first introduced, the cement industry in the United States has enjoyed an almost uninterrupted trend of growth. The following table traces the trend of mill output since the use of Portland cement first attained significant proportions.

Exhibit 1

Production of Portland Cement

Year	Barrels	% Change	Year	Barrels	% Change
1895	1,000,000	.....	1926	164,080,000	+ 2.0%
1900	8,500,000	+750%	1927	173,210,000	+ 5.5
1905	35,000,000	+312	1928	175,970,000	+ 1.5
1910	76,500,000	+118	1929	170,200,000	− 3.1
1920	100,000,000	+ 31	1930	160,910,000	− 5.5
1925	161,000,000	+ 61	1931	124,580,000	−22.5

Editors' Note: The percentages of change shown in this exhibit and in those which follow apparently have been computed on the slide rule and are therefore slightly subject to error in the last significant figure.

In recent years, the production of Portland cement has fluctuated in close correlation with building construction activity, the peak in output coinciding in 1928 with the highest volume of new construction ever recorded.

Since 1928, production has declined, in line with a corresponding drop in general construction activity (see Exhibit 12). The decline has been

Exhibit 2

Production of Portland Cement

(Millions of barrels)

Month	1930	1931	% Change
January	8.50	6.60	−22.3%
February	8.16	5.92	−27.5
March	11.23	8.23	−26.8
April	13.52	11.25	−16.7
May	17.25	14.00	−18.8
June	17.24	14.12	−18.0
July	17.08	13.90	−18.5
August	17.82	13.55	−24.0
September	16.12	12.09	−25.0
October	14.41	10.76	−25.3
November	11.10	8.16	−26.5
December	8.48	6.00	−29.3

accentuated in the last two years by the depressed state of general business activity, and has reached drastic proportions in recent months, as evidenced by the figures in Exhibit 2.

B. Expansion of Plant Capacity

The more recent history of the industry is characterized by a rapid expansion of plant capacity, so that the industry now finds itself heavily burdened with facilities capable of producing cement in quantities far in excess of any normal demand. Professional promotion, the comparatively low cost of constructing new plants, the abundant presence of raw materials throughout the country, and the belief that huge profits could easily be made in this rapidly growing industry caused mills to be erected with capacity in excess of the possible absorption even of a fast-growing market. For the year 1925, the estimated producing capacity of the industry was 194,000,000 barrels yearly. During the succeeding five years overexpansion continued at such a rate that by 1931 the industry was capable of producing about 265,000,000 barrels a year, an increase of 37% over 1925.

The dangers in this uneconomic expansion did not become apparent until a decline in the demand for cement set in in 1929, continued through 1930, and in 1931 resulted in a greatly diminished volume of business, which, when distributed among the increased number of manufacturers, was insufficient to support profitable operations. The increasing discrepancy between output and productive capacity which occurred during these years is clearly illustrated in the following table.

EXHIBIT 3

PRODUCTION OF CEMENT, 1925–1931

(Percentage of capacity)

Year	Percentage	Year	Percentage
1925	83.5	1929	65.8
1926	76.4	1930	61.5
1927	76.3	1931	47.0
1928	72.3		

C. Inventories

The existence of excessive plant capacity, and the necessity for a high rate of activity in the interests of economical plant operation, have naturally created a tendency to overproduce, resulting in expanding inventories, which have become an increasingly serious menace to the cement price structure. Since inventory statistics should usually be interpreted in their relation to current consumption (i.e., the length of time stocks at a given date will last at the existing rate of consumption), we have calculated the supply on hand as a percentage of the shipments as follows.

EXHIBIT 4

STOCKS OF CEMENT ON HAND*

(Percentage of shipments)

Year	Percentage	Year	Percentage
1925	123.0	1929	172.5
1926	140.0	1930	200.5
1927	140.5	1931	245.0
1928	155.5		

* Averages of month-end figures.

It is apparent from an examination of these figures that the cement industry has gradually been working itself into a very unfavorable inventory position. Average monthly stocks on hand in 1931, relative to shipments, were almost double the figure for 1925, having accumulated at an increasing rate during the seven-year period from about one and one-fourth months' supply to nearly two and one-half months' supply.

Evidence that this tendency still exists and that stocks continue to be excessive in relation to consumption is found in the following table, which shows monthly inventories for the past two years.

EXHIBIT 5

STOCKS OF CEMENT ON HAND AT END OF EACH MONTH*

(Percentage of shipments)

Month	1930	1931	% Change
January	208%	224%	+ 8.0%
February	157	220	+40.0
March	224	267	+19.2
April	195	222	+14.0
May	192	222	+15.6
June	189	210	+11.0
July	183	234	+28.0
August	198	270	+36.2
September	218	300	+37.8
October	256	329	+28.4
November	274	324	+18.2
December	217	276	+27.2

* Data adjusted for seasonal variation.

A considerable proportion of the present supply of cement on hand is undoubtedly excessive and represents a burden involving heavy expense for storage and deterioration. It is economically undesirable, for obvious reasons, to make additions to inventories during a period of declining

prices. Cement prices have exhibited a descending trend for a number of years, as will be shown in the following section.

D. Prices

A large productive overcapacity, existence of heavy inventories, and severe shrinkage in demand, have had the effect of arousing high-pressure competitive methods among cement manufacturers. This condition of keen competition has been characterized by extensive price cutting, which, during the first six months of 1931, was permitted to develop into an open price war. The abrupt downward trend in cement prices is reflected in the following figures.

EXHIBIT 6

AVERAGE PRICE OF PORTLAND CEMENT

(Dollars per barrel)

1925.....	$1.79	1927.....	$1.69	1929.....	$1.60	1931.....	$1.39
1926.....	1.74	1928.....	1.67	1930.....	1.60		
			Monthly, 1931				
January.....			$1.58	July.....			$1.33
February.....			1.54	August.....			1.33
March.....			1.48	September.....			1.33
April.....			1.42	October.....			1.32
May.....			1.40	November.....			1.31
June.....			1.36	December.....			1.31

Source: U. S. Bureau of Labor Statistics.

E. Supply Factors—Summary and Conclusion

It can readily be seen from the data previously presented that, entirely from the standpoint of supply, there are a number of very unfavorable factors affecting the cement industry. These factors may be summarized as follows:

1. There has been a marked increase in productive capacity at a rate greater than the growth in production.
2. There is at present an extremely large excess of capacity. In 1931 the industry operated at only 47% of capacity.
3. At a rate of operations of only 47% of capacity, profits are bound to be unsatisfactory, because the industry is one in which a relatively high rate of operations is vitally essential to a satisfactory profit margin.
4. Competition for the volume necessary to a satisfactory profit margin is very keen and has led to vicious price cutting practices.
5. Stocks of cement are burdensome, and have the effect of exerting a further downward pressure on prices.
6. Prices have fallen sharply to a level which makes profits virtually impossible.

The conclusion to be drawn is that the large excess of capacity, the keen competition, the low rate of operations, heavy inventories, and an unprofitable price level, all indicate a very unfavorable supply situation and point to a continuance of unsatisfactory operations.

II. Demand Factors

A. Distribution of Uses

Producers of Portland cement have made steady progress in improving the product and in finding new uses for it, and have set out collectively, through the medium of the Portland Cement Association, to enlarge the demand by extensive advertising and by establishing practical service facilities. As a result of these efforts, Portland cement now finds extensive use in a wide variety of construction work, competing with other structural materials, such as brick, stone, iron, and steel. It is necessary to segregate the uses of cement in order that the important sources of demand may be determined and in order to discern the present trends. The Portland Cement Association gives the following estimate of the distribution of uses of cement for 1928.

Exhibit 7

Distribution of Uses of Portland Cement, 1928

(Estimated by Portland Cement Association)

Use	Percentage of Total	Barrels
Road building	32.5%	57,000,000
Building construction of all types	25.0	43,900,000
Rural uses	15.5	27,200,000
Concrete products (block, tile, stucco, etc.)	7.5	13,200,000
Railways, all uses	6.5	11,500,000
All other uses*	13.0	22,900,000
Total	100.0%	175,700,000

* Sewerage and drainage, dams and water power projects, bridges, river and harbor works, etc.

By studying the separate activity of each of these major sources of demand, it is possible to determine the factors which have been potent in the past, and their present influences, and to estimate, at least for the near term, the probable trend of future consumption.

B. Road Building

1. **Importance to the Cement Industry.** As indicated in the foregoing table, the most important source of consumption for Portland cement is in road building. Portland cement concrete has proved itself to be the most desirable type of material for the construction of principal highways, on the basis of original cost, traffic bearing efficiency, and economic life. The following table reveals a marked tendency toward greater use of this material in highway construction.

These figures are for all surfaced roads in the United States and include a preponderant ratio of low-grade tributary roads. Most of the important road building activity in recent years has been for state highway systems,

EXHIBIT 8

TOTAL U. S. MILEAGE OF SURFACED ROADS, 1923 AND 1929

(End of each year)

Type of Surface	1923	Percentage of Total	1929	Percentage of Total	Mileage Change	% Change
Sand, clay, gravel, etc....	290,143	66.0%	481,290	72.7%	+191,147	+ 65.8%
Macadam.....	100,805	23.0	99,426	15.0	− 1,379	− 1.3
Concrete and sheet asphalt*.....	33,983	7.7	76,654	11.6	+ 42,671	+126.0
Block pavements.....	14,409	3.3	5,065	0.7	− 9,344	− 64.8
Total, all types.....	439,340	100.0%	662,435	100.0%	+223,095	+ 51.0%

* About 95 % concrete.

which show an increase in mileage from 1923 to 1929 of 87%. Concrete roads comprise about 29% of the total surfaced state highways, mileage in use having increased more than 150%.

The increase in consumption from this source has been of growing importance to the cement industry, as evidenced by the following statistics.

EXHIBIT 9

AVERAGE MONTHLY CONCRETE PAVEMENT CONTRACTS AND CEMENT SHIPMENTS, 1923–1931

Year	Concrete Pavement Contracts (average monthly new orders, in square yards, 000 omitted)				Cement Shipments (averages of monthly figures, in thousands of barrels)	
	Total Pavement	% Change	Roads Only	% Change	Total	% Change
1923	6,580	.....	4,245	.....	11,320	
1924	7,679	+16.7%	4,842	+ 14.2%	12,150	+ 7.3%
1925	8,681	+13.0	5,328	+ 10.2	13,060	+ 7.4
1926	8,942	+ 3.0	5,095	− 4.5	13,480	+ 3.2
1927	10,481	+17.2	6,163	+ 21.0	14,240	+ 5.7
1928	12,340	+17.9	7,794	+ 26.4	14,620	+ 2.8
1929	11,639	− 5.9	7,713	− 1.0	14,120	− 3.4
1930	12,152	+ 4.5	9,001	+ 17.0	13,230	− 6.3
1931	11,207	− 7.5	9,320	+ 3.4	10,540	−20.2
% Change, 1923 to 1931.....	.....	+70.5%	.....	+119.5%	.....	− 6.9%

It should be particularly noted from this table that whereas total concrete pavement contracts (which include private driveways, sidewalks,

and so on) increased 70.5% during the entire period but have been somewhat irregular since the peak reached in 1928, contracts for roads only have increased more consistently, the 1931 figure being approximately 20% ahead of 1928, and 119% in excess of 1923.

The more interesting and significant trend, however, is found in the relationship between concrete pavement contracts for roads and total cement shipments. The latter figure has been declining since 1928. The decline was particularly severe in 1931, bringing the figure down, for that year, to a level approximately 7% below that of 1923. Comparing this trend with the rise in construction of concrete-paved roads, which more than doubled from 1923 to 1931, leads us to the logical conclusion that, other uses having declined, both in actual extent and in relation to road building, *the cement industry finds itself, at the beginning of 1932, in the precarious position of being very largely dependent for its support upon highway construction.*

The significance of this position lies in a consideration of the factors which affect highway construction, and *particularly in the recent trend of such influences.*

2. Outlook for Road Building. *a. Federal Aid.* The Federal Aid Act, passed by Congress in 1916 and revised in 1921, under which an annual appropriation is set aside to be utilized for financial aid in the construction of certain state highways designated as part of the national highway system, undoubtedly has been an important factor in the improvement of our highway system. The Act provides that the Federal Government will meet one-half of the cost of all approved projects, the other half being paid by the State submitting the plans. While such aid is applied to only a small portion of all the roads constructed, it is a particularly important factor in the construction of concrete roads, for it is only in the building of major highways, such as are represented in the class of roads eligible for Federal aid, and those of similar grade which are financed through other channels, that the use of concrete as a paving material is normally justified. In view of the large potential demand for cement represented by funds available for highway construction under Federal aid, this factor is worthy of close study. The following table indicates the trend of Federal-aid highway construction.

EXHIBIT 10

FEDERAL-AID HIGHWAYS UNDER CONSTRUCTION, 1923–1931

(Length in miles)

Year	Monthly Average	% Change	Year	Monthly Average	% Change
1923	14,529	— 0.5%	1928	8,879	— 8.0%
1924	14,637	+ 0.7	1929	8,028	— 9.5
1925	12,187	−16.7	1930	7,611	— 5.0
1926	10,890	−10.2	1931*	9,776	+28.5
1927	9,660	−11.1			

* Average of first 11 months.

In view of the steadily increasing consumption of cement in road building (Exhibit 9) and the declining trend (until 1931) of Federal-aid highway construction, indicating that the use of cement in relation to other materials is growing very rapidly, it becomes evident that the future trend of Federal aid is now of vital importance to the cement industry. The following table traces the monthly activity of highway construction under Federal aid for the last two years, and gives an indication of the character of the increase in 1931, and of the trend in recent months.

EXHIBIT 11

FEDERAL-AID HIGHWAYS UNDER CONSTRUCTION

(Length in miles)

Month	1930	% Change	1931	% Change
January	7,054	− 9.8%	6,957	− 1.4%
February	6,843	−11.0	7,489	+ 9.5
March	6,824	−11.0	8,277	+21.2
April	7,230	− 6.1	9,569	+32.0
May	7,674	− 2.8	11,229	+46.3
June	7,709	− 7.7	12,306	+59.8
July	8,055	− 5.0	12,207	+51.6
August	8,339	− 4.5	11,884	+42.6
September	8,459	− 1.4	10,659	+26.0
October	8,325	0.0	9,028	+ 8.5
November	7,785	− 0.3	7,928	+ 1.9
December	7,030	− 3.1		
Average	7,611	− 5.0%	9,776	+28.5%

The very nature of the sudden increase in Federal-aid highway construction during 1931 is evidence of the improbability that this reversal of the trend will be sustained. The increase was due entirely to strenuous efforts on the part of the Administration to improve general business and prevent widespread unemployment by means of encouraging and stimulating construction activity and particularly by rushing work on many road building projects, utilizing Federal aid as much as possible. Included in this program were many projects which had been planned for the future. While the plan undoubtedly has provided temporary improvement for a great many laborers, and stimulated for a time the demand for road building materials, it can readily be seen that its effects are limited. Having failed in its original purpose of reviving general business activity, it probably has served ultimately to create a basis for an even more drastic curtailment of road building activity than occurred in 1930 because of the extent to which it has drawn upon projects planned for future months.

It is impractical because of the present unsettled conditions in business and governmental affairs to attempt an estimate of the extent to which Federal aid will be used in road building this year, but some significance may be attached to the rapid falling off in the figures for the last few

months of 1931, a decline which appears to be considerably more severe than can be accounted for by normal seasonal influences. It should be noted that the decline which started in the late summer was accentuated in October and November when the precarious condition of state and municipal finances began to receive widespread attention, as reflected in an abrupt drop in the market prices of many state and city bonds. Because of the impending heavy national deficit, there is considerable pressure being brought to bear upon Federal government agencies to conduct their activities upon a basis of rigid economy. It is unlikely, therefore, that any material increase in support will be forthcoming from this source.

b. Conditions of State and Municipal Finance. Since Federal aid for highway construction originates with the individual states, activity along this line is dominated by the extent of state and municipal resources available for road building. The present condition of most state and municipal treasuries is unfavorable to any extensive road building projects this year, and possibly for some time to come. The tendency in governmental expenditure is definitely towards drastic curtailment in order that the disastrous consequences of past extravagance may not be aggravated by additional borrowing. Appropriations unquestionably will be pared down to a minimum in line with the anticipated reduction in revenue from taxes. Economy is now the order of the day in state finance; and there is no question but that because of this, the amount of Federal aid for highway construction applied for in 1932 will be very much lower than in 1931.

c. Gasoline Taxes. An examination of the sources of state and local highway revenues other than Federal aid reveals the growing importance of gasoline taxes. In 1929, gasoline taxes comprised 53% of total highway revenues as compared with 46.5% in 1927, having increased 33% in the two-year period. The increase in the past has been largely due to initial adoption of the system, to rapid increases in the tax per gallon in many states, and to a fundamentally favorable trend in gasoline consumption.

In recent months, however, protests against increases in gasoline tax rates have arisen and there is considerable agitation for a reduction in the tax in many states. Gasoline consumption is beginning to react to the unfavorable influences of economic depression. There is a growing tendency toward gasoline tax evasion by unscrupulous dealers, and this highly profitable practice is rapidly becoming one of the country's major "rackets." In this respect, it is interesting to note that the incentive to evade tax payments is greater and the profits from gasoline bootlegging more lucrative in those states which have the highest taxes. These factors undeniably exert an unfavorable influence on state income available for road building.

3. Estimate of 1932 Cement Demand from Road Building. Concrete pavement contracts for roads increased 20% from 1928 to 1931 (Exhibit 9). Applying this increase to the amount of cement consumed in road building in 1928 (57,000,000 barrels) we arrive at an estimate of consumption in 1931 of 68,500,000 barrels. This would comprise 54% of the total cement demand (126,500,000 barrels) in 1931.

In view of the extremely high rate of road construction in 1931, and the unusual stimulus which it received, together with the extremely

unsettled financial condition of municipalities and other governmental bodies throughout the country, we believe that 1932 will see a considerable drop in concrete road construction. The figures for concrete pavement contracts for roads show an average decline in the last six months of 1931 of 27% from the corresponding period of 1930, and the F. W. Dodge figures for highway construction contracts in January, 1932, were 76% below January last year. Assuming that concrete road building will decline somewhat less than highway construction as a whole, we estimate that cement consumption from this source will decline from 40% to 50%, to an amount between 34,250,000 and 41,000,000 barrels.

C. Building Construction

1. Trend in Construction Activity. The declining trend in building construction since 1928 has had a very unfavorable effect upon the cement demand. The extent of this decline is illustrated in the following table:

EXHIBIT 12

VALUE OF BUILDING CONTRACTS AWARDED IN 37 EASTERN STATES
(000 omitted)

Year	Residential	% Change	Non-Residential	% Change	Public Works and Utilities	% Change	Total	% Change
1928	$2,788,300	.....	$2,375,500	.....	$1,464,500	.....	$6,628,300	
1929	1,915,700	−31.4 %	2,376,100	0.0 %	1,459,000	− 0.5 %	5,750,800	−13.0 %
1930	1,101,300	−42.5	1,770,800	−25.4	1,651,000	+13.3	4,523,100	−21.3
1931	811,400	−26.4	1,118,600	−37.0	1,162,800	−29.6	3,092,800	−31.5

Source: F. W. Dodge Corporation.

In recent months the building industry has reached even greater depths of stagnation, and there is at present no indication of revival other than the expected normal seasonal increase next spring. The following figures (Exhibit 13) trace the volume of new construction by months for the last two years.

A brief review of the factors which have motivated this extensive decline in building activity and of the conditions which exist at present will perhaps be helpful in determining the probable trend of activity in the near future and at the same time the approximate extent of cement consumption by the industry.

2. Outlook for the Building Industry. The fundamental factor in all demand for new building lies in the necessity for new housing, industrial, public, and utilitarian structures arising from increasing population. It is becoming increasingly apparent that the rate of population growth in this country is tending to become stabilized. This means that the extra demand for building which has in past years been the bulwark of a strong upward secular trend in building activity will be absent in future years, that the demand for new building will come largely from replacement of obsolete structures, from planned improvements in community organization, and from the necessity for facilities for new industries, and that the construction industry must, therefore, adjust itself to a much slower rate of growth. We believe, however, that the trend in construction activity

EXHIBIT 13

MONTHLY VALUE OF BUILDING CONTRACTS AWARDED IN 37 EASTERN STATES, JANUARY, 1930–JUNE, 1932

(000 omitted)

Month	1930	1931	% Change
January	$323,975	$227,956	−29.5%
February	317,053	235,405	−25.8
March	456,119	370,406	−18.8
April	482,877	336,925	−30.2
May	457,416	306,079	−33.0
June	600,573	331,880	−44.7
July	366,878	285,997	−22.0
August	346,644	233,106	−32.7
September	331,863	252,109	−24.0
October	336,706	242,094	−28.0
November	253,574	151,196	−40.3
December	249,435	136,852	−45.2
	1931	1932	
January	$227,956	$ 84,798	−62.8%

Source: F. W. Dodge Corporation.

will continue to be characterized by extreme cyclical variation and that a study of these cyclical movements will reveal many opportunities for profitable investment in the building industry and its allied lines.

The overbuilt condition which at present exists in some types of building, notably office and apartment structures, and the effects of the general economic situation have brought about a high rate of vacancy, which is a powerful deterrent to new projects.

Continued real estate deflation accompanied by numerous bond defaults and foreclosures has made it increasingly difficult to finance new building because of the "frozen" state of real estate credit and the stagnant condition of the mortgage bond market. Tax rates are mounting rapidly; and while there is considerable agitation for relief of this burden, the present situation in govermental finance threatens even heavier assessments.

The trend in labor costs, which have been far too high in relation to the other cost elements in building, is starting downward. Wage adjustments have already been amicably effected by building trades employers' associations in many key cities, but this is a slow process and a large amount of contemplated construction will continue to be deferred until wages are brought more in line with lower price levels. A powerful stimulant to speculative building should be provided by any material reduction in wages, which, together with the lower materials costs which already exist, would make construction attractive on a cost basis.

The industry places a great deal of hope in the proposed measures for legislative relief of the real estate credit situation, which would create

banking facilities for the discounting of real estate mortgage paper and for the extension of loans to small-home owners. This is a long-term factor, however, and its benefits could not become immediately effective.

We have presented tangible statistical evidence of the present unfavorable trend in activity and have outlined the chief factors which appear to militate against immediate recovery, pointing out the possibilities which exist in the strenuous efforts being made by the government and other agencies to rid the industry of these unfavorable influences. Our conclusion is that while the prevailing low rate of activity is, in itself, preparing the basis for a demand which is gradually accumulating and from which revival will eventually spring, present conditions are not favorable to the financing of new structures, and that building activity will probably continue at an unsatisfactory level until these unfavorable influences are removed either by legislative action or by general business recovery. The demand for cement arising from new building construction will undoubtedly be considerably lower throughout 1932 than it was in 1931.

3. Estimate of 1932 Cement Demand from Building Construction. Total building construction (exclusive of public works and utilities) declined 62.6% from 1928 to 1931. If a corresponding decline in the use of cement by the industry is assumed, cement consumption in 1931 may be estimated at 16,400,000 barrels, as compared with 43,900,000 barrels in 1928.

Building contracts in 1931 were lower by 33% than in 1930, and if we assume continuance of this trend, that is, that 1932 building contracts will be lower by one-third than in 1931, cement demand of about 11,000,000 barrels is indicated from this source. This estimate is further substantiated by a comparison of the recent trend of contracts with the figures for 1928. The last three months have averaged a decline of about 75% from the corresponding period in 1928. Using this rate of decline as a basis for our 1932 estimate, assuming that the trend will be continued, we arrive, by this method, at the same figure of 11,000,000 barrels.

If certain favorable factors in the building situation, such as wage reductions and Federal banking legislation, make sufficient progress, it is possible that the present trend may not prevail throughout 1932 and that there may be a moderate revival of construction activity in the latter part of the year. To this end it seems expedient to make a second and somewhat higher estimate for cement demand in anticipation of a smaller decline than is at present indicated. If we assume an arbitrary decline of 20% from 1931, cement demand will amount to about 13,000,000 barrels. Our final estimate of building activity, then, is for a decline of 20% to 33%, indicating a demand for cement within the range of 11,000,000 to 13,000,000 barrels.

D. Rural Uses, Concrete Products, Railroads

1. Rural Uses. Cement is used on farms for a great variety of construction and repair purposes. Since no statistics are available which could be used as a measure of strictly rural building activity, it is not possible to make a very accurate estimate of the present trend of consumption from this source. A consideration of a few of the factors likely to influence such activity, however, may prove of some value.

The principal factor governing all expenditures in rural districts is undoubtedly farmer purchasing power. An indication of the relative level of farmer purchasing power may be found in the index computed by the U. S. Bureau of Agricultural Economics of the ratio of prices received to prices paid by the farmers. The drastic decline in prices of agricultural products during recent years has caused a drop in the index from 90 in 1928 to 62 in 1931. Because of this diminution of purchasing power a great many farmers are in serious financial straits and work on new buildings, repairs, and improvements is practically at a standstill.

It would seem, therefore, that the demand for cement from this source is negligible at present and that no revival may be expected until improvement takes place in the agricultural situation.

2. **Concrete Products.** Demand from this source comes from the use of cement in the manufacture of blocks, tile, stucco, and similar products. Since activity of manufacturers of these products is largely dependent upon the volume of new building construction, the same general condition of stagnation exists in the demand for cement from this source.

3. **Railroads.** The present financial position of most of the country's important railroads is not favorable to an increase in construction. Any surplus funds will probably be used for maintenance of way and equipment and for replacement of depreciated rolling stock. An indication of the present trend in railroad construction is found in the F. W. Dodge figures for railroad construction contracts (exclusive of bridges), the value of which, compared with the corresponding months a year ago, declined 74% in December and 95% in January. It is evident that only a very small proportion of the demand for cement in 1932 will come from railroads.

4. **Estimate of 1932 Cement Demand from Rural Uses, Concrete Products, and Railroads.** It is difficult because of the lack of data which would indicate the present trend to anticipate with any degree of certainty the extent of future cement usage in these groups. In view of the already low rate of demand from these sources, however, it may be assumed that, despite the unfavorable outlook for general business, cement consumption in these industries will not decline so severely as in road building and construction. Based on our 1931 estimate (23,300,000 barrels) if consumption should decline 20%, the requirements for 1932 would amount to about 18,500,000 barrels, which figure we shall use as a reasonable though not by any means certain estimate.

E. All Other Uses

"All other uses" comprise chiefly public works and public utility projects, such as sewerage and drainage systems, dams and water power projects, bridges, river and harbor works, and so forth. The prospect for public works construction is distinctly unpromising because of the drastic falling off in Federal, state, and municipal revenues which has made curtailment of expenditures a necessity. Public utilities are overbuilt in relation to existing or prospective demand for the next few years.

In 1928, demand from these sources accounted for 13% or 22,900,000 barrels of the total cement consumption. The value of the public works and utilities contracts in 1931 was 20% lower than in 1928. Applying

this percentage decline to the use of cement by this class of construction, consumption in 1931 was approximately 18,300,000 barrels.

Due to the removal of the stimulus which was applied to public works and utilities construction in 1930 and 1931, the recent trend has been definitely towards lower volume. Contracts awarded, as compared with the corresponding month in the preceding year, were lower in value by 38% in November, 36% in December, and 75% in January. If we estimate that public works and utilities construction will be 40% lower in 1932 than in 1931, the demand for cement from this source will amount to about 11,000,000 barrels.

F. Demand Factors—Summary and Conclusion

We have pointed out and stressed the importance of road building to the cement industry in 1931 and have estimated that this type of construction, which took 54% of all cement consumed in 1931, will probably show a decrease of from 40% to 50%. The present trends in all other types of demand for cement indicate a downward trend in consumption, particularly for the building industry. The entire outlook for cement demand is definitely poor. By estimating the probable demand of each type of consumption, we have come to the conclusion that in 1932 the demand for cement will be within the range of 74,750,000 barrels and 83,500,000 barrels. The following table recapitulates the detail of this estimate.

EXHIBIT 14

ESTIMATES OF CEMENT DEMAND

(Thousands of barrels)

Type of Use	1931	% Change from 1928	1932		% Change from 1931	
			High	Low	High	Low
Road building	68,500	+20%	41,000	34,250	−40%	−50%
Building construction	16,400	−63	13,000	11,000	−20	−33
Rural uses, concrete products, railroads	23,300	−55	18,500	18,500	−20	−20
All other uses	18,300	−20	11,000	11,000	−40	−40
Total	126,500*	−28	83,500	74,750	−34	−41

* Actual shipments.

III. CONCLUSION

All the supply factors in the cement industry are highly unsatisfactory. Stocks are burdensome, and the rate of operations of the industry is particularly low in relation to capacity. The outlook for demand is very unsatisfactory, and the indications are that 1932 consumption will be from 34% to 41% below 1931. Such a decline in consumption will accentuate all the unfavorable conditions in the industry and is bound to

result in extremely low earnings for cement manufacturers. The cement company which does not operate at a deficit in 1932 will be exceptional indeed.

How should this report have been appraised?

E. MACHINE TOOL INDUSTRY

Forecasting the Profit Outlook as of 1939

The following material is quoted from a monthly market letter of Goodbody & Co.[1]

. . . It is well known that machine tools[2] are capital goods. Inherent in the nature of a capital goods industry is a jagged production pattern with large cyclical peaks and valleys. This characteristic is shown by the

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[1] *Monthly Market Letter, Machine Tool Industry*, April 18, 1939, Goodbody & Co., 115 Broadway, New York, New York.

[2] "The National Machine Tool Builders' Association defines a machine tool as 'a power-driven complete metalworking machine not portable by hand, having one or more tool or work-holding devices and used for progressively removing metal in the form of chips.' Grinding, honing, and lapping machines are included in this classification, although the chips removed can only be seen under the microscope.

"There are other important metalworking machines such as presses, brakes, metal shears, and forging and stamping machines; but these are not included in the category of machine tools because they do *not* remove metal in the form of chips.

"Expressed in simple terms, a machine tool is a power-driven machine used to cut or shape metal. In a sense it may be compared to a lathe, a planer or other device which produces the leg of a chair by removing wood from a block or bar and shaping it to the form desired by cutting away superfluous wood.

"Thus a machine tool takes a bar or block of metal, or even a rough casting like an automobile cylinder block, and, by the various processes described in the following paragraphs, literally carves or bores the part to the shape required. The outstanding feature of the machine tool of today is the precision with which it removes metal or cuts it to specifications ranging down to almost unbelievably small fractions of an inch. This precision makes it possible to make dozens or thousands of parts in succession so like each other that they may be interchanged or substituted for each other in assembly or in repair, without requiring hand fitting.

"The adaptability of machine tools, in their various forms, is almost unlimited. Their products range from the tiny parts of a watch to the huge turbines for a hydro-electric plant—all of them produced to close limits of accuracy.

. . . . . .

"The variety and combinations of machine tools in use today are almost unlimited. The tools range in type from a small bench device, which could easily be set up on a desk, to mammoth machine tools which weigh from 40 to 50 tons and require large space for operation.

"Their functions, however, fall naturally into a limited classification which may be called the 'Five Basic Arts of Metal Working.' These functions are as follows:

"(1) *Milling*, which consists of machining a piece of metal by bringing it into contact with a rotating cutter with multiple cutting edges. This process includes the hobbing of gears.

"(2) *Planing*, which consists of machining a surface by moving the work back and forward under a stationary cutting tool. This classification includes shaping, in which

following total United States machine tool production figures. (Even years are estimated, and certain adjustments have uniformly been made.)

(000 omitted)

1929	1930	1931	1932	1933
$215,578	$110,500	$ 66,487	$ 28,720	$ 33,200
1934	1935	1936	1937	1938
$ 57,800	$101,300	$166,200	$233,800	$126,000

Perhaps investors have too long been wary of this unattractive aspect. Perhaps there are reasons for soft-pedaling this roller-coaster aspect of the machine tool industry which has been so emphasized in the past. At least it is our opinion that certain factors are currently or potentially operative in this industry which indicate consequences well worthy of the semi-investor's attention. They are: (1) exports, (2) obsolescence, (3) domestic armament demands, (4) actual war, (5) expansion demand, (6) earnings trends and further cyclical growth.

First, there is the question of exports. They began to increase noticeably in the latter part of 1936 and totaled $27,269,000 in that year, or 16% of the estimated total of United States machine tool manufactures. In 1937 they rose to $40,191,000 and contributed 17% of total manufactures; in 1938 they reached a new high at $67,045,000 or 53% of total United States manufactures, and were an important reason for the machine tool industry's excellent showing, as a whole, in 1938.

. . . . . .

Whether or not these exports will continue is of importance to United States machine tool activity. In this connection, it is worthy of note that purchases of German machines by Russia amounted to $29,200,000 in 1936, $28,800,000 in 1937, but only $4,800,000 in 1938. This 1938 decrease of $24,000,000 compares with the U. S. increase in machine tool exports to Russia of $17,500,000. There may be some justification, therefore, for believing that Russian imports of our machine tools may be on a more permanent basis than would be indicated at first glance. However, the Russians wish to be self-sufficient and once their plants are

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the tool moves in a straight line over a stationary piece of work, also slotting and broaching.

"(3) *Turning*, which consists of shaping a rotating piece by means of a cutting tool, thus generating a cylindrical surface. This process is exemplified by the ordinary lathe, and also by many modified forms of lathes now in common use, such as turret lathes, automatic lathes, single spindle automatic screw machines, and multiple spindle bar and chucking machines.

"(4) *Boring*, which consists of cutting a round hole by means of a rotating cutting tool. This process may be effected with either single or multiple spindle machines. In this class are included drilling, reaming, and honing. In honing, the bored hole is finished by a rotating head which bears abrasive sticks.

"(5) *Grinding*, which consists of shaping a piece by bringing it into contact with a rotating abrasive wheel. This process may be internal grinding (as in grinding a hole), or external cylindrical grinding (on the outside of a rotating piece), or surface grinding on a *flat* surface. The process also includes such methods of finishing as polishing, buffing, and lapping."

—Excerpts from an address to the Army Industrial College at Washington by Howard W. Dunbar, Vice President and General Manager, Grinding Machinery Division of The Norton Company. Printed by the National Machine Tool Builders' Association under the title *Machine Tools and You*. Reprinted here by permission.

equipped, future orders are problematical. As to foreign orders in general one can tell little about them. There still seems to be an unabated interest of foreign countries to build up their armaments and air fleets. Provided Neutrality Act embargoes do not militate against the shipments of machine tools present indications would lead us to guess foreign orders will continue for some time. . . .

Even if a decline should occur in the next year or two, certain factors in the domestic picture indicate that the slack may be taken up.

Obsolescence, second in the list of factors mentioned in the second paragraph of this study, is of prime importance; so much so that we thought it worth while to undertake an independent survey of our own. On the basis of a 10-year life period, the *American Machinist* has estimated the obsolescence that has accrued in the nation's metalworking machine tools. Rather than to accept, without check, this 10-year life period, we undertook to obtain the best opinion that industrial concerns could give us regarding the average life of their machine tools. From replies which represented approximately 28,126 machines, the average life was found to be almost exactly 15 years. We have therefore computed obsolescence on two bases, one on a 10-year life period and the other on a 15-year period. Percentages of total machines (installed in metalworking concerns as of certain dates) which are obsolescent under both assumptions are presented below:

Percentage of Total Machine Tools Obsolescent	Jan. 1, 1930	Jan. 1, 1935	July 1, 1937	Jan. 1, 1939
On basis of 10-year life:				
American Machinist	47.8	66.6	61.0	
Goodbody Survey	61.3	76.5	70.4	70.8
On basis of 15-year life:				
Goodbody Survey	49.2	61.6	58.6	57.6

Thus, even on a 15-year basis, our figures show 57.6% of machine tools to be obsolescent at the present time, as against 49.2% in 1930. And if we take a 10-year life period, even more obsolescence is indicated by our survey than by *American Machinist's*. Therefore, we are safe in saying that obsolescence is increasingly a factor to reckon with. To accomplish a return to an assumed "normal," the 1930 obsolescence figure of 49.2% would require a full 13-months' production at the highest rate the industry has ever operated, namely, the 1937 rate. Moreover, should this "normal" level be attained, maintenance of our machine tools at that level would indicate a production rate for machine tools considerably above that of 1938, and probably between the higher rates of 1936 and 1937.

Thirdly, there are the indicated U. S. armament expenditures. Machine tools are the primary requisite of any armament program. In event of an emergency they are essential for guiding industry into efficient production. That there is a need for machine tools for defense purposes is indicated by the fact that in five United States arsenals 87.6% of the

total 4,217 machine tools are 19 years old, or over. Just exactly how much money will be spent is not definitely determined. Various estimated figures have thus far been advanced which we classify as follows:

For:	Annual Basis	Total
Government navy yards	$ 8,200,000	$ 25,000,000
Private navy yards	8,200,000	25,000,000
Army ordnance (arsenals, etc.)	6,000,000	35,500,000
Aircraft demands	3,000,000	15,000,000
Government educational orders	5,000,000	40,000,000
Total	$30,400,000	$140,500,000

The total is obviously a substantial one.

. . . . . .

A fourth factor to appraise is the possibility of war itself. What happened during the last war is indicated by the following table showing prices and earnings of two major machine tool companies in war years.

	1915		1916	
	Niles-Bement	National Acme	Niles-Bement	National Acme
Net per share	$40.83	$25.80	$55.30	$50.80
Price	185 (Bid)	120–107	173 (Bid)	343–120
Price × earnings	4.52	4.7–4.1	3.13	6.8–2.6
Per share net on present capitalization [1939]	$21.76	$4.00	$29.40	$7.79
Indicated prices on present capitalization [1939]	$84.00	$19–17	$92.00	$53–10

During 1917 and 1918, however, higher taxes cut adjusted per share net on present capitalization to $18.20 and $18.40 respectively for Niles-Bement, and $7.32 and $4.69 respectively for National Acme.

A fifth factor, difficult of accurate determination, but of particular significance, is the question of potential demand for machine tools should metalworking concerns begin to buy for expansion along with, and in addition to, their normal demands for replacement. That there is a long-term uptrend is indicated by a survey made by Warner & Swasey Co. Of new machines purchased in 1936 and 1937, 40.2% replaced old machines, while 59.8% represented expansion. For actual dollar figures *Steel Magazine* has recently released the results of a survey which indicates that 51 medium-sized metalworking concerns have definite plans for plant and equipment expansion totalling $7,411,000, should certain political uncertainties and labor troubles subside. There are easily 100 times 51 metalworking concerns in the United States. Therefore multiply the

$7,411,000 by a conservative 100 and take an arbitrary 15% of that total for machine tools and we obtain a figure of $110,000,000 as the machine tool portion of expansion plans.

A sixth factor is the relatively excellent earnings trend evidenced by the machine tool companies, as a whole, in comparison to capital goods and consumer goods companies.

Year	Earnings Indices (Relatives: 1926 = 100) for			Machine Tool Companies' Earnings as Percentage of Capital Goods Companies' Earnings
	Machine Tool Companies*	Capital Goods Companies†	Consumer Goods Companies†	
1928	199.0	88.4	130.5	225.0%
1929	282.0	130.1	146.6	217.0
1930	d 35.7	47.5	125.1	
1931	d 86.6	d 16.5	104.4	
1936	163.0	62.0	120.6	263.0
1937	257.0	75.9	117.8	349.0
1938	90.0	d 8.0	87.0	
1939 (est.)	190.0			

* As computed by Goodbody & Co., Statistical Department.
† Standard Statistics.

We note: (1) The ability of the machine tool companies in 1937 to earn 91% of 1929 net against the capital goods companies in 1937 showing but 59% of 1929 earnings and the consumer goods companies 80%.

(2) The ability of machine tool companies in 1938 to resist the terrific downward surge in earnings such as the capital goods companies suffered.

(3) The ability of machine tool companies to go through the recent depression and still show relatively good earnings; whereas in 1930, with a whiff of the depression, their earnings fell off to a deficit.

(4) The possibility that a cyclical upturn in business will enable the machine tool companies to show good earnings over the next two to three years, even though exports do decline from present high levels.

Was this a sufficiently good analysis to warrant investment in the stocks of selected manufacturers of machine tools?

Appendix

Some business observers have considered the index of orders for machine tools to be a useful barometer of business conditions. When industries are planning to expand their activities, they being to tool up for increased production. Hence increases in orders for machine tools are likely to appear ahead of increases in general business activity. On the other hand, when curtailment takes place in orders for machine tools, this is held to be evidence that industrial output

has ceased to expand and may be expected to contract in the near future. Exhibit 1 shows the index of orders for machine tools for the 20 years from 1919 through 1938.

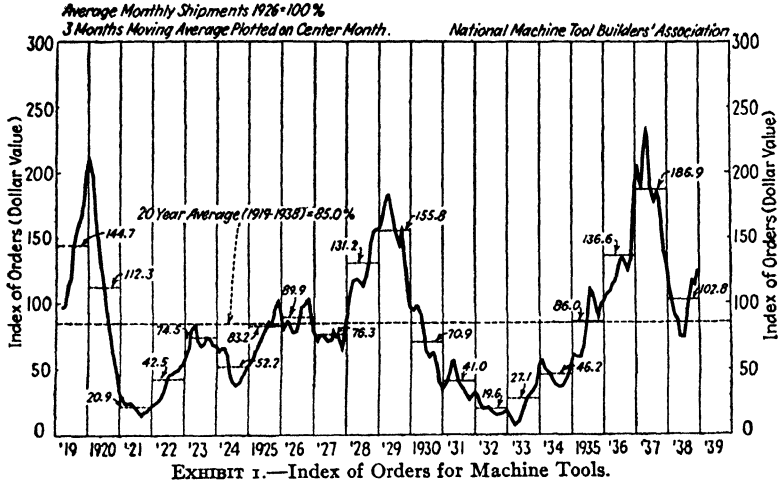


EXHIBIT 1.—Index of Orders for Machine Tools.

F. LIQUID RUBBER COMPANY

PRICE FORECAST AS OF APRIL, 1938

The Liquid Rubber Company manufactured compounds of rubber by a patented process which eliminated the necessity of vulcanizing the finished product. It had given these compounds the trade name "Liquid Rubber." By prevulcanizing latex in its liquid form and still maintaining it as a liquid, the company was able to eliminate many costly steps in the processing of rubber.

The manufacture of rubber products by the standard crude rubber process included 11 steps. The latex was coagulated after it was removed from the trees. The coagulated latex was milled and washed, then dried and smoked; and the resulting ribbed smoked sheets were baled and shipped. But before the rubber could be used by industry, it had to be masticated on heavy mills and compounded with materials such as sulphur and finely divided mineral matter. It was then remilled, aged, and dissolved in solvents (ordinarily gasoline). The solution was spread, dipped, or calendered; and before it was of practical use it had to be vulcanized.

Under the process used by the Liquid Rubber Company, only three steps were required. The latex was shipped in liquid form,

prevulcanized while still in liquid form, and used in this form by industry. Liquid Rubber could be applied to many substances by dipping or spreading, or it could be combined directly with other materials. The vehicle in which the Liquid Rubber was dispersed evaporated, and the product was ready for use without further treatment. Not only was the number of operations reduced, but the fire hazard was minimized; the solvents used in the crude rubber process were highly inflammable.

The Liquid Rubber Company did no manufacturing of rubber products; it merely converted latex into compounds which were raw materials for fabricators. All forms of Liquid Rubber were not the same, and special formulas had been developed to meet the special requirements of manufacturing processes. At the end of 1937, the company had more than 900 separate formulas.

The company had been in operation less than 10 years, but its business had grown steadily. In 1937, it used approximately 6,000,000 pounds of rubber. There was very little seasonal variation in the business because of the large number of industries to which the Liquid Rubber Company sold its products, but a slight peak was discernible which corresponded to the peak of automobile production.

To meet the manufacturing requirements of its special process, the Liquid Rubber Company had to buy rubber in liquid form and not in ribbed smoked sheets. It had found that rubber in the form of liquid latex sold at a premium between 4 cents and 6 cents above rubber in the form of ribbed smoked sheets. The alleged justification for the higher price was the added expense of shipping in steel drums instead of wooden cases and the cost of shipping the unusable liquid portion of the natural latex.

Because about two months were required for shipment from Singapore and quite frequently another month for preparation for shipment, the management found it necessary to have on hand or in transit about a three months' supply of latex in order to ensure a steady supply for its manufacturing process. The Liquid Rubber Company had adopted the policy of rarely speculating on the price of rubber. Its price quotations to customers were usually related to the market price of rubber at the time of the sale. The company merely added what might be termed a "service charge" for converting a given quantity of rubber into another form. The company attempted to make its service charge approximate a constant percentage of the cost of the rubber contained in each formula; but because of the varying percentage content of rubber in the formulas this procedure was not always possible. In December, 1937, with

ribbed smoked sheets selling at about 15 cents a pound, some of the company's formulas sold as low as 6 cents a pound while others were as high as 45 cents a pound.

If one of its customers wanted to fix the cost of rubber, the Liquid Rubber Company accepted fixed-price contracts for definite quantities of Liquid Rubber for delivery at specified times. Whenever one of these contracts was made, it was the policy of the Liquid Rubber Company to buy futures of ribbed smoked sheets sufficient to cover the transaction and then sell these contracts at the time the latex was purchased to meet the deliveries against the customer's contract. Although the company used the New York Produce Exchange to some extent, most of its buying was handled through a buying agent in London. About 50% of all the rubber handled by the Liquid Rubber Company during a year was sold under fixed-price contracts. The other 50% was sold in the company's standard formulas. Since these standard formulas had to be carried in stock, the company sought to have a current supply of latex continuously flowing into the plant. It rarely purchased in advance more than the three months' supply necessary to ensure physical delivery. Its policy was to buy only its current needs; but because of the time lag in delivery the rubber currently purchased was actually used about three months later. Although the company usually avoided speculation in the price of rubber by buying for current needs only, the opinion was expressed by the executives from time to time that it might be desirable to buy farther ahead when the price of rubber appeared to be advancing.

Following the sharp downturn in the latter part of 1937, business conditions had remained depressed through the opening months of 1938. On April 20, 1938, the Liquid Rubber Company received an order on a fixed-price contract for delivery in equal monthly shipments during the rest of the year. The rubber content of this order was approximately 800,000 pounds. Since this quantity was about 37½% of all the rubber that would be purchased to fulfill fixed-price contracts during the rest of the year and was much larger than the average fixed-price order of about 50,000 pounds, the company was considering whether or not it should depart from its customary policy and postpone its commitment on all or part of the rubber necessary to fulfill the contract. On April 20, ribbed smoked sheets were quoted at 12.41 cents a pound.

The treasurer was asked to recommend action with respect to the purchase of rubber to cover the fixed-price contract and also to forecast the price of rubber for the remainder of the year.

As a first step, the treasurer assembled the statistical information given in Appendix A, the historical background of the International Rubber Regulation Scheme given in Appendices B and C, and the following charts:

Rubber Prices and World Industrial Production (Exhibit 3).
Rubber Prices and World Stocks (Exhibit 4).
World Rubber Absorption (Exhibit 5).

He also noted two differing estimates of probable absorption of rubber during 1938:

	Tons
United States	500,000
United Kingdom	100,000
France	64,000
Germany	80,000
Italy	18,000
Russia	30,000
Canada	35,000
Japan	60,000
Belgium	12,000
Rest of world	110,000
	1,009,000

Source: *World's Rubber Position*, March 31, 1938.

	Tons
United States	440,000
Other major consumers	400,000
Other minor consumers	60,000
	900,000

Source: *India Rubber Journal*, April 2, 1938.

EXHIBIT 1

WORLD STOCKS OF CRUDE RUBBER

(Long tons)

Date	Singapore and Penang	United Kingdom—Public Warehouses	United Kingdom—Manufacturers	Total U. S. A.—Dealers and Manufacturers	Afloat	Total
February 28, 1937	42,132	63,586	22,468	193,679	94,000	415,865
May 31, 1937	34,234	46,432	19,163	172,976	117,000	389,805
December 31, 1937	44,814	57,611	22,126	256,617	135,000	516,168
January 31, 1938	48,514	61,914	22,769	269,078	113,000	515,275
February 28, 1938	46,260	71,333	22,769*	288,883	109,000	538,245

* Figure for January 31, 1938. Data for February 28 not available.
Source: *India Rubber Journal*, March 26, 1938, p. 19.

Other current trade journal data were as shown in Exhibits 1 and 2.

EXHIBIT 2

WORLD RUBBER ABSORPTION

(Long tons)

Month	U. S. A.*	Other than U. S. A.	World†
June, 1937	51,798	52,074	103,872
July, 1937	43,650	43,810	87,460
August, 1937	41,456	46,003	87,459
September, 1937	43,893	45,733	89,626
October, 1937	38,707	44,904	83,611
November, 1937	33,984	43,560	77,544
December, 1937	29,160	42,775	71,935
January, 1938	29,429	37,739	67,168
February, 1938	23,868		

* Corrected to 100 % from estimated coverage.
† Estimates from *Statistical Bulletin of the International Rubber Regulation Committee.*
Source: *India Rubber World*, April 1, 1938, p. 80.

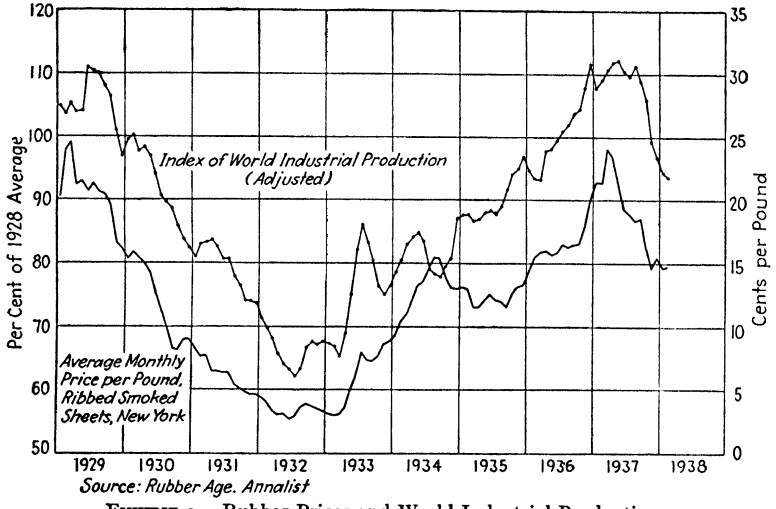


EXHIBIT 3.—Rubber Prices and World Industrial Production.

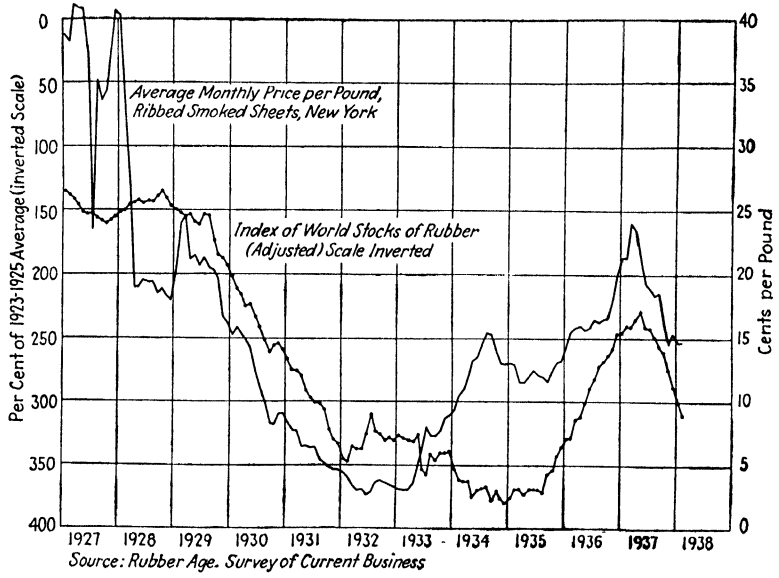


EXHIBIT 4.—Rubber Prices and World Stocks.

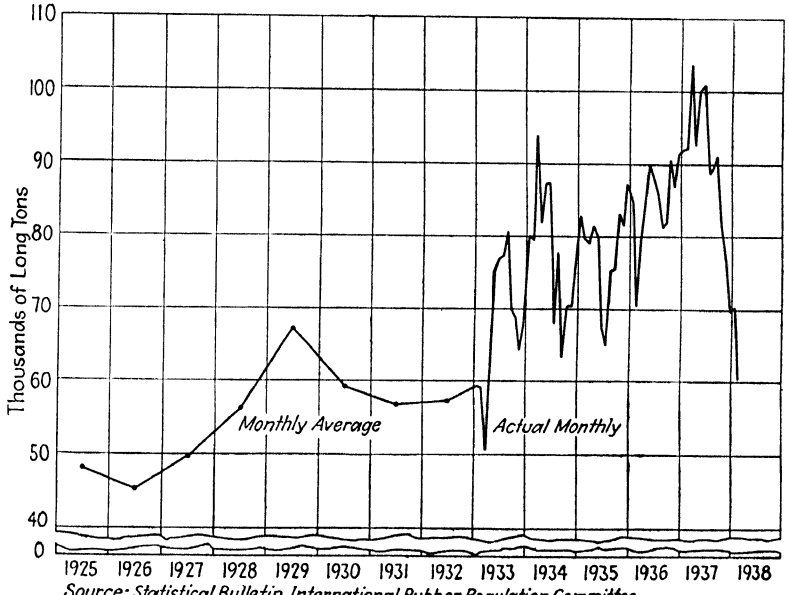


EXHIBIT 5.—World Rubber Absorption.

How should the treasurer have proceeded with his analysis? What conclusions should he have reached?

APPENDIX A[1]

EXHIBIT 6

AREA PLANTED WITH RUBBER—APPROXIMATE, AS AT DECEMBER 31, 1936

(Acres)

Country	Year of Planting								Total
	Up to 1929	1930	1931	1932	1933	1934	1935	1936	
Malaya*	2,970,876	67,445	85,777	45,355	45,000	25,000	12,844	20,800	3,273,091
Ceylon†	581,494	3,732	2,097	2,502	2,468	12,859	.....	.....	605,152
Dutch E. Indies —Estates	1,326,960	61,935	50,105	.....	.....	.....	.....	.....	1,439,000
Dutch E. Indies —Native	1,431,830	110,000	105,000	25,000	15,000	4,200	3,000	3,000	1,682,070
India	175,000	3,000	2,000	.....	.....	.....	.....	.....	180,000
Burma	95,000	3,500	2,100	2,000	2,000	2,000	.....	.....	106,600
British N. Borneo	107,000	4,000	3,000	.....	.....	.....	.....	.....	114,000
Sarawak	235,000	20,000	10,000	.....	.....	.....	.....	.....	265,000
French Indo-China‡	249,667	20,000	13,000	12,000	11,000	4,386	2,000	2,000	314,053
Siam	143,000	.....	.....	.....	20,000	7,000	.....	.....	150,000
Other	10,000	1,000	1,000	.....	.....	.....	.....	.....	87,000
Totals	7,324,827	299,612	277,077	86,857	75,468	48,445	17,844	25,800	8,140,966

* Bud grafted area 208,936 acres. Estates under 100 acres = 1,281,410 acres.
† Bud grafted area 5,076 acres.
‡ Approximately 122 trees per acre. Bud grafted area 137,902 acres.
Source: *The World's Rubber Position*, November 30, 1937.
Note: Of the 605,152 acres planted in Ceylon, 476,168 acres were in estates and the balance in small holdings. It takes five to seven years after planting for a rubber tree to reach the rubber-bearing state.

[1] The tables in this Appendix have been adapted from *The World's Rubber Position* and the *Statistical Bulletin of the International Rubber Regulation Committee*. Discrepancies which are evident at various points are partly the result of some apparent errors in the original data and partly the result of the rounding off of figures. The discrepancies in Exhibit 6 may be explained in part by the possibility that the totals include estimates in some instances based on other sources than the data for individual years.

EXHIBIT 7

SUMMARY OF STATISTICS ON CRUDE RUBBER, 1927–1937

(Thousands of long tons)

Year	Shipments*	Absorption†	Excess of Shipments over Absorption	Outside‡	Stocks Inside§	Total	Increase
1927	616	597	19	263	...	263	
1928	662	677	15‖	247	...	247	16¶
1929	868	805	63	329	50	379	82**
1930	826	712	114	453	50	503	124
1931	800	683	117	589	51	640	137
1932	709	690	19	589	50	639	1¶
1933	854	818	36	619	47	666	27
1934	1,019	939	80	687	66	753	87
1935	872	939	67‖	595	77	672	81¶
1936	856	1,017	161‖	434	74	508	164¶
1937	1,135	1,079	56	496	111	607	99

* See Exhibit 8.
† See Exhibit 10.
‡ See Exhibit 11.
§ See Exhibit 12.
‖ Excess of absorption.
¶ Decrease.
** Disregarding inside stocks, counted in this year for the first time.

EXHIBIT 8

SHIPMENTS OF CRUDE RUBBER FROM PRODUCING COUNTRIES, 1927–1937*

(Thousands of long tons)

Countries	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Malaya (including Brunei and Labuan)	242	299	457	443	423	406	446	467	417	354	470
Netherlands East Indies	229	229	255	242	257	211	282	379	283	309	432
Ceylon	55	58	80	76	62	49	64	79	54	50	70
India	7	7	8	7	5	1	1	7	9	9	10
Burma	6	5	6	5	5	3	4	6	5	6	7
North Borneo	7	7	7	7	6	5	8	11	9	8	13
Sarawak	11	11	11	11	10	7	11	18	19	21	26
Siam	5	4	4	4	4	3	7	18	28	34	36
French Indo-China	9	9	10	10	11	14	17	20	29	41	43
Total	571	629	838	805	783	699	840	1,005	853	832	1,107
Others	45	33	30	21	17	10	14	14	19	24	28
Grand total	616	662	868	826	800	709	854	1,019	872	856	1,135

* Allowance has been made for smuggling during the Stevenson Scheme and for moisture in wet rubber and latex.
Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 9

WORLD NET IMPORTS OF CRUDE RUBBER, 1927–1937

(Thousands of long tons)

Countries	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
U. S. A.	403	408	529	457	476	394	399	439	456	475	593
U. K.	60	4	123	120	85	43	73	159	129	7*	92
Australia	10	8	16	5	8	12	14	10	10	14	19
Belgium	7	8	9	11	11	10	11	9	8	10	15
Canada	26	31	36	29	25	21	19	28	27	28	36
Czechoslovakia	3	3	4	5	8	10	10	11	11	9	13
France	36	38	62	71	48	42	63	50	52	57	60
Germany	39	38	49	46	39	45	54	59	63	72	98
Italy	11	12	16	18	10	15	19	21	25	16	24
Japan	20	26	34	33	44	56	67	70	58	62	62
Russia	14	8	13	17	31	30	31	47	38	31	28
Rest of the world	14	19	26	27	28	34	41	61	58	65	68
Total	643	603	917	839	813	712	801	964	935	832	1,108

* Net export.
Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 10

TOTAL ABSORPTION OF CRUDE RUBBER, 1927–1937

(Thousands of long tons)

Countries	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
U. S. A.	373	437	467	376	355	337	409	462	489	575	543
U. K.	45	48	72	74	77	78	80	110	100	79	113
Other importing countries	179	192	266	262	251	275	329	367	350	363	423
Total	597	677	805	712	683	690	818	939	939	1,017	1,079

Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 11

CRUDE RUBBER STOCKS OUTSIDE REGULATED AREAS, AT END OF EACH PERIOD, 1927–1937

(Thousands of long tons)

Countries	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Singapore and Penang...	27	37	37	41	50	31	45	62	28	27	44
Para and Manaos.....	4	4	4	5	5	5	3	3	5	2	2
U. K.....	66	23	73	119	127	93	86	135	164	79	58
U. S. A.....	99	65	119	201	322	379	368	361	312	223	257
Total (excluding afloat).....	196	129	233	366	504	508	502	561	509	331	361
Afloat.....	67	118	96	87	85	81	117	126	86	103	135
Total.....	263	247	329	453	589	589	619	687	595	434	496

Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 12

CRUDE RUBBER STOCKS INSIDE REGULATED AREAS, AT END OF EACH PERIOD, 1929–1937

(Thousands of long tons)

Countries	1929	1930	1931	1932	1933	1934	1935	1936	1937
Malaya.....	45	45	47	46	41	29	34	35	46
Netherlands East Indies.....	..	..	..	..	..	28	28	22	41
Ceylon.....	5	5	4	4	6	7	9	8	11
India.....	..	..	..	..	..	..	2	4	5
North Borneo.....	..	..	..	..	..	1	1	1	1
Sarawak.....	..	..	..	..	..	1	1	3	1
Indo-China.....	..	..	..	..	..	..	2	1	6
Total.....	50	50	51	50	47	66	77	74	111

Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 13

CRUDE RUBBER ABSORPTION* BY TYPE OF PRODUCT, UNITED STATES, 1931–1937

(Thousands of long tons)

Product	1931	1932	1933	1934	1935	1936	1937†
Tires and tire sundries	261	233	282	331	325	350	270
Mechanical rubber goods	18	15	25	33	39	45	38
Boots and shoes	11	12	18	18	18	21	16
Heels and soles	9	10	15	12	10	9	8
Other	20	19	23	27	29	29	26
Total	319	289	363	421	421	454	358

* Represents 86 % to 92 % of total absorption.
† First nine months of year.
Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 14

REGISTRATION AND PRODUCTION OF MOTOR VEHICLES AND PRODUCTION AND INVENTORY OF TIRES AND TUBES, UNITED STATES, 1927–1937 AND JANUARY–FEBRUARY, 1938

(All figures in thousands)

Year	Motor Vehicles		Tires		Tubes	
	Registered at December 31	Produced	Produced	On hand December 31	Produced	On hand December 31
1927	23,268	3,401	63,550	10,312	70,855	13,692
1928	24,630	4,359	76,647	13,624	80,810	16,117
1929	26,654	5,358	69,765	11,838	74,043	12,807
1930	26,719	3,356	51,735	9,003	56,390	9,999
1931	26,005	2,390	49,143	7,775	49,167	7,922
1932	24,295	1,371	40,418	7,644	37,530	6,749
1933	24,057	1,920	45,376	8,888	42,904	7,815
1934	25,223	2,753	47,233	9,455	46,228	9,180
1935	26,515	3,947	48,482	8,196	47,761	8,231
1936	28,521	4,454	58,117	11,114	57,247	10,985
1937	29,655	4,809	55,284	10,768	51,986	10,236
Jan., 1938	.....	210	2,743	10,988	2,388	10,198
Feb., 1938	.....	.....	2,212	10,833	2,105	10,161

Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

EXHIBIT 15

RECLAIMED RUBBER PRODUCTION, CONSUMPTION, AND STOCKS IN THE UNITED STATES, 1925–1937

Year	Production	Consumption		Stocks at End of Period
	Thousands of long tons	Thousands of long tons	% of crude consumption	Thousands of long tons
1925	133	137	35.3%	13.2
1926	181	165	45.0	23.2
1927	189	178	47.6	25.0
1928	209	223	50.4	24.8
1929	219	224	47.9	27.5
1930	167	159	41.5	23.2
1931	142	127	36.6	18.7
1932	75	72	23.0	12.2
1933	100	84	20.2	22.4
1934	108	102	22.5	23.4
1935	123	113	22.5	25.1
1936	151	130	22.4	19.0
1937 (Jan.–Nov.)	186	149	28.5	24.6

Source: *The World's Rubber Position*, January 31, 1938.

EXHIBIT 16

AVERAGE SPOT CLOSING PRICES—RIBBED SMOKED SHEETS, NEW YORK

Average Price per Pound, 1910–1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60¢	1914	65.33¢	1918	60.15¢
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

EXHIBIT 16 (*Continued*)

AVERAGE SPOT CLOSING PRICES—RIBBED SMOKED SHEETS, NEW YORK

Average Monthly Price per Pound, 1922–1937

Month	1922	1923	1924	1925
January	18.82¢	32.73¢	25.86¢	36.71¢
February	16.12	35.14	25.29	36.01
March	14.53	34.21	22.83	41.00
April	15.99	32.48	22.51	43.64
May	15.25	27.39	18.89	58.47
June	15.11	26.88	18.81	77.26
July	14.67	26.10	22.16	103.16
August	13.93	28.84	26.17	82.99
September	14.44	28.95	27.56	88.88
October	19.78	26.93	31.13	98.01
November	23.88	27.14	34.33	104.80
December	27.42	26.60	37.88	98.51
Average for Year	17.50	29.45	26.20	72.46

Month	1926	1927	1928	1929
January	79.50¢	38.75¢	40.25¢	20.14¢
February	62.25	38.25	32.75	23.97
March	59.00	41.04	26.82	24.55
April	51.25	40.86	18.97	21.18
May	47.75	40.76	18.99	21.46
June	42.50	37.25	19.59	20.64
July	41.03	34.87	19.40	21.30
August	38.50	35.12	19.46	20.59
September	41.00	33.67	18.47	20.37
October	42.50	34.32	18.83	19.67
November	38.50	37.58	18.26	16.62
December	38.25	40.63	17.97	16.12
Average for Year	48.50	37.72	22.48	20.55

EXHIBIT 16 (*Continued*)

AVERAGE SPOT CLOSING PRICES—RIBBED SMOKED SHEETS, NEW YORK

Month	1930	1931	1932	1933
January	15.24¢	8.34¢	4.38¢	3.08¢
February	15.85	7.70	4.03	2.95
March	15.34	7.71	3.35	3.01
April	14.93	6.43	3.02	3.56
May	14.24	6.49	3.09	4.95
June	12.45	6.35	2.66	6.15
July	11.24	6.37	2.89	8.01
August	9.96	5.38	3.63	7.31
September	8.28	5.08	3.84	7.30
October	8.20	4.87	3.65	7.64
November	9.01	4.65	3.44	8.66
December	9.05	4.64	3.24	8.87
Average for Year	11.98	6.17	3.49	5.96

Month	1934	1935	1936	1937
January	9.32¢	13.10¢	14.35¢	21.37¢
February	10.45	12.92	15.48	21.33
March	11.01	11.51	15.89	24.09
April	12.10	11.55	15.98	23.44
May	13.26	12.05	15.62	21.14
June	13.51	12.57	15.85	19.29
July	14.60	12.10	16.49	18.86
August	15.47	11.98	16.25	18.37
September	15.36	11.55	16.46	18.55
October	13.96	12.62	16.55	16.28
November	13.04	13.15	17.97	14.60
December	12.98	13.28	20.01	15.41
Average for Year	12.92	12.37	16.41	19.39

Source: *The Rubber Age* (New York).

EXHIBIT 17

APPROXIMATE NET COST OF RUBBER PRODUCTION, MALAYAN ESTATES, 1920–1933

Year	Pence per Pound*	Year	Pence per Pound*
1920	11.40	1927	10.30
1921	12.23	1928	8.41
1922	8.29	1929	6.28
1923	9.52	1930	5.02
1924	9.08	1931	2.97
1925	8.48	1932	2.47
1926	9.86	1933	2.46

* At a sterling quotation of $4.80, 1 penny would equal 2 cents.

Note: In comparison with these figures, the average London price for the first half of 1934 was 5.65 pence, and for July, 1934, 7.06 pence. In considering what is a "reasonable price," the distant past deserves very little consideration in comparison with the performance of recent years.

Probably the curtailment of production voluntarily practiced by many of the companies was responsible for the higher production cost per pound in 1921 than in 1920. After 1921, expenses were reduced considerably, and economies instituted in 1922 were continued thereafter, although restriction under the Stevenson scheme caused operating costs to increase. Moreover, restriction for a time certainly retarded efforts to reduce costs. Following the abnormally high prices of 1925–26, costs were increased notably by higher wages, shipping costs, brokerage fees, bonuses to staff, and directors' fees. In 1928, on a growing but still curtailed output, but with wages unreduced, costs were still above the 1922 level, though sharply below 1927. Since 1928, each year has seen a new low record in costs of production as well as prices. In the vicissitudes of the depression, estates learned many methods of saving that will stay in effect. The reduced cost was mostly the result of improved tapping methods, higher yields from improved trees, and other factors to a large extent independent of the depression. If past history (1921–1924) repeats itself the cost of production will not again increase very sharply; many of the economies are real and will be permanent, although it is to be expected (and hoped) that expenditures for staff and labor will be restored to a proper level. As for restriction causing costs of production to increase, it must be remembered that the low costs of recent years were accomplished at a time when estates were voluntarily restricting to some extent, by holding out-of-tap the less efficient producing areas—restriction may facilitate continuation of recent low costs, although when the capitalization of estates is considered, it is to be expected that efforts will be made to produce dividends on other bases than mere out-of-pocket expense. Even the capitalization, in large measure, represents the ploughing in of past profits, and is thus a product of the industry itself.

The fact that cost of production has been about quartered since 1927 is, in itself, evidence that past concepts of the rubber producing industry need to be revised. It is almost true to say that the rubber producing industry of today is a different one from that in existence prior to 1922—the difference is doubtless as great as that between the wild rubber industry of 1914 and the pre-war estates; the change from old style to improved estates may be more gradual, but it is no less certain to occur.

The figures for estates on which these costs were calculated are not always exact calendar year statistics, operations during a fiscal year being counted for that year in which most of the months fell. The result of the calculations is believed to be closely accurate in showing the past average out-of-pocket expenditure per pound of rubber, for comparative annual periods, for these Malayan estates.

Source: U. S. Bureau of Foreign and Domestic Commerce, Leather-Rubber-Shoe Division, *Special Circular 3546, Rubber Section*, October 10, 1934.

EXHIBIT 18

AVERAGE LIFE (IN YEARS) OF TIRES AND MOTOR VEHICLES, 1925–1936

Year	Tires	Motor Trucks	Passenger Cars	All Vehicles
1925	1.581	9.46	7.98	8.07
1926	1.770	9.45	7.47	7.69
1927	1.655	9.32	7.51	7.74
1928	1.550	9.26	7.03	7.42
1929	1.848	9.81	6.95	7.19
1930	2.465	9.47	7.20	7.36
1931	2.417	8.89	7.37	7.54
1932	2.689	8.80	7.59	7.71
1933	2.427	8.94	8.08	8.17
1934	2.566	9.23	8.76	8.81
1935	2.725	9.41	9.16	9.18
1936	2.692	9.55	9.55	9.55

Note: Despite the increased average life for motorcars, there has not been any decline in average tire life nor any increase in renewal tire sales *per car* in recent years.

Source: U. S. Bureau of Foreign and Domestic Commerce, Leather and Rubber Division, *Circular 3644*, June 15, 1937.

EXHIBIT 19

DOMESTIC SALES OF TIRES FOR ORIGINAL EQUIPMENT AND REPLACEMENT,* 1933–1936

(Thousands)

Year	Original Equipment	Renewal Sales	Total
1933	9,464	33,699	43,163
1934	13,510	31,869	45,379
1935	19,435	30,091	49,526
1936	21,921	31,353	53,274

* Considering as original equipment one spare tire in addition to the four in use on each new vehicle, and allowing for exports, imports, and manufacturers' inventory changes.

Source: U. S. Bureau of Foreign and Domestic Commerce, Leather and Rubber Division, *Circular 3644*, June 15, 1937.

Note: The following estimates for 1937 appeared in *Standard Trade and Securities* (Vol. 87, No. 11, Sec. 4, Industrials, p. AT-87, Feb. 9, 1938):

	Thousands of Tires
Original equipment	25,747
Renewal sales	29,700
Total	55,447

With reference to 1938, the comment of this publication was as follows: "Based on current estimates of automobile production for 1938, and allowing an average of five tires for each new car, sales of tires for original equipment this year may be 7,500,000 to 8,000,000 below 1937, a decline of roughly a third. Because of large inventories in the hands of car makers, the decline in the first half year will probably be even more severe.

. . . . . .

"Replacement sales should hold up fairly well in view of the increase of about 1,400,000 in 1937 in the total of cars and trucks on the road."

APPENDIX B

THE INTERNATIONAL RUBBER REGULATION SCHEME

The first effort at restriction of the export of crude rubber, the Stevenson Plan, was abandoned in 1928. In 1934, another international rubber regulation scheme was adopted. This was described as follows in a circular issued by the U. S. Bureau of Foreign and Domestic Commerce:

On April 28 the authorized representatives of the Rubber Growers' Association Inc. (British), the Internationale Vereeniging De Rubber-En Andere Cultures In Nederlandsch-Indie (Dutch), the Union des Planteurs de Caoutchouc en Indo-Chine (French), the delegate of the Government of Sarawak and the delegate of the Government of Siam signed an agreement for the regulation and restriction of rubber planting and export. [The following] communiqué was issued by the Rubber Growers' Association the evening of April 29 to its members and to the press outlining the objectives and the main provisions of the agreement together with the statement that the agreement had been submitted to the respective governments for legislative action to put it into effect.

Communiqué to Members and the Press. Negotiations for Rubber Regulation have now been concluded and complete agreement has been reached.

The formal Agreement embodying the terms and provisions of the Rubber Regulation Scheme was signed by appointed representatives yesterday. The Agreement has been submitted to the respective Governments with the request that they give legislative effect to its provisions.

The following is a synopsis of the Scheme:—

Objective. The object of the Scheme is set out in the forefront of the Agreement in the following terms:—

"It has been considered necessary and advisable that steps should be taken to regulate the production and export of rubber in and from producing countries with the object of reducing existing world stocks to a normal figure and adjusting in an orderly manner supply to demand and maintaining a fair and equitable price level which will be reasonably remunerative to efficient producers."

Scope. The Scheme is comprehensive in its scope and is to apply to the following territories:—

Malaya	French Indo-China
Netherlands India	State of North Borneo
Ceylon	Sarawak
India including Burma	Siam

Thus no territory where there are organized plantation rubber interests of any dimensions at all has been excluded from its scope.

Main Provisions of the Scheme. For the purpose of determining from time to time the amount that may be exported from each of the above territories, quotas have been assigned as follows:

	Tons				
	1934	1935	1936	1937	1938
Malaya	504,000	538,000	569,000	589,000	602,000
Dutch East Indies	352,000	400,000	443,000	467,000	485,000
Ceylon	77,500	79,000	80,000	81,000	82,500
India	6,850	8,250	9,000	9,000	9,250
Burma	5,150	6,750	8,000	9,000	9,250
State of North Borneo	12,000	13,000	14,000	15,500	16,500
Sarawak	24,000	28,000	30,000	31,500	32,000
Siam	15,000	15,000	15,000	15,000	15,000

Recognizing that the present sources of supply are more than are necessary to satisfy any probable world demand for a few years to come, further planting of rubber is prohibited, except for experimental purposes and only to an extent which is equivalent to one-quarter of one per cent of any territory's existing total planted area. This will effectively check the further planting that would otherwise result from the stimulus given by the higher price that may be established under the Rubber Regulation Scheme. For the same reason, replanting is limited to the equivalent of 20 per cent of the existing planted area of any one holding, which is estimated should provide adequately for depreciation. So that planting may not be encouraged in territories outside the scope of the Agreement, the export of planting material from territories within the scope of the Agreement is prohibited.

To prevent an abnormal accumulation of stocks, the Agreement provides that producers, as well as dealers, will be put under obligation to keep their stocks to the normal percentage of their overturn.

Methods by Which the Scheme Will Operate. An International Committee to be designated "International Rubber Regulation Committee" is to be constituted of delegations appointed by the respective Governments of the territories mentioned. Each delegation shall have one vote for every complete 1,000 tons of the quota of the territory which it represents.

It will be the main business of this International Rubber Regulation Committee to fix from time to time the percentage of the allotted quotas which the territories may export.

Representatives of rubber manufacturers in Europe and America will be invited to nominate a panel which may from time to time tender advice to the International Rubber Regulation Committee on such important subjects as stocks, exportable percentage and cognate matters which are deemed to affect the interests of rubber manufacturers.

Exemptions. All the foregoing provisions apply equally to all the territories mentioned with the following exceptions:—

During the period of the regulation, Siam will be allowed to plant an area not exceeding 31,000 acres.

Also in the case of Siam, the amount which may be exported is subject to a stipulated minimum for each year.

The quantity of rubber absorbed by France last year was about four times the quantity exported from Indo-China, and in recognition of this fact there are special arrangements regarding the amount which Indo-China may export.

Research. It is fully realized by producers that they should make every effort to create conditions that will bring about a natural balance between production and consumption rather than place an indefinite reliance upon governmental regulation. Accordingly the Agreement invites all Governments, except Sarawak and Siam, to levy a cess on exports of rubber and to arrange that the proceeds of this cess shall be applied to research to find new and extended uses for rubber.

Duration. The Scheme is to run for a minimum period commencing 1st June 1934 and terminating on 31st December 1938, but prior to the latter date,[1] the International Rubber Regulation Committee shall make a recommendation to the Governments as to the continuance or otherwise of the Regulation. (W. J. Gallagher, Chairman, The Rubber Growers' Association, Inc.)[2]

In order to overcome the objections of certain signatories to the Agreement, the basic quotas were revised so that at December 31, 1937, they were as follows:

TABLE OF BASIC QUOTAS

(Long tons)

	1934	1935	1936	1937	1938
	7/12ths of				
Straits Settlements, F.M.S., U.M.S., and Brunei	504,000	538,000	569,000	589,000	602,000
Netherlands India	352,000	400,000	500,000	520,000	540,000
Ceylon	77,500	79,000	80,000	81,000	82,500
India	6,850	12,500	12,500	12,500	13,000
Burma	5,150	8,000	8,500	9,000	9,250
State of N. Borneo	12,000	13,000	14,000	15,500	16,500
Sarawak	24,000	28,000	30,000	31,500	32,000
Siam*	15,000	40,000	40,000	40,000	40,000
Total	996,500	1,118,500	1,254,000	1,298,500	1,335,250

* The calculation of permissible exportable amounts for Siam is subject to the provisions of article 4(b) of the International Agreement.

N.B.—No basic quota has been allotted to French Indo-China and no restriction is placed on exports from this country, except that part of any exports in excess of 30,000 tons a year is to be delivered to the I.R.R.C. as stipulated in article 6 of the International Agreement.

Source: *Statistical Bulletin of the International Rubber Regulation Committee.*

Beyond the statement of the objective of "maintaining a fair and equitable price level . . . reasonably remunerative to efficient

[1] Editors' Note: On March 29, 1938, the Regulation was extended for five years.

[2] Rubber Section, U. S. Bureau of Foreign and Domestic Commerce, *Special Circular 3528*, May 14, 1934.

producers" there was, in the text of the scheme, no indication of the price which the Committee was to try to maintain. There was, of course, a good deal of conjecture. The following statement, quoted from a report issued by the office of the American Minister at The Hague, on June 7, 1934, was typical:

> The opinion seems to prevail here that the price of rubber will not be allowed to rise much above 7 pence a pound. There have been articles published in London to the effect that certain British interests hope for a price of 10 pence to a shilling a pound—that such a price would not be exorbitant nor injurious to the consuming public. This opinion is apparently not shared by the Government here, as they would be presented with an insoluble problem in the control of native rubber were the price to go much higher than it is.

During the operation of the control scheme the following quotas were in effect:

1934	January–June	100%
	August–September	90
	October–November	80
	December	70
1935	January–March	75
	April–June	70
	July–September	65
	October–December	60
1936	January–June	60
	July–December	65
1937	January–March	75
	April–June	80
	July–December	90
1938	January–March	70
	April–June	60

The quota for the second quarter of 1938 had been announced on January 25, and the meeting at which the quota for the third quarter was to be established was scheduled for May 31. At the time when the Liquid Rubber Company was studying the situation, authoritative observers expected that the quota might be reduced to 50%.

APPENDIX C

In a study of raw commodity trends[1] published in March, 1938, Melvin T. Copeland included the following statement about rubber:

One transformation of the rubber industry began before the opening of hostilities in Europe in 1914; another transformation has been in progress during the last 20 years. The war itself had little to do directly with these changes.

The first change was the growth of rubber plantations in the Middle East—chiefly British Malaya—which supplanted the jungles of Brazil as the major source of crude rubber to supply the world's needs. The production of plantation rubber began in a small way about 1900. Then came the automobile, which required rubber tires. Demand grew so fast that in 1910 there was a wild boom in the rubber market. The high prices of that boom period led to the clearing of more ground for plantations. Inasmuch as a rubber tree is not sufficiently mature for tapping until five to seven years after planting, the effects of the extension of plantations during the boom were not felt until during the war period. By that time plantation rubber had come completely to dominate the field.

During the war the Central European markets were, of course, cut off, but demand was growing in the United States, by far the largest user of rubber. The market for rubber was not demoralized, therefore, by the new supplies, but the price slowly declined. Crude rubber, in fact, was the only major raw commodity the price of which declined throughout the war years.

New planting continued during the war and especially in 1919. When commodity prices in general slumped in 1920–21, rubber prices slumped with the rest. In an effort to correct this situation, the Stevenson Plan for the restriction of the supply of crude rubber, by a sliding scale of export duties, was put into effect in November, 1922, by the governments of Malaya and Ceylon, on the recommendation of the British government.

Under the Stevenson Plan, exports of crude rubber from Malaya and Ceylon were restricted at a time when motor car production was expanding at such a rate as to call for large additional supplies. The price of crude rubber in New York, therefore, rose from an average of 17.5 cents per pound in 1922 to a peak of $1.23 per pound in July, 1925. Meanwhile, the acreage planted to rubber in the Middle East continued to increase. In 1925 the acreage was roughly 30% greater than in 1919 and 150% greater than in 1913.[2]

The year 1925 marked, roughly, another turning point in the crude rubber industry. In August, 1925, the price of crude rubber began to fall. When the bottom of the long decline was reached in June, 1932, the price of crude rubber in New York was 2.66 cents per pound, a drop of 98% from the peak.

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[1] MELVIN T. COPELAND, *A Raw Commodity Revolution* (Harvard Business School, Division of Research, Business Research Studies, No. 19, March, 1938). The quoted passages are reproduced, by permission, from pp. 9–10 and 23–25.

[2] CHARLES R. WHITTLESEY, *Governmental Control of Crude Rubber* (Princeton University Press, 1931), p. 109.

The drastic decline in price after 1925 was occasioned by the degree to which producing capacity outran market needs. The older trees were continuing to yield their crops. Trees planted in 1919 and thereafter were coming into production. New trees were being planted, particularly by native growers. And trees of greater yield were being introduced.

During the last 20 years there has been a gradual tendency for native growers, who plant clumps of rubber trees in their rice patches or on adjoining jungle land, to supersede the plantations which were the original producers of rubber in the Middle East. This is the second transformation in the rubber industry to which reference was made above. Rubber cultivation was introduced into the Middle East by plantation companies financed from London, later also from Amsterdam. These plantations were capitalistic enterprises, with substantial investments and elaborate administrative and operating organizations. In British Malaya they employed large numbers of people imported from India to work on the plantations. In Sumatra many Javanese were indentured for plantation labor.

Gradually, natives began to take up the planting of rubber trees on small plantations and, more and more, in their own little fields or "back yards," as it were. By 1925 over a third of the area planted to rubber was controlled by Orientals.[1] By 1929, 45.6% of the rubber output of Malaya was produced by natives. In 1935 in the Dutch East Indies it was discovered that the acreage held by natives amounted to 60% of the total acreage planted to rubber.[2]

After 1925, moreover, there was a marked tendency for the production per acre to be increased by better seed selection and by bud grafting. In bud grafting slips were taken from particularly good trees and grafted onto other roots. By this procedure the production per acre could be doubled. Careful seed selection and bud grafting were practiced on plantations, with a view to reducing unit costs and thus enabling the plantations to survive as prices fell. As in so many other raw commodity industries, the efforts to introduce economies in order to lower costs on a falling market led to greater production and still lower prices. In the Dutch East Indies, furthermore, the natives also were encouraged by the government to use bud grafting.

The net result of increased plantings and improved cultivation was to create a producing capacity substantially in excess of market requirements. In 1936, for example, the rubber-producing capacity was nearly three times as great as the world consumption in 1926 and 50% in excess of world consumption in 1936, which was the highest ever attained. And rubber trees have long lives.

The large output and excess capacity for producing crude rubber created a particularly serious situation during the hard times from 1930 to 1933. Eventually the precipitous drop in prices led to a renewal of efforts to impose control of production.

The various schemes to control the output of crude rubber have brought into focus grave conflicts of interest. When the Stevenson Plan

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[1] *Ibid.*, pp. 7–8.

[2] G. H. SEYBOLD, "Rubber Control Wabbles," *Barron's*, January 13, 1936, p. 19.

was being drawn up in 1922, the British government carried on prolonged negotiations with the Dutch government with a view to securing joint action, but the Dutch government finally declined to participate. The expansion of output in the Dutch colonies during the next five years contributed materially to the ultimate breakdown of the Stevenson Plan.

In 1934, again after long negotiations, an international agreement to restrict exports of crude rubber was entered into by the governments of Great Britain, Holland, France, India, and Siam. Under this agreement special treatment was accorded to French Indo-China, since its exports went entirely to France.[1] This arrangement, of course, was a concession to French colonial policy. Siam also was given special treatment, by being exempted from a prohibition on the planting of new trees. Without that exemption Siam would not have joined in the agreement. Neither Indo-China nor Siam as yet is a large exporter of rubber, but the special treatment accorded them reflects some of the international rivalries involved in the industry and the practical impossibility of checking growth in new areas.

The restriction scheme of 1934 also brought to the fore another rivalry of much deeper significance, the struggle between the plantations and the native growers. In both British Malaya and the Dutch East Indies the restrictions have borne much more heavily on the native growers than on the plantations. In 1935, for example, the export duty, by means of which it was expected to restrict exports of native rubber in the Dutch East Indies, ranged from a little under 5 to over 9 cents per pound, while the natives were receiving about 2 cents per pound for their crop.[2] Such conditions as that not only embody the risk of further revolutionary developments in the industry but they also potentially carry the seeds of social and political revolution.

At the end of this general survey of the raw commodity situation, Professor Copeland commented as follows:

From the foregoing summary of what has been taking place in raw commodity industries, it appears that few industries have been immune to radical change and that hardly any corner of the economic world has escaped its effects. Not only Europe and America, North and South, but Asia, Africa, and Australasia, all have gone through disruptive commercial experiences which have had deep social and political as well as economic consequences. Even in languid tropical and subtropical regions, new economic life has begun to stir, which may lead to revolutionary social changes there.

It is impossible to determine just how far these changes were the result of conditions brought about by the World War, and doubtless there is a danger of exaggerating the war influence. Many of the changes would have occurred anyway, even had there been no war, albeit somewhat more slowly and in a more orderly fashion.

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[1] J. K. CHISHOLM, "Can Rubber Restriction Succeed?" *Harvard Business Review*, Vol. XIII, No. 4, Summer, 1935, p. 479.

[2] SEYBOLD, *op. cit.*, p. 19.

As has been shown, however, certain developments can be traced directly to the war. To meet the war demand, new producing facilities were opened up, as in the case of zinc, sugar, and wheat. The war directly caused the perfection of the process for making synthetic nitrogen, and thereby increased the supply of cheap nitrate for the fertilizer industry in postwar years. The war also gave a stimulus to other chemical developments, which have been revolutionary in nature.

War financing was a direct cause for high labor costs and high prices. High prices encouraged larger outputs in those industries which could reach the European and American markets. High labor costs impelled the introduction, where possible, of labor-saving equipment, thereby encouraging technological innovations.

In the United States in 1917–18 it was expected, with humanitarian sincerity but naive simplicity, that the World War would end war forever and usher in an era of human brotherhood. Actually the war and its heritage of debts intensified the spirit of nationalism. That spirit contributed to a protection or subsidization of raw commodity production which, in turn, figured in no small way in the revolution in various raw commodity industries after 1919.

Some of the major effects of the World War on raw commodity industries, however, were less tangible. War subjects men to the greatest of human risks and thus breaks down conservatism. It creates an attitude of mind which looks with favor on new ventures, and it effects a redistribution of wealth which seeks new outlets. That was true in the World War as in other great conflicts. War shatters established customs and practices and stirs men's imagination to do many things which previously had seemed to be impossible. In the World War this was exemplified in the air transport, radio, and chemical industries. Such an attitude is infectious; in postwar years it carried over into other fields, including some of the raw commodity industries. Thus, indirectly, some of the later technological innovations are traceable to war influence.

In the period since 1920, certain types of development stand out with especial prominence: rehabilitation in the European countries, efforts to cut costs by increasing volume of output, technological improvements, and the opening up of new areas. These are not unrelated to the forces set in motion between 1914 and 1920, but it may be well not to overemphasize that relationship. The revival of production facilities in Europe was especially marked in the zinc, sugar, and wheat industries. Efforts to cut costs by intensifying production were manifested in the rubber, sugar, and coffee industries. New technological devices, also as means of cutting costs, were introduced in the copper, lead, zinc, tin, nitrate, sugar, rubber, cotton, and wheat industries. Silk, cotton, and wool were affected by technological developments in the rayon industry. The opening up of new areas of production took place in the copper, lead, zinc, tin, oil, sugar, coffee, cocoa, rubber, cotton, and wheat industries, these developments being made practical in several instances by technological inventions. Thus there has been constant interaction and interplay between the various forces at work, all tending toward revolution.

In the record of developments in these raw commodity industries since 1920, two dates stand out conspicuously—1925 and 1930–31. The year 1925 marked, approximately, the beginning of a long downswing in

prices; 1930–31 marked an increase in output in certain important new areas just when prices were slumping badly.

The peaking of prices about 1925 was the result, apparently, of the course of events during the preceding five years. In 1920, raw commodity prices collapsed in the first postwar stage of readjustment. Recovery began in 1922, and in 1923 and 1924, with rising prices, optimism returned; an intensification of production began and new technological methods were introduced, in efforts to lower costs. Wages and labor costs had not fallen to anything like the degree that prices had declined. Hence, in many instances, intensification of production and the use of new labor-saving devices seemed to offer the only chance of economic survival. At the same time, European producers were gradually rehabilitating their industries. The increased world output overbalanced demand, so that in 1925, or thereabouts, prices started downward. Certain monetary and financial influences also contributed to the change in price trends.

From 1925 to 1929 production, typically, continued to expand and raw commodity prices to decline. There were certain exceptions, to be sure, such as copper and cotton, where special circumstances retarded the break in prices. And in some other cases the weakening in prices was, in part at least, in sympathy with the declines in related products. Thus the raw commodity price structure was in a precarious state when a general business slump started in October, 1929.

The raw commodity situation helped to turn the business slump which began in 1929 into a major economic disaster. The large stocks of raw commodities which had been accumulating over a period of several years caused the price structure to be weak. A slackening of business added to the accumulations of stocks in the hands of raw material producers and merchants and thereby accelerated the drop in prices. In 1930–31, furthermore, new production facilities were just coming into operation in several of these industries. In the copper industry, new mines came into production in Africa and Canada. In the lead and zinc industries, Canada was adding to its output. In the oil industry, the rich new field in East Texas was just entering flush production. Beet sugar output was increasing in Europe and the United States, cane sugar in India, Porto Rico, and the Philippines. Another bumper crop of coffee was produced in Brazil in 1930. The output of rayon was expanding, to press on the prices of other textile materials. Large crops of wheat were grown in the United States and Europe in 1930 and 1931, and in 1930 Russian exports of wheat jumped upwards. Although these increases in output, in most instances, were wholly or partially counterbalanced, in 1931, by drops in production elsewhere, the effect of the new sources of supply was to keep the prices of these commodities under heavy pressure.

The raw commodity situation, therefore, was responsible, in part, for the prolongation and intensification of the business depression which began in 1929.

V. BUSINESS CYCLES AND BUSINESS POLICIES

SOME NOTES ON BUSINESS CYCLES

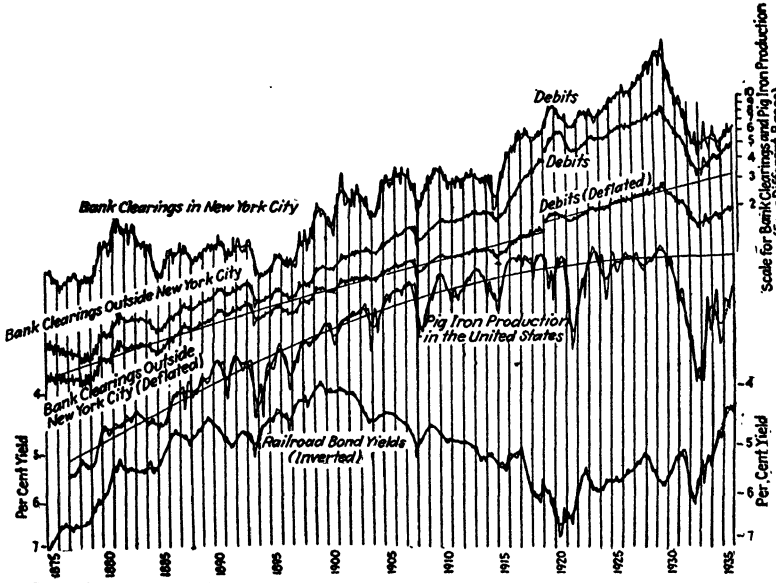
(C. A. B.)

The historical record of American business is marked by a combination of long-term and short-term movements. Production, aggregate employment, and national income have increased from decade to decade at more or less steady rates, which have to some degree reflected the growth of population. Prices, interest rates, and bond yields also have tended to move in one direction or another over long periods; but changes here are not associated predominantly with growth, since sometimes the trend has been upward, sometimes downward. Exhibit 1 charts the long-term movements in general business as reflected in the total volume of bank debits, in pig iron production, and in railroad bond yields. Superimposed on the long-term movements are short-term fluctuations whose similarity in direction of movement and in relative amplitude (again see Exhibit 1) has led analysts to suspect that each of these fluctuations is associated with some common, pervasive set of influences. This phenomenon of a more or less common pattern of short-run business fluctuations is what is meant by the term "business cycles."

The chief characteristic of business cycles is the alternation of periods of prosperity and depression, of good and bad trade, throughout a considerable portion of the business world. Sharp activity in one industry, such as munitions manufacture, does not make a cyclical boom any more than one swallow makes a summer. One or two "sick" industries, as, for example, certain textile trades during the 1920's, do not make a cyclical decline. Stoppage of any activity by reason of some external cause such as a strike is also not to be considered a cyclical downturn, although the stoppage may lead to a real cyclical decline. In short, it is not the existence of ups and downs in the rate of activity in particular industries that constitutes

business cycles but rather the fact that the timing of these fluctuations tends to be roughly the same in many areas of business activity.

The notion was early recognized that the recurrence of widespread short-run fluctuations in business activity deserved special study. In 1860, Clément Juglar published an elaborate treatise describing cyclical fluctuations; 15 years later Stanley Jevons, the



Reproduced, by permission of the publishers, from F. R. Macaulay, *Bond Yields, Interest Rates, and Stock Prices*, (New York, National Bureau of Economic Research, 1938).

EXHIBIT 1.—Bond Yields and the Monetary and Physical Volume of Business (Logarithmic Scales).

English economist, began publishing his series of papers on the periodicity of business crises. But even before then, other writers were attracted to the possibility of explaining the periodic rise and fall in business activity. Jevons, himself, as have many since his time, connected cycles in business with cycles in the number and magnitude of spots on the sun. Others have sought explanations in less distant origins, such as banking and credit institutions, the profit motive, and the development of great inventions.[1]

It was a natural consequence of the study of the "reasons" for business cycles that efforts should be turned to the "control" of

[1] See case on Business Cycle Theories, p. 359.

business cycles. Schemes for large-scale construction of public works during periods of depression, for money and credit manipulations, for "pump priming" through deficit spending, have been broached as possible means of alleviating the full force of business cycles.

A more practical interest in business cycles rests on the idea that, through careful study and judicious appraisal of both past cycles and present conditions, a better forecast of future business prospects can be made. Whether he wants to or not, every businessman is forced to make decisions which take account of the probable influence of business cycles. Should he accumulate inventory? Should he be long or short on raw materials? Should he accept unusually large orders for future delivery, and at what price? Should he expand his sales department? Should he increase his plant facilities? These and many questions like them cannot be answered without consideration of future business fluctuations. Forecasting business conditions is by no means an easy task, and a forecast is pretty much a guess at best. But the most useful forecasts will combine a knowledge of the relationships that have characterized past business cycles with a careful study of factors influencing current business policies.

Examination of past business cycles reveals both uniformity and lack of uniformity. Those analysts who have been impressed by the exceptions to the general pattern are skeptical that conditions conducive to forecasting are ever present; others admit the wide differences in cyclical behavior from one cycle to another, yet insist on the general uniformity of certain relationships of timing, duration, and amplitude. Both groups of analysts would agree that the notion of "a business cycle" is a fallacious one, and that the more accurate concept is the plural form "business cycles," with all the implications of historical peculiarities in various cycles that the plural form gives.

Duration of Business Cycles

Study of records of business running back over long periods has led some investigators to suggest that at least three types of business cycles should be recognized:[1]

1. Long cycles, or long waves, requiring from 50 to 60 years for their full course. These are sometimes known as Kondratieff cycles.

[1] See Joseph A. Schumpeter, *Business Cycles* (New York, McGraw-Hill, 1939), Vol. I, pp. 164 et seq.

2. Intermediate cycles, sometimes called secondary trends or trend cycles, averaging roughly 9 to 11 years in duration. These are frequently referred to as Juglar cycles.

3. Short cycles, alternations of business activity requiring in this country about 40 months on the average for each full cycle.[1] They are referred to by Schumpeter as Kitchin cycles.

Statistical evidence for the long waves, or Kondratieff cycles, is rather less satisfactory than for the other two types; and some economists raise doubts as to whether these long-run movements are in reality recurrent. Certainly most businessmen do not concern themselves with such movements; and as a matter of fact, few of them are aware of the hypothesis that such long waves exist. When the average businessman thinks in terms of the major, highly publicized fluctuations in business activity, such as the boom period of the 1920's or the long depression of the 1930's, as constituting "the business cycle," he is looking at the so-called Juglars. And when he watches the month-to-month, contraseasonal shifts in his volume of business, he is looking at the third type listed above, the relatively short, 3- to 4-year cycle. In recent years, economists and statisticians have devoted chief attention to these short-run alternations of business expansion and contraction, believing that they present the principal difficulties, both theoretical and practical, which call for explanation and solution.

The approximate timing of short cycles in the United States since 1855, as determined by Wesley C. Mitchell, is shown in Exhibit 2. In the selection of reference turning points, Dr. Mitchell has been guided by available statistical evidence plus a conspectus of business feeling as revealed in "business annals"; that is, he has studied the particular cyclical patterns of hundreds of business series and noted the months when the expansion shown in most series reached a peak, and when, in most series, revival from depression troughs first was evident. (A preliminary step, of course, was the correction of each series for seasonal fluctuations.) For some cycles, the "clustering" of turning points was quite pronounced; in other instances, a date that could be selected as the "reference" turning point for comparative purposes was quite difficult to find. A case in point is the

[1] The average appears to be somewhat longer in the older industrial countries. In the United States, the range since 1855 is from 29 to 99 months. One hypothesis that has been put forth is that business cycles become more frequent when the industrial development of a country is progressing rapidly and that they are less frequent (i.e., of longer duration) when industrial development has become stabilized. (See F. C. Mills, "An Hypothesis Concerning the Duration of Business Cycles," *Journal of the American Statistical Association*, December, 1926, Vol. XXI, pp. 447–457.)

EXHIBIT 2

REFERENCE DATES AND DURATIONS OF BUSINESS CYCLES, UNITED STATES, 1855–1938

Expansion			Contraction			Duration (Months)		
Revival		Peak	Recession		Trough	Expansion	Contraction	Full Cycle
January	1855 to June	1857..	July	1857 to December	1858	30	18	48
January	1859 to October	1860..	November	1860 to June	1861	22	8	30
July	1861 to April	1865..	May	1865 to December	1867	46	32	78
January	1868 to June	1869..	July	1869 to December	1870	18	18	36
January	1871 to October	1873..	November	1873 to March	1879	34	65	99
April	1879 to March	1882..	April	1882 to May	1885	36	38	74
June	1885 to March	1887..	April	1887 to April	1888	22	13	35
May	1888 to July	1890..	August	1890 to May	1891	27	10	37
June	1891 to January	1893..	February	1893 to June	1894	20	17	37
July	1894 to December	1895..	January	1896 to June	1897	18	18	36
July	1897 to June	1899..	July	1899 to December	1900	24	18	42
January	1901 to September	1902..	October	1902 to August	1904	21	23	44
September	1904 to May	1907..	June	1907 to June	1908	33	13	46
July	1908 to January	1910..	February	1910 to January	1912	19	24	43
February	1912 to January	1913..	February	1913 to December	1914	12	23	35
January	1915 to August	1918..	September	1918 to April	1919	44	8	52
May	1919 to January	1920..	February	1920 to September	1921	9	20	29
October	1921 to May	1923..	June	1923 to July	1924	20	14	34
August	1924 to October	1926..	November	1926 to November	1927	27	13	40
December	1927 to June	1929..	July	1929 to March	1933	19	45	64
April	1933 to May	1937..	June	1937 to May	1938	50	12	62
Average duration, 21 cycles.....			.....			26	22	48

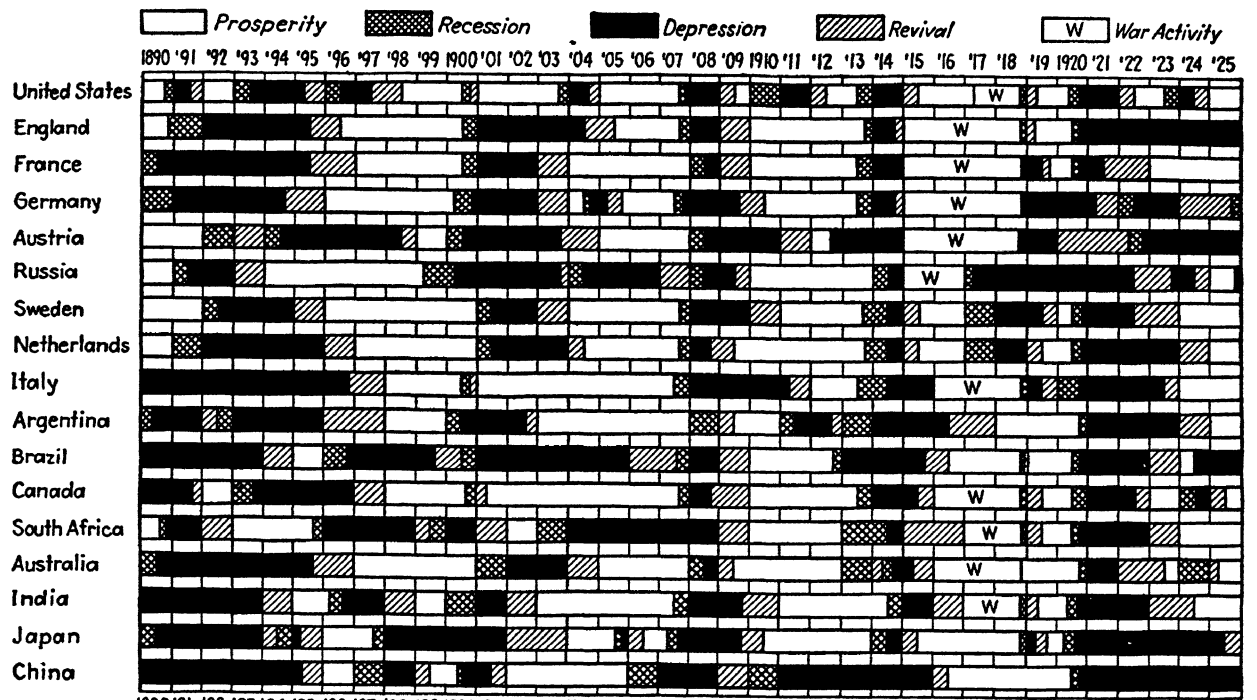
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EXHIBIT 3

DURATION OF FULL CYCLES, 1855–1938

Number of Months	Number of Cycles	
	When Measured Peak to Peak*	When Measured Revival to Revival
15–19	1	0
20–24	0	0
25–29	0	1
30–34	3	2
35–39	3	6
40–44	5	4
45–49	0	2
50–54	3	1
55–59	1	0
60–64	1	2
65–69	1	0
70–74	0	1
Over 75	2	2
	20	21

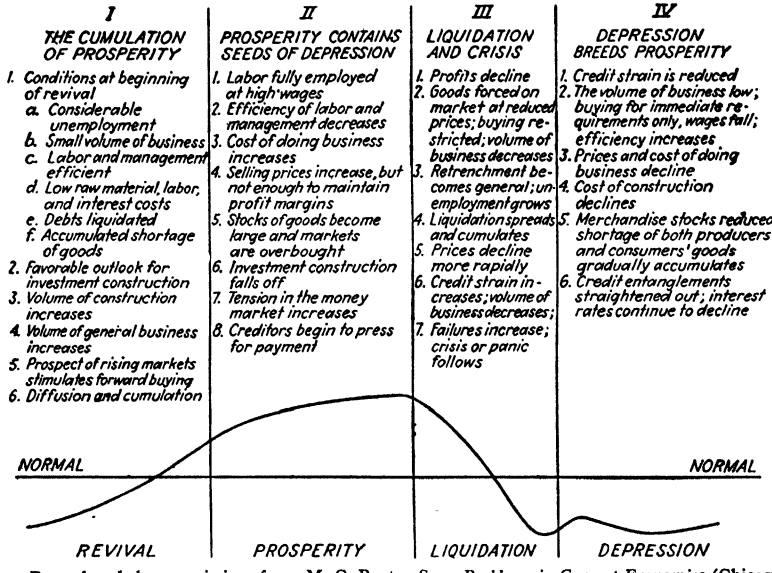
* The period covered by the 20 cycles as measured from peak to peak is 1857–1937.



Reproduced, by permission, from Wesley C. Mitchell, *Business Cycles: The Problem and Its Setting* (New York, National Bureau of Economic Research, 1928).

EXHIBIT 4.—Conspectus of Business Cycles in Various Countries, 1890–1925.

selection of the revival turning point that terminated the long recession dating from July, 1929. Dr. Mitchell has chosen March, 1933, as the low point of this recession and April, 1933, as the first month of revival, despite the fact that many important business series reached their troughs in midsummer of 1932. Since in selecting turning points the purpose is to fix dates when changes in



Reproduced, by permission, from M. C. Rorty, *Some Problems in Current Economics* (Chicago, A. W. Shaw Company, 1922), p. 78.

EXHIBIT 5.—An Imaginary Picture of a Business Cycle (according to Malcolm C. Rorty).

direction of business developments became general, a useful criterion is the state of business confidence as reflected in business journals.

No great precision may be claimed for the reference turning points thus selected, both because for early periods the information upon which they are based is scanty and, more important, because it is illogical to presume that business expansion turns to contraction, or depression to business revival, in any one month. Recession and recovery are processes of changing activity that begin in some part of the business system and, in most instances, only gradually become general. It is well to think of business cycles as composites of the specific cycles for all the various branches of the business system—individual cyclical patterns which in the aggregate give the cyclical pattern of business activity at large. In such a picture, the

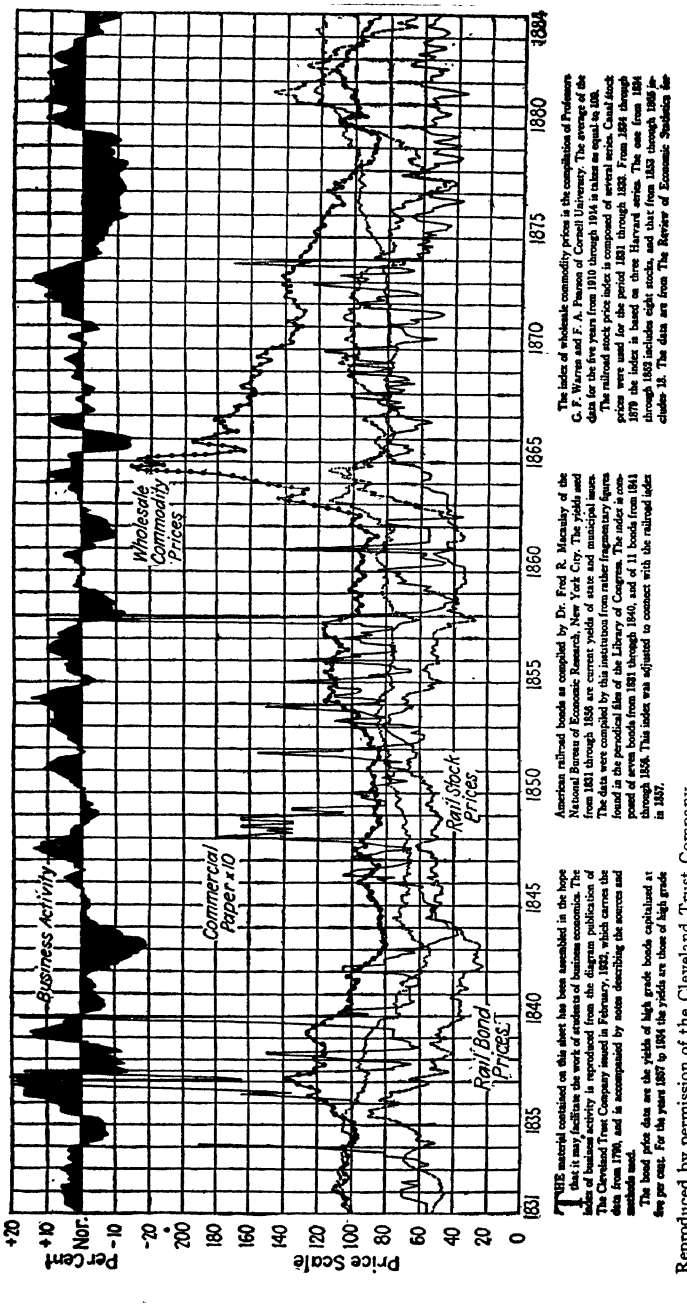


EXHIBIT 6.—Business Activity and Four Price Series.

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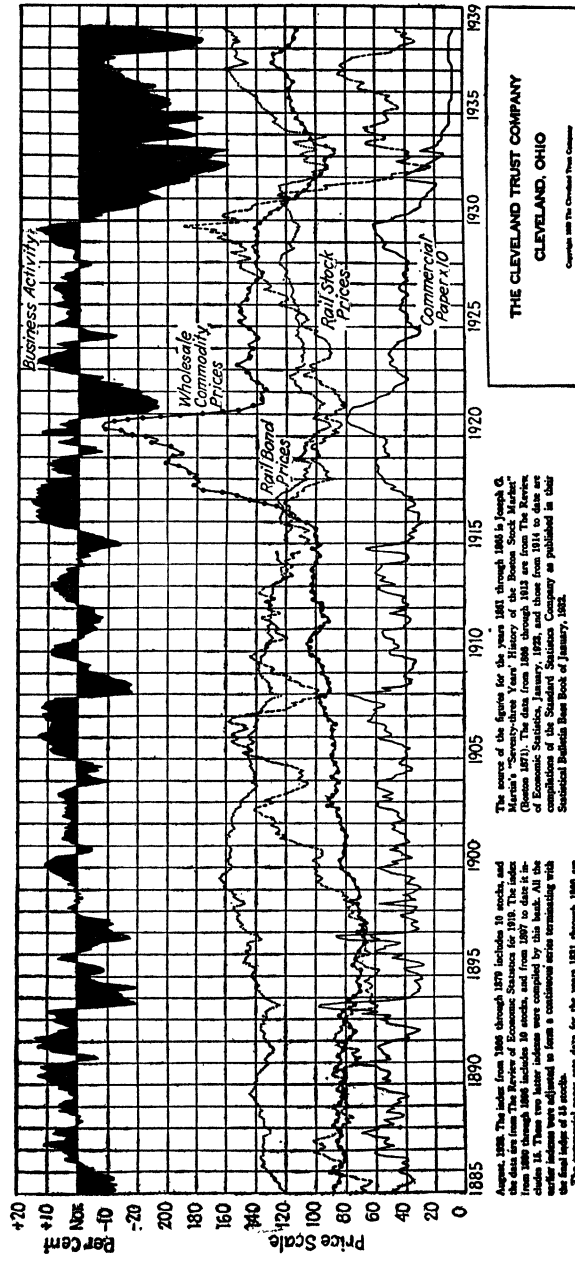


EXHIBIT 6 (*Continued*).—Business Activity and Four Price Series.

chronological sequence in which the different activities reach their peaks—and their troughs—is exceedingly important. In the measurement of this timing of cyclical movements, however, some particular set of reference points must be chosen. It is these reference turning points that Dr. Mitchell has provided in the table that is reproduced as Exhibit 2.

The figures on duration of business cycles as Dr. Mitchell has estimated them demonstrate that wide variation exists in the length of business cycles. Clearly little success can be expected if forecasting is based on nothing more than the average duration of past cycles. The average length of the 21 cycles covered in Exhibit 2 is 48 months; the median figure is 42 months. And if each cycle is measured from peak to peak, rather than revival to revival as in Exhibit 2, the typical time periods are somewhat different, as is shown in the frequency distributions of Exhibit 3.

The schedule of cyclical turning points selected for the United States is not identical with similar schedules drawn up for other countries. While there is some tendency to uniformity in cyclical movement in all industrial countries of the world, the disparities are numerous, as is evident from Exhibit 4.

Sequence of Cyclical Movements

The tabulation of turning points in Exhibit 2 suggests two major phases in the course of each cycle: (1) a period of expansion; (2) a period of contraction. We may add, as important stages in each complete cycle, the relatively short periods during which the changes in direction occur: downturn, called "recession" or "crisis";[1] and upturn, or revival. The description of what are more or less typical relationships among different series relating to different segments of business activity is best treated according to these four phases or parts of an entire cycle. In Exhibit 5 is a schematic summary of an imaginary cycle according to these four stages, prepared by the late Malcolm C. Rorty. It will be noted that some modification in terminology and in relative length of successive stages has been employed.

[1] The term "crisis" does not carry over into business-cycle usage any of the implications ordinarily associated with the word. The short and dramatic periods of financial collapse that have in the past occasionally marked the termination of the expansion phase are called "panics."

The transition from prosperity to depression in recent years has been so mild that the term "crisis" seems inappropriate. For this reason, "recession" is becoming widely used to denote the period of downturn. The terms "prosperity" and "depression" are also open to criticism because of the flavor they carry and are being replaced by the terms "expansion" and "contraction," respectively.

Not all aspects of business activity follow the patterns suggested in Mr. Rorty's diagram, and certainly not consistently. Construction activity, normally one of the first to pick up during the depression phase, lagged well behind during the 1933 revival. And no rise in price levels marked the expansion phase that terminated in 1929, although it has been suggested by some people that a downward price trend masked the cyclical tendency toward rising prices. In other areas, too, the effect of recent changes has been to modify substantially many of the sequences suggested in the Rorty diagram. Nonetheless, it is a suggestive summary against which to test recent developments.

Exhibit 6 presents the Cleveland Trust Company's index of business activity and indices of four price series extending over a period of more than 100 years.

A. BACKGROUND: THE NATURE AND CAUSES OF CYCLICAL FLUCTUATIONS

1. Characteristic Relationships in the Timing and Amplitude of Cyclical Fluctuations

A DESCRIPTIVE VIEW OF BUSINESS CYCLES

From the social point of view, the problem of business cycles has generally been considered to be that of preventing or reducing cyclical fluctuations or (what is the same thing) promoting general business stability. From the business point of view, however, the emphasis has been less on large general plans for securing stabilization than on the attempt to forecast cyclical fluctuations and to take appropriate action in order to maintain profits. The businessman, in short, assumes tacitly that there will continue to be business cycles, and tries to adjust his policies in accordance with the effects which he believes that changes in general business conditions will have on his company's sales.

Although different industries are affected in different ways by changes in business conditions, there are few lines of activity that are not affected to some extent. Most companies experience cyclical swings in production costs, volume sold, prices, and profits. Cyclical changes influence decisions with regard to such steps as expanding plant facilities, making investments for sinking funds and depreciation funds, issuing new securities, and paying dividends. In order to adopt appropriate policies, the businessman needs to know how

the several elements in the business and economic system are affected by the impact of prosperity and depression. Of the course of many of these elements, fairly good statistical records are available.

The facts indicate that, although different business cycles resemble one another in broad outline, there are many variations in detail, so that no two cycles are exactly alike. Before the crisis in 1920, for instance, prices had risen tremendously; before the crash in 1929, on the other hand, there was no rise of prices except stock prices. Bond prices were higher in 1931 than in 1934, although interest rates were lower in the later year. In the depression of 1920, stock prices started down ahead of business activity. In 1929, stock prices reached their peak about two months after the peak of business activity.

Prices in general do not move by equal amounts in different depressions, nor do the prices of different kinds of goods move by equal amounts in the same depression. The following table contrasts the percentage decline in wholesale prices of several groups of goods in the depressions of 1890–1897, 1920–1922, 1929–1933, and 1937–1939:

PERCENTAGE DECLINE IN SELECTED WHOLESALE PRICES IN FOUR PERIODS OF CYCLICAL DECLINE

Period of Decline	All Commodities	Finished Products*	Raw Materials (including farm products)	Farm Products
Maximum drop, 1890–1897 (annual data).....	21 %	20 %	27 %	29 %
Maximum drop, 1920–1922 (monthly data)...	45	41	51	52
Maximum drop, 1929–1933 (monthly data)....	38	31	51	61
Maximum drop, 1937–1939 (monthly data). .	15	11	26	35

* All manufactured goods, whether finished or semifinished, were included in this group in the 1890–1897 comparison.

Source: U. S. Bureau of Labor Statistics, Bulletins 45 and 473, and current issues of monthly bulletins on *Wholesale Prices*, passim.

The different degrees of decline shown in the wholesale prices of different commodity groups are matched by the varying degrees of decline shown by other economic series. Certain series always, or nearly always, reveal greater cyclical declines than do other series; and it is part of the task of the business analyst to seek out, and explain if possible, these relationships. Likewise he must determine, in so far as he is able, the usual time sequence of cyclical movements. And ordinarily a correct forecast of the timing is much more important to a businessman than a correct forecast of the amplitude of cyclical changes.

The stock market has long been considered a useful barometer in forecasting changes in business activity. A statement often made is that changes in stock price averages anticipate changes in general business activity by approximately six months. Such a generalization is, of course, oversimplified; there has in fact been a marked variation in the length of time between major turning points of stock prices and of business activity, and occasionally at turning points stock prices have actually not moved first.

There are, nevertheless, a number of reasons for expecting as a rule that movements in stock prices will anticipate changes in business. Stocks are bought and sold, for the most part, on the basis of the prospective earnings of the corporations represented. Moreover, it is probable that some "inside" information on the prospects for earnings is acquired by important market operators. The movement of stock prices is influenced also by certain factors in the money market. In the upswing of a cycle, for instance, as credit stringency develops, in order to continue accommodating their regular business customers the banks are inclined to curtail lending in the call-loan market for speculative purposes. Any check to the supply of call money tends to weaken stock prices and also to raise call-loan rates; a rise in call-loan rates in turn has an unfavorable effect on stock prices. As rates on call loans rise, stocks at the prevailing high prices and low yields become less and less attractive to the speculative owner.

It should be noted, however, that in 1929 the stock market was not a reliable barometer. Stock prices did not turn down until at least a month after business activity had started to decline. There are several possible explanations: The general public was more largely in the market than in previous booms and did not heed danger signals. Although call-money rates advanced sharply, stock prices rose so rapidly that high money rates did not deter speculative buying, a majority of speculative borrowers believing, apparently, that they could more than make up for the high rate of interest in further increases in the market value of their stocks. Moreover, the inflow of gold during the war of 1914–1918 and the postwar period had given the American banking system such a large credit base that there was not the same danger of credit stringency as had been characteristic of previous booms.

Not only is the stock market generally considered to be a useful barometer of business conditions, but it is also a factor which affects business directly. A bad break in the market, for instance, dampens business confidence and enterprise and leads to a reduction in

EXHI

TIMING OF 71 SERIES AT BUSINESS-CYCLE REVIVALS IN THE UNITED

(The series are listed in the order of their

Line Number	Series[1]	Period Covered by Specific Cycles[2]	No. of Cycles: Specific	No. of Cycles: Business	Average Lead (−) or Lag (+) (months)	Average Deviation of Leads or Lags (months)	Range of Leads or Lags (months)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Orders of fabricated structural steel	Nov. 10–Jan. 32	8	6	−10	5	−15 to − 1
2	Yields of 15 high grade industrial bonds(i)	Sep. 00–Jun. 32	9	9	i−10	4	−16 to − 3
3	Yields of 15 high grade public utility bonds(i)	Oct. 00–Jun. 32	9	9	i− 9	3	−17 to − 2
4	Yields of railroad bonds, Macaulay(i)	Oct. 57–Jun. 32	21	19	i− 9	10	−64 to +23
5†	Business failures, total liabilities(i)	Apr. 84–Oct. 31	13	12	i− 9	3	−17 to + 6
6	Business failures, all commercial liabilities(i)	Oct. 75–Apr. 32	13	13	i− 8	3	−13 to + 5
7	Bond sales, N. Y. Stock Exch.	Feb. 94–Nov. 32	13	11	− 8	6	−22 to +16
8†	Index of industrial stock prices, Dow-Jones	May 97–Jun. 32	9	10	− 7	5	−18 to 0
9	Index of railroad stock prices, Macaulay	Oct. 57–Jun. 32	18	19	− 7	8	−32 to +12
10	Building plans, Manhattan	Dec. 69–Mar. 33	17	16	− 7	4	−19 to + 3
11†	Passenger car production	Oct. 13–Oct. 32	5*	5	− 6	4	−14 to − 1
12†	Inner tube production	Dec. 20–Mar. 33	3*	3	− 6	5	−12 to 0
13	Bank clearings, N. Y. C.	Feb. 55–Apr. 33	23	20	− 6	5	−16 to + 2
14	Price of hides, Chicago	Jun. 92–Jun. 32	11	10	− 6	6	−20 to +13
15	Index of prices of hides and leather	Aug. 94–Feb. 33	8	9	− 5	5	−15 to + 7
16†	Railroad operating income, total	May 08–Jul. 32	5*	5	− 5	4	−13 to 0
17	Orders of steel sheets	Mar. 19–Mar. 33	4*	4	− 5	5	−12 to 0
18	Number of shares sold, N. Y. Stock Exch.	Feb. 78–Mar. 33	15*	15	− 5	5	−19 to + 7
19†	Paper production, total	Mar. 19–Jan. 33	4*	4	− 5	4	−11 to − 1
20	Book paper production	Dec. 18–Jul. 32	4*	4	− 4	2	− 8 to + 1
21	Steel sheet production	Mar. 19–Aug. 32	4*	4	− 4	3	− 8 to − 1
22†	Truck production	Sep. 14–Aug. 32	6	5	− 4	2	− 8 to − 1
23†	Freight hauled, ton-miles	Feb. 08–Aug. 32	5*	5	− 4	3	−11 to − 1
24	Total building contracts, floor space	Jan. 19–Dec. 32	4*	4	− 4	3	− 9 to + 1
25†	Residential building contracts, floor space	Jan. 19–Dec. 32	4*	4	− 4	3	− 9 to 0
26	Commercial building contracts, floor space	Jan. 19–Oct. 32	4*	4	− 4	3	− 9 to 0
27	Food factories building contracts, value	Jan. 19–Sep. 32	4*	4	− 4	2	− 7 to − 1
28	Orders of oak flooring	Dec. 13–Mar. 34	5	5	− 4	6	−12 to +12
29†	Average hours worked, "all" wage earners	Feb. 21–Aug. 32	3*	3	− 4	3	− 7 to 0
30†	Index of wholesale prices, Bradstreet's	Jun. 96–Feb. 33	8*	8	− 4	4	−12 to + 5
31	Index of deposits activity, Snyder	Dec. 78–Jan. 33	14	15	− 4	4	−16 to + 4
32†	Bank clearings, outside N. Y. C.	May 78–Mar. 33	13*	13	− 4	4	−11 to + 4
33	Index of business activity, Ayres	Dec. 54–Jul. 32	21	20	− 3	4	−12 to + 3
34	Index of business activity, Pittsburgh district	Jan. 85–Mar. 33	15	14	− 3	3	− 9 to + 1
35	Clearings index of business, Snyder	Jan. 79–May 33	15	15	− 3	2	− 8 to + 2
36†	Index of industrial production, F. R. Bd.	Mar. 19–Jul. 32	4*	4	− 3	3	− 8 to 0
37†	Pig iron production	Jan. 79–Mar. 33	15*	15	− 3	3	−13 to + 1
38†	Steel ingot production	Oct. 00–Aug. 32	9*	9	− 3	3	− 8 to + 6
39	Bituminous coal production	Apr. 08–Jul. 32	7*	7	− 3	4	−11 to +10
40	Cotton consumption	Aug. 14–Jul. 32	6	5	− 3	4	− 9 to + 4
41	Price of copper, N. Y. C.	Jan. 68–Feb. 33	13	15	− 3	5	−21 to +10

For notes, see pp. 340–341.

BIT I

STATES, THEIR ERRATIC MOVEMENTS AND THEIR CYCLICAL AMPLITUDES

average leads at business-cycle revivals)

Number of Timing Observations that Are				Erratic Movements		Amplitude of Specific Cycles						Line Number
						Average			Average Deviation			
Leads	Lags	Coincidences	Within 3 Mos. of Revivals	Relative Intensity	Av. No. of Mos. in Which Data Move in Same Direction[3]	Rise	Fall	Rise and Fall[4]	Rise	Fall	Rise and Fall	
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
7	0	0	2	Pronounced	2.1	78	78	156	30	32	44	1
9	0	0	1	Mild	2.6	*8	*16	24	5	12	12	2
9	0	0	1	Mild	2.9	*9	*12	21	6	8	8	3
13	4	1	1	Mild	2.8	*14	*12	26	9	7	11	4
13	1	0	0	Pronounced	1.5	*117	*126	243	83	78	110	5†
13	1	0	0	Pronounced	1.6	*120	*136	256	62	60	103	6
11	1	0	0	Moderate	1.7	86	78	163	39	37	68	7
9	0	1	4	Mild	2.9	55	47	102	23	27	49	8†
14	4	0	5	Mild	2 7	36	32	67	20	17	36	9
13	1	2	4	Pronounced	1 5	111	111	223	50	49	89	10
6	0	0	2	Moderate	2.6	104	96	200	23	29	34	11†
3	0	1	2	Moderate	1.8	66	52	117	38	28	29	12†
17	3	1	9	Mild	1.7	53	43	95	25	20	40	13
10	2	0	3	Moderate	2.3	44	45	90	19	23	35	14
8	2	0	4	Mild	3.6	17	18	35	6	12	17	15
5	0	2	3	Mild	1.8	72	51	123	54	28	70	16†
4	0	1	3	Very pronounced	1.8	95	95	190	16	30	26	17
12	2	2	8	Pronounced	1.8	98	92	190	32	31	56	18
5	0	0	3	Mild	1.7	32	26	57	11	17	14	19†
4	1	0	1	Moderate	1.7	34	31	66	10	24	23	20
5	0	0	3	Pronounced	2.1	70	76	146	17	34	24	21
6	0	0	3	Moderate	2.0	85	55	140	20	39	37	22†
7	0	0	4	Mild	2.4	26	28	54	7	18	13	23†
4	1	0	3	Mild	2.0	74	86	160	31	46	44	24
4	0	1	3	Mild	1.9	97	105	202	39	68	80	25†
4	0	1	3	Moderate	1.7	66	80	146	8	48	52	26
5	0	0	3	Moderate	1.5	84	105	190	8	41	49	27
4	1	0	0	Moderate	1.9	101	111	212	38	33	39	28
3	0	1	2	Mild	2.3	8	16	23	4	13	10	29†
9	1	0	4	Mild	3.4	17	18	34	7	13	14	30†
13	2	0	8	Moderate	3.9	29	30	59	12	17	27	31
11	1	3	8	Moderate	1.7	30	19	49	10	17	20	32†
14	2	5	13	Mild	3.1	19	22	41	5	8	11	33
12	1	2	10	Moderate	3.2	29	31	60	8	12	15	34
11	1	3	11	Mild	3.2	16	18	34	6	9	10	35
4	0	1	3	Mild	3.3	28	34	62	9	18	18	36†
12	1	3	10	Mild	3.3	62	55	117	15	21	27	37†
8	1	1	5	Moderate	2.7	65	61	126	15	23	25	38†
7	1	0	3	Pronounced	1.9	36	39	76	14	13	21	39
5	1	0	2	Moderate	1.4	32	35	68	14	8	14	40
10	3	1	7	Moderate	3.6	42	50	92	19	29	46	41

EXHIBIT 1

TIMING OF 71 SERIES AT BUSINESS-CYCLE REVIVALS IN THE UNITED

Line Number	Series[1]	Period Covered by Specific Cycles[2]	No. of Cycles: Specific	No. of Cycles: Business	Average Lead (−) or Lag (+) (months)	Average Deviation of Leads or Lags (months)	Range of Leads or Lags (months)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
42	Imports, semi-manufactures	Feb. 08–Feb. 33	5*	5	− 3	4	−10 to + 1
43†	Industrial building contracts, floor space	Feb. 19–Jul. 32	4*	4	− 3	2	− 8 to 0
44	Price of zinc, N. Y. C.	Apr. 95–Jul. 32	8	9	− 2	5	−19 to +10
45	Index of physical volume of business, Babson	Oct. 04–Mar. 33	8*	8	− 2	3	−12 to + 2
46	Coke production, total	Nov. 14–Aug. 32	5*	5	− 2	2	− 7 to + 1
47	Electric power production	Mar. 19–Mar. 33	3	4	− 2	1	− 4 to 0
48	Freight cars loaded	Mar. 19–Aug. 32	4*	4	− 2	2	− 7 to 0
49	Railroad operating revenue, freight	May 08–Jul. 32	5*	5	− 2	3	− 8 to + 3
50	Index of machine tool orders	Feb. 19–Mar. 33	4*	4	− 2	2	− 8 to 0
51	Total imports	Jan. 68–Feb. 33	16	15	− 2	4	−12 to + 8
52	New corporate issues, industrial	Apr. 19–Jun. 32	4*	4	− 2	3	− 9 to + 2
53†	Index of business activity, A. T. & T.	Apr. 79–Mar. 33	15*	15	− 2	3	− 8 to + 1
54	Production of producers' goods, F. R. Bk. of N. Y.	Mar. 19–Jun. 32	4*	4	− 2	3	− 9 to + 2
55†	Index of industrial production, Stand. Stat. Co.	May 19–Mar. 33	4*	4	− 1	2	− 6 to + 1
56†	Department store sales	Jan. 19–Mar. 33	4*	4	− 1	2	− 3 to + 3
57	Railroad expenses on maintenance of way and structures	Mar. 08–Apr. 33	5*	5	0	4	− 9 to + 8
58	Raw cotton stocks at mills	Oct. 14–Mar. 33	7	5	0	4	−10 to + 9
59	Factory payrolls, total	Mar. 19–Mar. 33	4*	4	0	1	− 1 to + 2
60†	Factory employment, total	Jan. 15–Mar. 33	5*	5	0	1	− 2 to + 1
61	Factory payrolls, iron and steel	May 19–Mar. 33	4*	4	0	1	− 2 to + 1
62	Factory employment, iron and steel	May 19–Mar. 33	4*	4	0	1	− 2 to + 1
63	Factory employment, N. Y. State	Jan. 15–Mar. 33	5*	5	+ 1	2	− 1 to + 5
64	Factory payrolls, machinery	Jun. 19–Mar. 33	4*	4	+ 1	1	0 to + 2
65	Factory employment, machinery	Jun. 19–Mar. 33	4*	4	+ 1	1	0 to + 2
66	Business failures, number of trading cos.(*i*)	Sep. 96–Aug. 32	9	10	*i*+ 1	5	− 9 to +17
67	Factory payrolls, N. Y. State	Jan. 15–Mar. 33	5*	5	+ 2	2	0 to + 4
68	Magazine advertising	Apr. 15–Apr. 33	5*	5	+ 2	3	− 4 to + 9
69	Index of retail prices of foods, B.L.S.	Sep. 22–Feb. 33	3*	3	+ 3	5	− 2 to +12
70	Index of prices of metals and metal products	Mar. 95–Apr. 33	8	9	+ 3	4	− 2 to +11
71	Index of prices of fuel and lighting	Jun. 92–May 33	10	10	+ 5	4	− 6 to +13
72	Bond sales, N. Y. Stock Exch.(*i*)	May 92–Feb. 34	14	12	*i*+ 7	7	−11 to +22
73	Yields of 15 high grade public utility bonds	Apr. 01–Apr. 28	7	8	+10	8	− 2 to +25
74	Yields of 15 high grade industrial bonds	Jul. 02–Jan. 28	7	8	+10	8	− 8 to +19
75	Yields of railroad bonds, Macaulay	Aug. 60–Dec. 27	19	18	+12	7	− 6 to +27

[1] All series are monthly, except total liabilities of business failures, reported by quarters before 1893, and liabilities of commercial business failures, quarterly before 1896. The three series on bond yields and the series on bond sales appear near the top and again at the bottom of the table; see footnote 3 on page 342 for explanation.

[2] The period from about 1915 to 1921, depending upon the dating of the specific-cycle turns, is omitted from all series on prices of commodities, value of foreign trade, railroad revenues and expenses, liabilities of business failures, and bank clearings outside New York. The period from 1911 to 1919 is omitted from ton-miles of freight hauled, because data are lacking from July 1914 to March 1916.

Source: This table is reproduced, by permission, from Wesley C. Mitchell and Arthur F. Burns,

(*Continued*)

STATES, THEIR ERRATIC MOVEMENTS AND THEIR CYCLICAL AMPLITUDES

Number of Timing Observations that Are				Erratic Movements		Amplitude of Specific Cycles						Line Number
						Average			Average Deviation			
Leads	Lags	Coincidences	Within 3 Mos. of Revivals	Relative Intensity	Av. No. of Mos. in Which Data Move in Same Direction[3]	Rise	Fall	Rise and Fall[4]	Rise	Fall	Rise and Fall	
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
5	1	1	4	Moderate	1.7	54	51	105	20	37	46	42
4	0	1	4	Mild	1.5	109	130	239	38	67	93	43†
7	2	1	5	Mild	2.8	39	38	77	12	17	21	44
6	1	2	7	Mild	2.6	29	24	53	7	13	14	45
4	1	1	5	Mild	2.9	56	61	117	21	23	27	46
3	0	1	3	Mild	2.0	35	12	47	12	7	17	47
4	0	1	4	Moderate	1.8	17	25	42	6	20	17	48
5	1	1	5	Moderate	1.9	21	24	46	6	18	14	49
3	0	2	4	Mild	1.8	110	129	239	15	72	81	50
9	5	2	11	Moderate	1.7	38	33	71	12	17	23	51
2	1	2	4	Pronounced	1.6	142	162	303	64	94	158	52
8	1	7	11	Mild	3.4	23	26	49	5	10	12	53†
2	1	2	4	Mild	2.9	24	39	63	5	19	17	54
2	1	2	4	Mild	4.4	32	36	68	12	22	20	55†
2	1	2	5	Mild	1.9	16	18	34	8	18	20	56†
3	4	0	5	Mild	2.3	19	29	48	7	27	22	57
2	2	2	4	Mild	2.9	34	32	66	16	11	24	58
2	1	2	5	Mild	3.4	27	44	71	11	31	30	59
2	2	2	6	Mild	5.1	16	24	40	6	16	13	60†
1	2	2	5	Mild	2.5	42	62	104	19	42	36	61
1	3	1	5	Moderate	3.6	25	39	64	14	25	21	62
1	3	2	5	Mild	3.4	15	25	40	7	15	11	63
0	3	2	5	Mild	2.7	46	63	109	12	46	51	64
0	4	1	5	Mild	6.3	31	46	76	10	31	30	65
3	7	0	4	Mild	1.6	*42	*50	92	30	26	46	66
0	4	2	4	Mild	2.8	34	33	67	18	25	27	67
2	4	0	3	Mild	1.9	35	33	68	14	24	30	68
2	2	0	3	Moderate	2.4	8	20	28	3	20	19	69
5	5	0	7	Mild	4.0	23	24	46	15	7	21	70
1	9	1	4	Moderate	2.9	24	24	49	14	8	20	71
2	11	0	2	Moderate	1.7	*70	*92	162	34	48	68	72
1	7	0	1	Mild	2.9	11	10	21	7	7	10	73
1	7	0	2	Mild	2.6	10	9	19	5	5	9	74
2	14	1	1	Mild	2.8	10	13	23	5	8	10	75

[3] Based on experience during 1919–33, except in series for which we omit the cycle from 1919 to 1921. Horizontal movements were not considered a change in direction; thus a rise followed by a horizontal movement and another rise was counted as a single rise.

[4] This column is computed directly from the individual cycles; hence the slight discrepancies between the entries on "rise and fall" and the sum of the entries on "rise" and "fall." The figures are expressed in units of specific-cycle relatives, as explained in the text.

(*i*) Series is treated as "inverted"; see text for explanation.

* Specific cycles show one-to-one correspondence to business cycles; see text for explanation.

† "Most trustworthy indicators."

"Statistical Indicators of Cyclical Revivals," pp. 6–7.

consumer expenditures. Periods of declining stock prices are unfavorable also for raising capital.

Bond prices have been particularly sensitive to impending changes in general business conditions. Their movements at major turning points have taken place earlier even than the corresponding movements of stock prices. Changes in bond prices, moreover, have been less erratic than those of stock prices. Bond buyers are not "in and out" speculators, but represent to a substantial extent large financial and fiduciary institutions.

The movement of high-grade bond prices can be accounted for very largely by the fluctuations in money rates. For instance, money rates commonly rise, because of increased demand for credit, soon after general business begins to recover from depression; and they continue to rise as recovery develops into prosperity. Eventually, but considerably before the end of the expansion phase in business, money rates rise well above the yields on bonds. When this occurs, some bondholders choose to take advantage of the higher return available in the money market, and their shift of investment tends to depress bond prices. Moreover, as credit conditions tighten, banks tend to support their cash reserves by selling bonds; and this move again creates weakness in the bond market.

Stock prices and bond prices are not the only statistical series that have tended to lead general business at cyclical turning points. W. C. Mitchell and A. F. Burns recently have examined the cyclical behavior of a large number of series in search of the most consistent forecasters of revival. Seventy-one series were selected as most promising indicators of cyclical revival;[1] and of these, 20 were selected as most trustworthy. In every instance, the turning points of each series were compared with a selected set of reference turning points chosen as typical of business activity as a whole.[2] Among the more consistent "early movers" are business failures (inverted), an index of stock prices, automobile and tire production, railroad activity, and residential building contracts. The complete list of 71 series, with measures of the degree and consistency in timing and also in amplitude of movement, is reproduced as Exhibit 1.[3]

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[1] "Statistical Indicators of Cyclical Revivals," National Bureau of Economic Research, Inc., *Bulletin* 69, May 28, 1938. The 71 series were selected from a group of 487 series as having been "tolerably consistent in their timing in relation to business cycle revivals and . . . at the same time . . . of sufficiently general interest to warrant some attention by students of current economic conditions. Most of these series are fairly good indicators also of cyclical recessions. . . ."

[2] These reference turning points appear in Exhibit 2 of "Some Notes on Business Cycles," *supra*, p. 329.

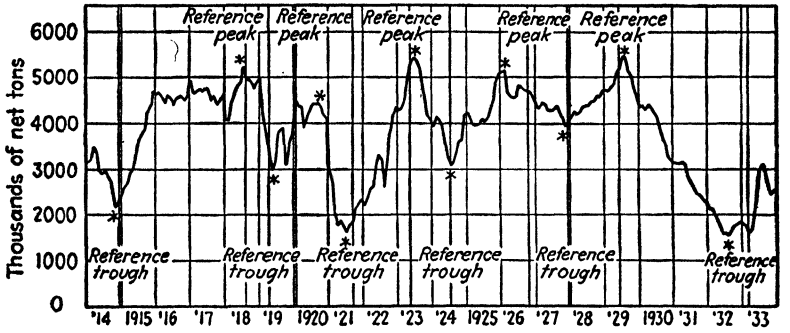
[3] The following explanation of the entries in Exhibit 1 may help in the understanding of this table. For full explanation, consult the Bulletin from which the table is taken.

Column (1): Line numbers.

Column (2): Brief name of series.

Column (3): Period covered by the particular series, measured from the low point of the series

An illustration of the technique of measuring timing is given in Exhibit 2, for the series on coke production. Although this series gives little difficulty in the application of the technique, it is clear that frequently the choice of high or low point is not easy—as, for



The figures are adjusted for seasonal variations. The cyclical peaks and troughs in general business are indicated by vertical lines; the peaks and troughs in the specific cycles of coke production are indicated by asterisks.

Reproduced, by permission, from Wesley C. Mitchell and Arthur F. Burns, "The National Bureau's Measures of Cyclical Behavior," National Bureau of Economic Research, Inc., *Bulletin* 57, July 1, 1935.

EXHIBIT 2.—Production of Coke, United States, 1914–1933.

example, the 1920 peak. (A preliminary step not illustrated here is the adjustment of the original data for typical seasonal fluctuations.)

The usefulness of the information on the timing of cyclical fluctuations of the selected series of Exhibit 1 is limited by the irregularity of the relationships and by the fact that current figures for many of the series are not available without a one-month or two-month lag.

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for the earliest cycle covered (not the reference low point) to the low point ending the last cycle covered.

Column (4): Number of specific cycles (i.e., periods of expansion followed by contraction) revealed by the particular series. Asterisks in this column mark series for which there is a specific cycle as a counterpart of every cycle in general business. Note that this is a one-to-one relationship and not simply that the same number of specific cycles and business cycles are recorded in the full period.

Column (5): Number of business cycles (as measured by the reference turning points) within the terminal dates given in Column (3).

Column (6): Average number of months by which the series precedes or follows the reference cycle revivals. (i) means that the series is inverted.

Column (7): The entry in column (6) is an arithmetic average; the entry in this column is the average deviation from that average. It is thus a measure of the variability of the timing relationship.

Column (8): Another measure of variability in timing. Series covering long periods have a greater chance to show a wide range of values than do series covering short periods.

Columns (9) to (12): Additional details on timing, based on observations at each trough and each peak.

Columns (13) and (14): Designed to measure erratic movements. If the seasonally adjusted series fluctuates about the direction of cyclical movements, a low entry in column (14) will result.

Columns (15) to (17): Amplitude of rise is measured from the average for the 3 months centered on the initial trough to the 3 months centered on the peak; amplitude of fall is from peak to the terminal trough. The measures of amplitude are expressed as percentages of the average standing of a series for each complete cycle, not as percentages of trend. A series with a pronounced trend, therefore, will have a higher measure than will a series with a moderate trend, other things being equal.

Columns (18) to (20): Measures of the variability in the averages reported in columns (15) to (17).

Column (21): Repeats column (1).

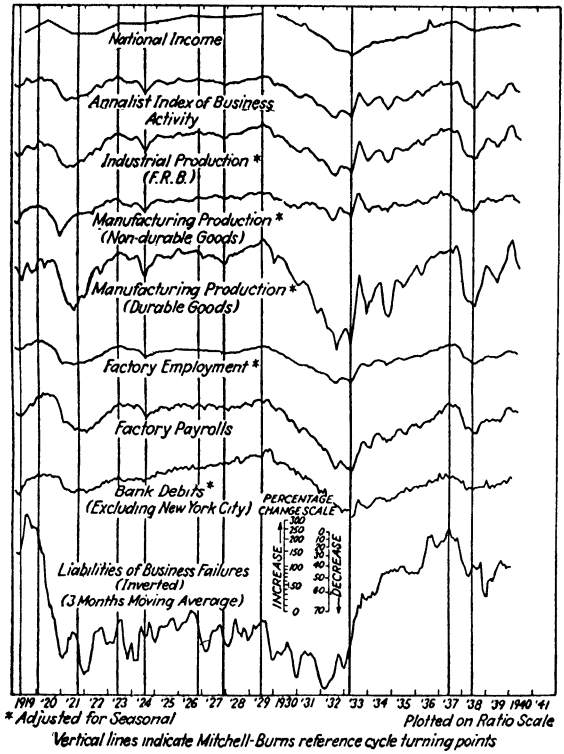


EXHIBIT 3.—General Business Series.

NOTES ON EXHIBIT 3

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

National Income

The national income totals for the period 1919–1929 are estimates of the aggregate income payments received by individuals from all sources during this period. The figures represent total wages, total salaries, and total incomes from investment. The monthly figures of income payments for 1930–1939 are based upon pay roll estimates and such information on the other components of the total as is available, combined into an index with 1929 as 100. In the chart, the annual figures are plotted as monthly averages. The source of the annual figures is National Bureau of Economic Research, *National Income and Capital Formation*, p. 18; the source of the monthly series is the U. S. Department of Commerce. The monthly series is published in the *Survey of Current Business* under the title "Income Payments."[23]

Annalist Index of Business Activity

Issued by the New York Times *Annalist*, this index is a composite index of business activity, adjusted for seasonal variation and expressed as a percentage of a computed normal. It includes series for freight carloadings, electric power production, manufacturing (steel ingot production, pig iron production, textiles, boot and shoe produc-

tion, automobile production, lumber production, cement production), and mining. Source: *The Annalist.*

Industrial Production

This index, compiled by the Board of Governors of the Federal Reserve System, includes between 50 and 60 individual mining and manufacturing production series estimated to represent directly and indirectly 80% of total industrial production of the United States. This index as revised in August, 1940, showed substantially the same cyclical pattern.

Manufacturing Production—Nondurable Goods

This is a subgroup of the index of manufacturing production of the Board of Governors of the Federal Reserve System. The components of this subgroup are series relating to: textiles (39%); paper and printing (23%); slaughtering and meat packing (12%); production of leather and boots and shoes (8%); flour (5%); tires and tubes (4%); petroleum refining (4%); sugar refining (3%); tobacco products (2%). In the index of manufactures this subgroup is given a weight of 53.69%.

Manufacturing Production—Durable Goods

This is a subgroup of the index of manufacturing production of the Board of Governors of the Federal Reserve System. The components of this subgroup with their approximate weights are: iron and steel (50%); lumber (21%); automobiles (13%); coke (4%); cement (3%); glass (3%); lead (2%); zinc (2%); tin (1%); locomotives and shipbuilding (1%). In the index of all manufactures, this subgroup is given a weight of 46.31%.

Factory Employment

This seasonally adjusted index is issued by the Board of Governors of the Federal Reserve System, being based on the unadjusted index of the U. S. Bureau of Labor Statistics. The coverage of the employment index is the same as the coverage of the pay rolls index, which is described below.

Factory Pay Rolls

This index is compiled by the U. S. Bureau of Labor Statistics from returns supplied by representative manufacturing establishments covering 52 industries in 1919 and 1920, 53 in 1921 and 1922, 60 for 1923 through 1928, 61 in 1929 and 1930, and 81 beginning in 1931. Periodic adjustment of the index is made to totals reported in the biennial Census of Manufactures. The establishments supplying these data employ approximately 55% of all factory wage earners of the country. The monthly returns cover the pay period ending nearest the 15th of the month. The index is not adjusted for seasonal variation.

Bank Debits

This index is compiled by the Board of Governors of the Federal Reserve System from data reported by member and nonmember banks in 141 cities. The data represent debits to deposit accounts of individuals, firms, corporations, and of the United States, county, and municipal governments. The figures include debits to savings accounts, payments from trust accounts, and certificates of deposit paid. The series has been adjusted for seasonal movements by the Standard Statistics Company. Source: Standard Statistics Company.

Liabilities of Business Failures

Compiled by Dun and Bradstreet, Inc., this series shows total liabilities of commercial failures in manufacturing, in construction, and in wholesale and retail trade. Since January, 1939, the series includes voluntary discontinuances with loss to creditors and small concerns forced out of business not included in the former series. Erratic movements in the series have been smoothed by the use of a three months' moving average. The series as plotted is inverted.

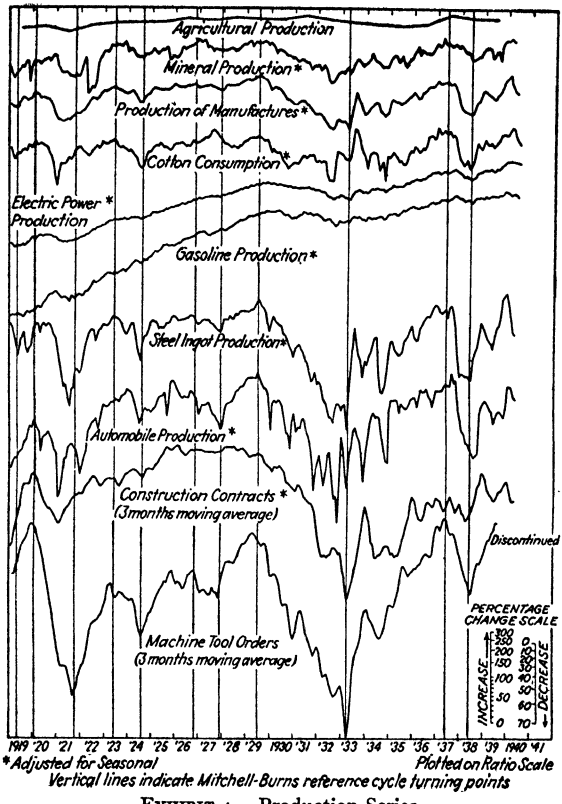


EXHIBIT 4.—Production Series.

NOTES ON EXHIBIT 4

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

Agricultural Production

This index, compiled by the U. S. Department of Agriculture, reflects changes in annual output, in physical units, of the various crops, livestock, and livestock products, each weighted according to its relative importance. The commodities included contribute approximately 90% of the gross income from agricultural production in the United States. Omitted in computing net agricultural production is the value of products consumed in further agricultural production: for instance, grain fed to farm livestock. Farm products consumed in the farmhouse are included. Source: *The Agricultural Situation.*

Mineral Production

This index, compiled by the Board of Governors of the Federal Reserve System (see note on *Industrial Production*), represents production of seven minerals: bituminous coal (39%), anthracite (14%), crude petroleum (35%), iron ore (6%), zinc (2%), lead (3%), and silver (2%).

Production of Manufactures

This index is compiled by the Board of Governors of the Federal Reserve System. See notes on *Industrial Production* and *Production of Durable and Nondurable Goods.*

Cotton Consumption

This is a seasonally adjusted series of the Board of Governors of the Federal Reserve System based on the Bureau of the Census series of consumption of cotton by all consuming establishments. A bale is considered to be "consumed" when it is opened at the mill. Source: *Federal Reserve Bulletin.*

Electric Power Production

These are seasonally adjusted figures based on compilations of the Edison Electric Institute. Source: Standard Statistics Company.

Gasoline Production

Total gasoline production is compiled by the U. S. Bureau of Mines, corrected for seasonal fluctuation by the Standard Statistics Company. Source: Standard Statistics Company.

Steel Ingot Production

Total production of steel ingots is compiled by the American Iron and Steel Institute and seasonally adjusted by the Board of Governors of the Federal Reserve System. Crucible and electric ingots were included in the series prior to 1927. Source: *Federal Reserve Bulletin.*

Automobile Production

Factory sales of passenger cars, taxicabs, and trucks are compiled by the Bureau of the Census, and corrected for seasonal fluctuations by the Board of Governors of the Federal Reserve System.

Construction Contracts

This index is computed by the Board of Governors of the Federal Reserve System from estimates of the value of construction contracts awarded in 37 eastern states (since 1924) as compiled by field agents of the F. W. Dodge Corporation. The following types of building are represented: residential, commercial, industrial, public utility, public buildings, and public works. New construction and remodeling projects over $5,000 ($2,000 in recent years) are covered. Work on force-account (no contract let) is not included. The index is adjusted for seasonal fluctuations and smoothed by a three months' moving average.

Machine Tool Orders

This index, compiled by the National Machine Tool Builders' Association, represents the dollar volume of new orders for machine tools, including forging machinery, beginning in 1934, at which time forging machinery constituted less than 3% of the combined sales of the two groups. No corrections are made for seasonal variations, since such influences are relatively slight. The association received reports from 50 to 60 companies for the years 1919–1927; 60 to 89 companies for 1928–1933; and 167 companies in 1934, 155 in 1935, 143 in 1936, and 135 in 1937. The index has been smoothed by a three months' moving average.

In August, 1939, the series on orders was discontinued. Since January, 1939, the Association has published the following figures on percent of capacity in plants accounting for about 60% of total industry sales:

	January	February	March	April	May	June	July	August	September	October	November	December
1939	52.5	56.1	58.7	61.2	63.6	65.5	65.8	72.6	74.6	84.9	91.2	93.3
1940	93.3	92.9	93.4	93.4								

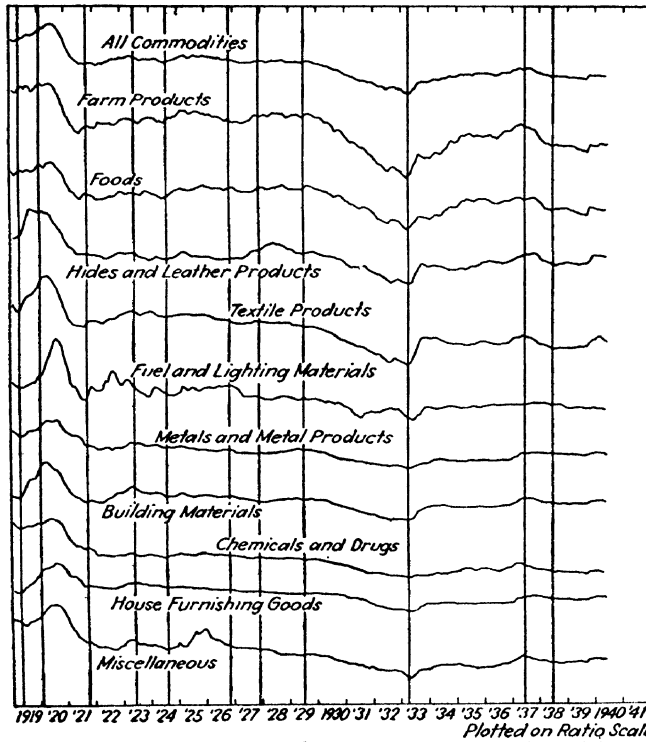


EXHIBIT 5.—**Price Series (*A*): Wholesale Commodity Prices.**

NOTES ON EXHIBIT 5

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

Wholesale Commodity Prices

This index is compiled by the U. S. Bureau of Labor Statistics from wholesale price quotations secured weekly (in most cases) and weighted according to the importance of each article in the country's markets. Most of the quotations are secured from standard trade journals or from manufacturers or sales agents. Since March, 1940, 863 price quotations have been included in the all commodities index. From January, 1926, through December, 1937, this index was based on 784 series; and the sample was increased to 813 in January, 1938. Despite variations in the size of the sample, the index is so constructed as to be comparable throughout the entire period.

The ten major subgroups of the index are as follows:

Subgroup	Number of Quotations, June, 1940	1937 Value Expressed as a Percentage of Aggregate Value
Farm products	67	17.95
Foods	123	19.21
Hides and leather products	41	3.39
Textile products	114	7.96
Fuel and lighting materials	24	15.80
Metals and metal products	146	15.46
Building materials	86	5.67
Chemicals and allied products	138	1.76
House furnishing goods	61	2.70
Miscellaneous	63	10.10
All commodities	863	100.00

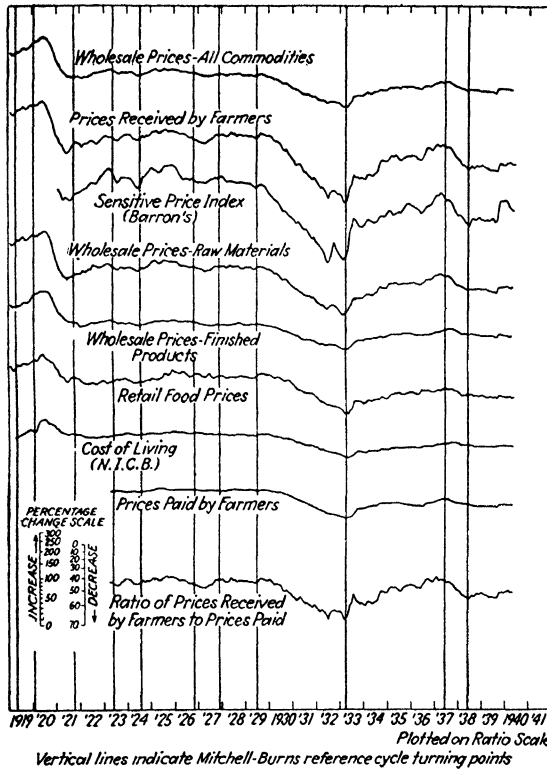


EXHIBIT 6.—Price Series (*B*).

NOTES ON EXHIBIT 6

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

Wholesale Prices—All Commodities

See notes on Exhibit 5.

Prices Received by Farmers

This index is compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, from quotations on 34 major farm products and 13 commercial truck crops weighted in proportion to each group's contribution to total cash farm income. The indexes represent prices received by farmers at local markets throughout the country, as of the 15th of each month.

Sensitive Price Index

Compiled by *Barron's*, this index is an unweighted geometric mean of the price relatives (on 1926 as 100) of 13 commodities: burlap, cottonseed oil, hides, lard, print cloth, rubber, shellac, silk, steel scrap, tallow, wheat, wool, and zinc. The weekly figures as published by *Barron's* have been averaged to secure the monthly figures. Source: *Barron's*.

Wholesale Prices—Raw Materials

This is a subgroup of the Bureau of Labor Statistics index, representing price changes for commodities classified as raw materials. The index includes products not destined for manufacture, such as fruits. As measured by 1937 values, this subgroup represented 29.03% of the total.

Wholesale Prices—Finished Products

This is a subgroup of the Bureau of Labor Statistics index, representing price changes for commodities classified as finished goods. Included in this subgroup are all commodities not included in the raw materials subgroup and in a minor subgroup entitled semimanufactured goods. Many commodities not yet in final form, such as steel sheets and lumber, are included in the finished goods group. Pig iron is classified with semimanufactures, and iron ore with raw materials.

As measured by 1937 values, the finished products subgroup comprised 62.72% of the all commodities total, raw materials comprised 29.03%, and semimanufactures 8.25%.

Retail Food Prices

This index has been compiled since 1935 from price quotations on 84 representative foods collected in 51 cities. The indexes are as of the 15th of the month. The weights employed in calculating the index are the quantities annually purchased by wage earners and lower salaried workers in the period from 1917 to 1919.

Cost of Living

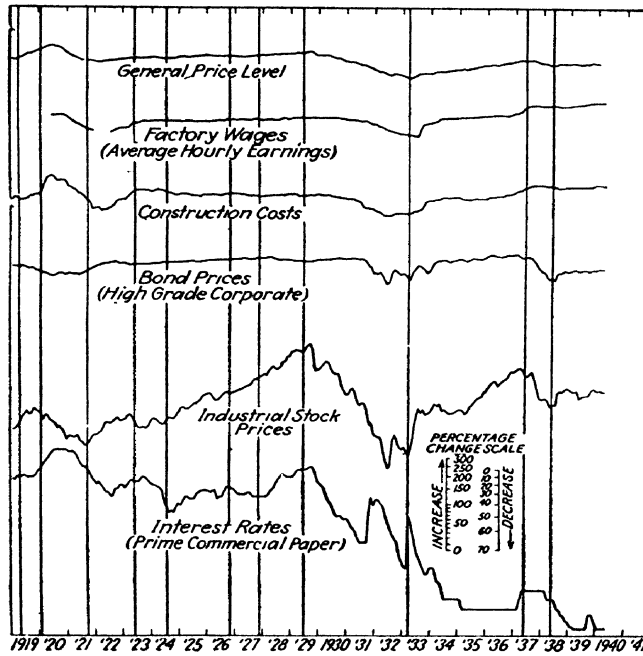
This National Industrial Conference Board index is weighted according to an estimate of the proportionate consumption in a wage earner's family of the five major classes of items included, namely, food, housing, clothing, fuel and light, and sundries. Prices used are those of the 15th of the month indicated (prior to 1922, the first of the month). Prices are at retail.

Prices Paid by Farmers

This index, compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, is based on retail prices paid by farmers for commodities used in living and in farm production. The items include foods, clothing, furniture and furnishings, operating expenses, building materials, farm machinery, feed, fertilizer, and seed. The items are weighted according to purchases reported by farmers in the period 1920–1929. Source: *The Agricultural Situation.*

Ratio of Prices Received by Farmers to Prices Paid

The ratio of the two series described above is computed by the U. S. Department of Agriculture, Bureau of Agricultural Economics. Source: *The Agricultural Situation.*



Plotted on Ratio Scale

Vertical lines indicate Mitchell-Burns reference cycle turning points

EXHIBIT 7.—Price Series (*C*).

NOTES ON EXHIBIT 7

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

General Price Level

This index is compiled by the New York Federal Reserve Bank. Major groups of components of the index, weighted according to their relative importance, are composite wages, industrial commodities at wholesale, farm prices at farms, retail foods, realty values, security prices, equipment and machinery, rents, other cost-of-living items, transportation, hardware, and automobiles. Source: *Monthly Review*, Federal Reserve Bank of New York.

Factory Wages—Average Hourly Earnings

This index, compiled by the National Industrial Conference Board, is based on reports of pay roll data for the first full week in each month secured from a representative list of manufacturers employing approximately 20% of all manufacturing wage earners in 1935. Twenty-five manufacturing industries are represented.

Construction Costs

This index, computed by the *Engineering News-Record* to represent general construction costs in the United States, has four components, of which three are prices of materials and one is wages. The materials are structural steel at Pittsburgh, cement at Chicago, and lumber at New York. The labor element is the average wage for common labor in 20 cities. The following quantities are used as weights: structural steel, 2,500 lbs.; cement, 6 bbls.; lumber, 600 ft. b.m.; common labor, 200 man-hours.

Bond Prices

This index is compiled by the Standard Statistics Company from prices of 45 high-grade corporate bonds (15 industrials, 15 railroads, and 15 utilities). The index is an arithmetic average of yields to maturity converted to a price basis. Source: Standard Statistics Company.

Industrial Stock Prices

This index, compiled by Standard Statistics Company from 350 industrial common stocks, is based on closing prices each Wednesday averaged to give monthly figures. Stocks listed on exchanges other than the New York Stock Exchange are included. Weights are based on number of shares outstanding in 1926.

Interest Rates—Prime Commercial Paper

This index is compiled by the Board of Governors of the Federal Reserve System from prevailing open-market rates for 4–6 months' prime commercial paper in New York City. The figure plotted is the midpoint of the range for each month.

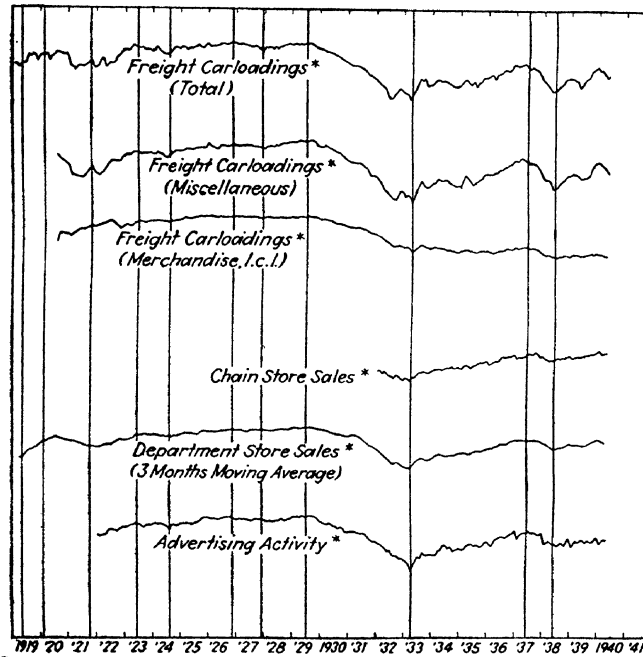


EXHIBIT 8.—Series Relating to Distribution.

NOTES ON EXHIBIT 8

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

Freight Carloadings

Indexes of the average number of freight cars loaded per working day each month are compiled by the Board of Governors of the Federal Reserve System from data supplied by the Association of American Railroads. The index for total loadings covers the following classes of freight: coal, coke, forest products, grain and products, livestock, ore, merchandise l.c.l. (less than carlot), and miscellaneous.

Chain Store Sales

This index is compiled by the *Chain Store Age* from reports of five grocery chains, six variety store chains, four apparel, two drug, and three shoe chains. These companies together account for approximately one-third of the aggregate sales of chains in these categories.

Department Store Sales

This index, compiled by the Board of Governors of the Federal Reserve System, is based on reports of sales (in dollars) from more than 400 department stores in the larger cities throughout the country. Sales of the reporting stores are estimated to represent about 50% of the total department store business and about 5% of the total retail trade of the country. The series has been smoothed before plotting by a three months' moving average.

Advertising Activity

This index is published by *Printers' Ink*. The combined index is based on advertising lineage in farm papers, in magazines, and in newspapers, on gross cost of network time in radio advertising, and on volume of outdoor advertising.

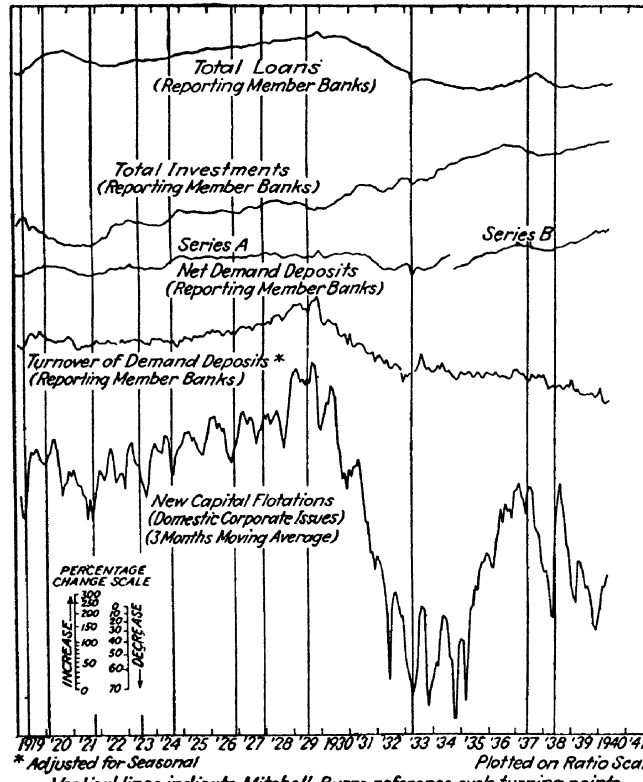


EXHIBIT 9.—Financial Series.

NOTES ON EXHIBIT 9

(Unless otherwise indicated, the source is the *Survey of Current Business*. Notes and series include all revisions through June, 1940.)

Total Loans—Reporting Member Banks

This index is compiled by the Board of Governors of the Federal Reserve System with the cooperation of reporting member banks in 101 leading cities. At the end of 1937 it was estimated that these reporting banks had about 68% of all loans and investments of all member banks and 56% of the totals for all commercial banks. Total loans reported for September 27, 1939 ,were $8,350,000,000. Of this total $4,229,000,000 represented commercial, industrial, and agricultural loans, $1,180,000,000 real estate loans, $1,043,000,000 loans for purchasing or carrying securities, $1,896,000,000 other loans.

Total Investments—Reporting Member Banks

This index is compiled by the Board of Governors of the Federal Reserve System with the cooperation of reporting member banks in 101 cities. On September 27, 1939, total investments for reporting banks were $14,069,000,000, of which $10,669,000,000 were in direct or guaranteed government securities, $3,400,000,000 in other securities.

Net Demand Deposits—Reporting Member Banks

This index is compiled by the Board of Governors of the Federal Reserve System with the cooperation of reporting member banks in 101 cities. Series B is an adjusted series excluding interbank and U. S. Government deposits and cash items reported as in process of collection; Series A is not so adjusted. Since the Banking Act of 1935 altered the definition of net demand deposits, Series B is called "adjusted demand deposits." On September 27, 1939, the total of demand deposits, adjusted, for reporting banks was $18,333,000,000.

Turnover of Demand Deposits—Reporting Member Banks

This index, compiled by the Federal Reserve Bank of New York, is based on the relation between debits to individual accounts and net demand deposits in weekly reporting member banks in 101 cities. Source: *Monthly Review*, Federal Reserve Bank of New York.

New Capital Flotations, Domestic Corporate Issues

This index is compiled by *The Commercial and Financial Chronicle*. Included in this series are all new capital issues (refunding issues are not included) publicly listed as for sale by companies incorporated in the United States. Securities sold at private sale are included when the compilers are aware of such a sale. The fluctuations of the original data have been smoothed by a three months' moving average.

The 20 series believed by Dr. Mitchell and Dr. Burns to be most trustworthy are indicated in the table; but even using these series the businessman achieves no certainty in forecasting business revival or business recession. The authors' own conclusions are as follows:

To sum up: [Exhibit 1] demonstrates that the cyclical upturns in a considerable number of American time series have been distributed fairly consistently around the months that we have selected as reference dates for revival. Certain series have led most or all of the dates with which comparisons can be made; but they have led by intervals that have varied from one instance to the next. Because of these variations, we cannot trust the indications of any single series concerning the month which will later be chosen as the reference date around which the revival centered. The least unsafe way to form judgments about this future date is to follow with care the current movements of a collection of series representing different types of economic activity and selected on the basis of the relative regularity with which they have turned upward in earlier revivals.

The chief hazard in forming judgments from such a collection is that cyclical depressions not uncommonly end in a "double bottom." Several of the depressions of which we have fair statistical knowledge show two troughs about equally low separated by a mild upturn. The behavior of general business in 1932–1933 is a notable example. Business reached a trough about July, 1932, experienced a substantial upturn in the autumn, a relapse in the winter, and a new low point in March, 1933. A large proportion of the most trustworthy indicators of business conditions participated in the abortive upturn of the autumn of 1932 and in the relapse that followed.

So far as we know, there is no certain way of telling at the time it begins whether an incipient revival will suffer a relapse or develop into a cyclical expansion. Yet the occasions are frequent when speculation about the future course of business is demanded by pressing present needs. Those whose hard duty it is to make these guesses have the best chance of being substantially right if they combine analysis of current business data with some knowledge of the history of business cycles, such information as is available concerning important factors arising outside the realm of business, and a firm determination not to let their hopes and fears color their judgments more than is inevitable.[1]

Exhibits 3 to 9, on the preceding pages, summarize the monthly changes over the past two decades in a selected list of business series. The charts are uniform in time scale, and the use of the same ratio scale permits direct comparison of cyclical fluctuations. The reference dates used by Dr. Mitchell and Dr. Burns in preparing the table shown as Exhibit 1 are indicated on each chart.

What conclusion may be drawn as to the relative timing and amplitude of cyclical fluctuations of each of the series shown in

[1] "Statistical Indicators of Cyclical Revivals," p. 12.

Exhibits 3 to 9? What explanations of the relationships may be put forward?

2. Business Cycle Theories

Comments on some principal schools of thought[1]

Theories of the business cycle are legion, and there are almost as many ways of classifying them. The classifications which follow are elementary in character. They ignore many of the finer distinctions which are of importance to scholars and research workers. There are many other possible classifications.[2] In particular it must be recognized that many of the writers whose names are mentioned in connection with specific groups of theories are by no means to be thought of as confined to those classifications, or even necessarily as belonging primarily to them. In the first place, many writers have contributed to more than one school of thought in regard to the business cycle; some indeed, while engaged principally in the exposition of one set of ideas, have in passing incidentally shed illumination on other concepts. In the second place, opinions may easily differ as to the groups or subgroups in which it is appropriate to classify individuals, depending on the emphasis attached to particular parts of their work. Also there are a number of students of the business cycle whose work must be classed as broadly eclectic, tending toward the synthesis of existing theories rather than the development of new ones, Wesley C. Mitchell, for instance.

Perhaps the broadest classification of business cycle theories which can be made is a division into those theories which seek the principal cause of the cyclical fluctuations in factors external to the business world itself, and those theories which seek to find the answer strictly within the domain of business and economic activities.

Theories Emphasizing External Causes

I. Meteorological Theories. Many years ago, W. Stanley Jevons advanced the hypothesis that business cycles are caused by

[1] Condensed from Malcolm P. McNair, "Business Cycle Theories: Some Comments for the Layman," *Business and Modern Society* (Cambridge, Harvard University Press, 1938).

[2] See, for instance, Alvin H. Hansen, *Business-Cycle Theory: Its Development and Present Status* (Boston, Ginn, 1927); Wesley C. Mitchell, *Business Cycles: The Problem and Its Setting* (New York, National Bureau of Economic Research, 1928); and Gottfried von Haberler, *Prosperity and Depression: A Theoretical Analysis of Cyclical Movements* (Geneva, League of Nations, 1937). See also W. M. Persons, "Theories of Business Fluctuations," *Quarterly Journal of Economics*, Vol. XLI, No. 1, November, 1926, pp. 94–128.

the relation of sun-spot cycles to the weather, the effect being transmitted through the resultant fluctuations in crop yields. Henry L. Moore has developed a variation of the same general theory, attributing the weather cycle to the interference of the planet Venus every eight years with the flow of solar radiations to the earth. Ellsworth Huntington also has sought to trace business cycles to the weather, but has concluded that the causal effects are transmitted not through crop variations but rather through the effect of the weather on health, and the effect of health on the mental attitude of people. In a still different variant of these theories, Werner Sombart has emphasized the dependence of the organic industries (that is, such as flour milling and textiles) on crop yields, and the consequent disequilibrium between these industries and the inorganic industries (that is, such as steel, copper, chemistry), the development of which is not dependent on crop yields. The sun-spot theory has been revived within recent years by Carlos Garcia-Mata and Felix I. Shaffner with the hypothesis that the cyclical variability in solar radiation may exert a direct biological effect on human psychology, resulting in those alternating waves of optimism and pessimism which many observers have noted as playing an important part in business booms and depressions.

II. Wars, Discoveries, Inventions, and Other "Accidents." Numerous writers have commented on the obvious effects of such outside factors as wars, geographical or mineral discoveries, important inventions, and other similar occurrences of a fortuitous character in initiating business fluctuations. From an historical standpoint, the effects of such outside factors can be traced quite clearly. With respect to wars, for instance, Leonard P. Ayres says:

> The simple rule is that the war is accompanied by a period of exceptional business activity and prosperity. It is followed by a sharp and usually short period of hard times which we may designate as the primary post-war depression. This gives way to a rapid recovery and a period of active business expansion, which in turn is displaced by a long and severe period of subnormal activity which we may term the secondary post-war depression. The great depression of the 30's is the secondary post-war depression following the World War.[1]

Wars obviously divert production away from old channels and into new ones. There result abnormal scarcities in the goods to which production formerly was devoted, while the munitions of war, to the production of which every effort is bent, for the most part are

[1] *The Economics of Recovery* (New York, 1933), p. 15. Reprinted by permission of The Macmillan Company, publishers.

themselves destroyed rather than entering into further production. Marked shifts take place in agricultural output, with the result that subsequent overproduction is inevitable. The urge to nationalistic self-sufficiency, not only in agriculture but in many other types of production, leads to duplication of productive facilities. After the war is over, the fear of further hostilities, plus the pressure exerted by those whose livelihood is intimately related to these new productive facilities, leads governments to give protection and subvention to enterprises which from a world standpoint are definitely uneconomic. Furthermore, wars usually are financed by inflation. Such combinations of conditions are bound to produce notable disturbances in business.

Particularly in earlier periods of history, there is little doubt that such external events as geographical discoveries, the exploitation and the later colonization and development of new lands served as initiating causes of fluctuations in the rhythm of production and distribution. To cite another type of external factor, the development of the internal combustion engine and the whole growth of the automobile business in the United States, with all its attendant phenomena of road building, enormously increased production and distribution of gasoline, increased travel, changes in real estate development, and so on, undoubtedly exerted an important influence on business cycles in the United States in the postwar period.

III. Changes in Population. The rate of increase in population is not steady; rather it is characterized by wave movements, which are principally caused by great wars. Births decline during a war and increase after a war; and these fluctuations tend to repeat themselves, according to the studies of August Lösch on German population statistics, about 33 years later. The subsequent wave movements, of course, tend to flatten out until they encounter the next war. The argument runs that in a capitalistic economy outlays for buildings and machinery are closely related to these changes in population. When population is increasing, it is necessary to provide new houses and new capital equipment on an enlarged basis; and the reverse is true when the rate of increase in population declines. The first phase is the boom, the second the depression. (There are obvious cross-links between this theory and some of those described below.) In a period when the rate of increase in population exhibits a decline, technical developments alone are not sufficient to maintain expansion of the capital goods industries, since entrepreneurs feel themselves on safer ground when they are expanding along regular lines simply to meet an increase in demand occasioned by rising

population, and in the absence of such a prospective increase are unwilling to venture widely on new projects.[1]

THEORIES EMPHASIZING INTERNAL CAUSES

I. Underconsumption Theories. Perhaps the most widespread theories of the business cycle at the present time comprise various forms of the underconsumption or deficiency-in-consumer-purchasing-power theory. These may be divided roughly into two major types: first, the argument that oversaving decreases purchasing power and thus causes depression by immediately limiting consumption, and, second, the argument that oversaving, by decreasing consumption, leads ultimately to a decline in the opportunities for profitable investment.

A. Oversaving Decreases Purchasing Power. The popular consumer purchasing power theory today in the United States, widely proclaimed by politicians and labor leaders, consists of the notion that a deficiency of consumer spending caused the depression of 1930–1933 and the belief that greatly increased consumer spending is the way to revive normal business activity and restore employment. The argument runs that consumer purchasing power at the peak of prosperity in 1929 failed to be great enough to allow the nation to absorb the products of industry. To put it another way, wages were too low and profits were too high, with the result that there were not enough dollars for consumers to spend and too many dollars for business to spend, the outcome being the failure of the mass market for industry.

It makes little difference whether one looks at this theory from the side of overproduction or from the side of underconsumption; they are but two aspects of the same argument, and in practically all its forms the argument consists in the statement that periodically because of savings, because interest and profits are too large in relation to wages, the industrial system fails to provide consumers with sufficient purchasing power to enable them to buy all the products of industrial activity at profitable prices. This shortage of consumers' income from time to time frustrates the sale of the final products of industry to the consumer and throws the whole system out of joint. Therefore, the argument runs, depression can be relieved primarily by stimulating consumption.

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[1] See AUGUST LÖSCH, "Population Cycles as a Cause of Business Cycles," *Quarterly Journal of Economics*, Vol. LI, No. 4, August, 1937. See also Lösch, *Bevölkerungswellen u. Wechsellagen* (Jena, 1936).

These underconsumption theories have no particular novelty. They go back well over one hundred years, and there are many familiar names associated with them: Lauderdale, Malthus, Sismondi, and, in recent years, J. A. Hobson, C. H. Douglas, and Messrs. Foster and Catchings. In the hands of the earlier of these, the emphasis was more on inequalities in the distribution of wealth. The institutions of organized society were held to be such that the working class did not obtain a large enough share of the product to keep the whole structure in balance. Among some recent writers, the emphasis has been more particularly on the monetary aspects. There is not a large enough flow of money incomes to consumers, it is alleged, to enable them to buy all the products of industry. But whatever the emphasis, the fundamental philosophy is largely the same.

A very brief statement of the typical simple underconsumption theory is as follows: The fact of savings makes it impossible for the community to spend on consumption goods that part of its income which is saved. The savings are invested and thus used to increase productive capacity intended eventually to augment the supply of consumer goods. Thus the ultimate effect is that the supply of consumer goods is increased in a community already less able, because of the fact of savings, to buy the existing output. Consequently prices fall, profits disappear, workers are laid off and are therefore unable to continue their purchases of consumption goods on the same scale, unemployment spreads, assets decline in value, and the vicious spiral of deflation begins.

This is what is supposed to have happened in 1929. Wages were too low; profits and other forms of property income were too high; too much was saved and invested; and we found ourselves unable to consume all the goods which we had the plant and equipment to make. We had solved production problems, it was said, but had bogged down over the distribution problem; and all that was necessary for us to enter into the enjoyment of an economy of plenty, in contrast to one of scarcity, was to place purchasing power in the right hands.

B. Underconsumption Limits Investment. Quite a different type of underconsumption theory is that put forward by Harold G. Moulton, partly as the result of a series of studies by the Brookings Institution. According to these studies, even in years of prosperity the productive facilities of the United States were not utilized to more than 80% of capacity. At the same time, the consumption requirements of the community were far from being satisfied; and

during these same years a substantial proportion of the country's income was diverted to savings. (It is to be noted that this is not a theory of a *periodic* excess of savings over investment matched by *alternate* periods when investment exceeds savings, but rather a theory of a *steady* excess of savings over investment.)

Up to this point, the argument runs like that of the conventional underconsumption theory; but precisely here is the point of departure. The conventional underconsumption theory presupposes that the breakdown takes place because of too much investment. The Moulton theory, on the contrary, considers that the breakdown is caused by too little investment. The difficulty is that money savings do not automatically become new capital equipment, for the reason that the formation of capital is not independent of consumption but is controlled by it. The expansion of capital goods depends on the concurrent expansion of demand for consumption goods. The rate of growth of new plant and equipment is adjusted not to the rate of growth of savings but rather to the rate of increase in the demand for consumption goods. But when consumption fails to increase or when savings increase faster than consumption, investment in new capital goods will not keep pace with savings. Instead, savings are likely to be used in bidding up the prices of existing securities. This is what happened in 1929.

The problem, however, is not one that can be solved by mere redistribution of existing wealth or present incomes. It is necessary to increase the national income; and the only effective way to do this, according to the Moulton theory, is by means of a steady flow of price reductions proceeding *pari passu* with improvements in technological efficiency. Such a line of development is the real essence of the capitalistic system, but in recent years this central truth has been badly obscured by price-stabilization tendencies and doctrines.

II. The Monetary Theories. Just as the underconsumption theories of the business cycle have the largest popular following at the present time, the monetary theories probably enjoy the widest acceptance among present-day economists. This classification is a very wide one indeed. In fact, almost all present-day theories of the business cycle have some monetary aspects. Some of the monetary theories at various points resemble some of the underconsumption theories; but in general it may be said that most, if not all, of the monetary theories have this important difference from the simple underconsumption theories: namely, that they recognize the business cycle as primarily a phenomenon of the capital goods industries

rather than of the consumer goods industries. All the monetary theories have in common the view "that monetary influences play a dominant rôle in determining both the volume and direction of production . . . "[1] and that the business cycle can be satisfactorily explained as a consequence of the operation of these monetary influences and particularly as a result of the banking and credit mechanism. This does not mean, however, that all the monetary theorists who are in agreement as to the essential nature of the causes of the business cycle are equally in agreement as to the remedies. R. G. Hawtrey, for instance, may be called an inflationist; F. A. Hayek is decidedly not an inflationist.

There are many varieties of monetary cycle theory, among which two rather broad categories may suffice for the purposes of the present classification. The first of these emphasizes the expansion and later the contraction of commercial bank credit as affecting prices and volume of business transactions. The second considers chiefly the effects of credit expansion and contraction on volume of investment, that is, on the rate of activity in the capital goods industries.

A. Effects of an Elastic Commercial Banking System. One large group of monetary theorists consists of those economists who consider business booms and depressions to be the result of the elastic credit provided by the commercial banking system. Here may be mentioned, to cite only a few, the names of R. G. Hawtrey, Carl Snyder, Irving Fisher, and Lauchlin Currie. In the minds of this group, the expansion of commercial bank credit leading to a rise in working capital is the major problem. This expansion of bank credit takes place under the influence of speculative activity in a business boom. Inasmuch as credit is the principal form of money with which business is transacted, the increase of bank credit has the effect of raising prices. Since the advances in credit are made primarily to business men, it is their spending which is accelerated and the prices of the kinds of goods that they buy which tend principally to advance. This credit expansion induces some miscalculations, because of overoptimistic estimates of the market; but for a time the activities of entrepreneurs in developing new enterprises tend toward still greater expansion of credit, since a loan made by one bank to *A* becomes a deposit to his account and, upon transfer by him in the natural course of business to *B*, will be deposited to *B*'s account in some other bank. Thus the expansion of loans has

[1] F. A. HAYEK, *Prices and Production* (London, Routledge, 1931), p. 1.

the effect of increasing deposits, and this increase in deposits leads to a desire on the part of the banks to find profitable use for additional funds and so normally results in further expansion of loans. For these reasons, the tide of credit expansion mounts higher and higher, carrying along by its momentum many enterprises optimistically launched which are found later not to be capable of surviving rough water. In the meantime, as wages and earnings rise there is a gradual response in the amount of cash required to transact business. Cash flows out more rapidly than it returns to the banks, and finally this outflow puts a strain on bank reserves. Then bankers perceive that the credit structure is becoming top-heavy, and they begin to curtail. Immediately the elasticity factor begins to work in the other direction. Speculation can rear a mighty credit structure, but business men by their acts can destroy this structure with astonishing rapidity as soon as the chill of caution succeeds the speculative fever. Bank credit, having been expanded almost to the breaking point, begins to contract sharply. The volume of loans and deposits shrinks. Prices fall. Cash becomes more desirable than assets. Safety and liquidity are the watchwords. Thus the whole structure of values comes tumbling down; and the deflationary process continues until, after a long and painful period, bank reserves again become ample, and conditions develop which favor a renewed credit expansion.

Some economists who stress the importance of an elastic credit system as a prime cause of the business cycle believe that the central banks, by a proper manipulation of the discount rate, together with appropriate open-market operations, can control the expansion and contraction of credit and prevent violent booms and depressions. R. G. Hawtrey, for instance, considers that raising and lowering the discount rate earlier would enable a country to maintain relative stability in the price level. Others among the group of economists who consider the business cycle primarily a consequence of the elastic credit system are less sanguine as to the possibilities of control by means of the discount rate. Some of them consider that stabilization of the price level is not in itself the immediate objective, but rather that the essential thing is to prevent large changes in the volume of bank credit. This latter view, which incidentally has something in common with the views of the Austrian school (see below), contemplates the desirability of having a distinctly inelastic currency and credit system in which the volume of credit will not be allowed to expand and contract to any great extent in response to changes in business and speculative activity. This is essentially

the proposal of Lauchlin Currie, and also of Irving Fisher, popularized by the latter under the title of *100% Money*.[1]

It has furthermore been pointed out by Irving Fisher[2] that, if the volume of indebtedness is particularly large at the top of a credit expansion, the very effort of business men to pay off their debts will in itself cause such a shrinkage in the volume of credit and such a consequent decline in prices and values that the ratio of debts to existing incomes and values tends to become greater rather than less, and the deflationary process feeds cumulatively upon itself until, in the words of D. H. Robertson, "it is apt to degenerate into a purposeless and obscene orgy of destruction, like a snake eating its own tail. . . ."[3] There are not a few people, of course, who consider that in the 1930–1933 depression the notable maladjustment of gold stocks among the several nations was an important contributory cause of this downward spiral of deflation. A partly parallel theory to Professor Fisher's is Wilhelm Röpke's concept of the secondary deflation,[4] although the latter is less inclined to stress monetary causes, placing principal emphasis on the bearish attitude of businessmen, investors, and the public in general, which leads to the accumulation of idle savings.

B. Lack of Correspondence in Saving and Investment. The second broad group of theorists who seek the causes of booms and depressions primarily in the behavior of the monetary system give their attention to the expansion and contraction of investment rather than to the elasticity of the commercial banking system. Progress implies the processes of saving and investing; but if these two processes fail to go forward in reasonable equilibrium there may be, on the one hand, a condition of oversaving with respect to investment or, on the other, a condition of overinvestment with respect to saving. There might be many reasons for such a lack of proportionality between saving and investing. For instance, the flow of new inventions, new ideas for money-making, during a period of years, might not be sufficient to utilize the accumulated body of savings available for new types of enterprise. A number of economists, however, including currently the so-called Austrian group, Ludwig von Mises, F. A. Hayek, and Lionel Robbins, consider this lack of proportionality primarily a monetary problem. This view

[1] New York, Adelphi, 1935.

[2] See "The Debt Deflation Theory of Great Depressions," *Econometrica*, Vol. I, No. 4, October, 1933, p. 337.

[3] Lecture on "The State and Economic Fluctuation," given at the Harvard Tercentenary Conference of Arts and Sciences on Tuesday, September 8, 1936.

[4] See *Crises and Cycles* (Edinburgh, Hodge, 1936), pp. 119 et seq.

is sometimes designated as the monetary overinvestment theory. The rate of interest is the critical factor in maintaining the balance between saving and investing; the "natural" rate of interest is the rate that would keep the volume of saving and the volume of investment in a moving equilibrium. When the market rate of interest falls below this natural rate, it becomes profitable to borrow money for all sorts of undertakings, and there ensues an excess of investment over savings. This means increased activity in the capital goods industries, taking the form of what we know as a business boom. On the other side of the situation, when it happens that the market rate of interest exceeds the natural rate, the volume of investment falls below savings, because in the face of high interest rates profit prospects in the capital goods industries are clouded and business men do not wish to borrow money for new ventures. With this decline of the volume of investment below the volume of savings, a business depression is inaugurated, since this situation means that new industries are not being started, new plants being built, or new equipment bought at the same rate as formerly, with the consequence that business losses and unemployment appear in the capital goods industries.

The remedy, according to the monetary overinvestment theory, is to control the market rate of interest so that it will never vary greatly from the natural rate. In particular, it is essential that the control be applied to the boom phase. The expansion of business, especially of the capital goods industries, should be curbed by a rise in the rate of interest before a condition of such unstable equilibrium has been reached that a serious recession is inevitable.

This type of theory has received its greatest elaboration at the hands of the Austrian group. Professor Hayek, in particular, emphasizes the fact that oscillations in saving and investing proceed from the inflation of bank credit and exert their effects on the structure of production. It is argued that production consists of a number of stages and that during inflation this number of stages tends to increase as the production process becomes more roundabout, whereas during deflation the structure of production tends to shrink to a smaller number of stages. (For example, observe the tendency for small groups of coal miners in many of the coal-producing regions of Pennsylvania and Ohio in the early 1930's to work small mines by relatively primitive methods, while the large collieries still found themselves unable to operate.) According to this view, the general price level has no particular significance, the really important price factors being the changes in relative prices and their

effects on production. In order to keep relative prices undisturbed, the *real* structure of production should be kept in equilibrium. If the proportionate demand for capital goods bears the same relation to the total demand as the relation of voluntary savings to total income, then equilibrium is maintained; but when bank credit is extended to entrepreneurs for the purchase of capital goods, then the equilibrium is disturbed, the demand for capital goods is increased, and the factors of production, that is, labor, materials, and so on, tend to flow into the capital goods industries. This is the boom phase. The expenditures for capital goods reach the hands of consumers in the form of wages; and this increased demand stimulates the consumption goods industries, which then begin to bid against the capital goods industries for labor and the other factors of production. Wage rates consequently rise. The additional demand for credit forces up the interest rate; and thus the profit prospects are diminished in the earlier stages of production, where the capital commitments are large and the long-run considerations vital. Strain on the credit structure increases; and finally some event, such perhaps as the failure of a well-known firm, signalizes the end of the boom. Then comes the collapse, the urge for liquidity, the shrinkage of the structure of production into a smaller number of stages. Next ensues the depression period, in which numerous painful adjustments must be made, and in which the demand for capital goods for the time being drops far below the voluntary saving of the community, until finally confidence is restored and in recovery a new equilibrium is attained. Then the whole process starts over.

Professor Hayek's proposed remedy is that the monetary system should be "neutral," that the volume of credit should remain unchanged except to compensate for changes in the velocity of circulation. During a period of prosperity, when the velocity of circulation rises, it would be necessary, according to this view, for the volume of credit to contract.

At this point, it is appropriate to turn to the nonmonetary theories of the business cycle. Let it be said at once, however, that the distinction between the monetary and the nonmonetary theories frequently is a difficult one. Monetary and credit systems are in use throughout the civilized world. Practically all economic transactions involve money, and monetary phenomena are a veil which it is not always easy to pierce in the search for economic realities. The distinction is a subtle one. None of the so-called nonmonetary theories of business fluctuation can be said wholly to exclude mone-

tary influences, or even to deny causal character to such influences. The nonmonetary theories simply relegate the monetary influences to a secondary position, as reenforcing rather than initiating causes.

And yet the distinction between the monetary and the nonmonetary theories is a most important one; for if the nonmonetary theories are more nearly correct, then the application of monetary remedies may be not only ineffective but also dangerous.

It may also be remarked that the remaining classifications of business cycle theories are all somewhat less optimistic in their implications than either the underconsumption theories or the monetary theories. If redistribution of purchasing power is the answer, that is a step which probably can be accomplished over a period of time. If a controlled monetary and credit system is the way out, we possibly can learn, in the course of a generation or so, how to make such currency management effective. But if these theories, as some believe, are too superficial, too naive, too sanguine of simple solutions, and if the roots of the difficulty strike more deeply into the foundations of the capitalistic system, and indeed into the springs of human nature itself, then our case is the more serious. While we may look for palliatives, a complete cure is most unlikely.

III. Capitalistic System of Production Leads to Periodic Overinvestment. An important school of thought about the business cycle, and one which has some significant links with the second of the monetary groups, is that which seeks the clue to the difficulty in the roundabout, time-consuming process of production, which is alleged inevitably to bring about from time to time a condition of overinvestment. This is sometimes designated as the nonmonetary overinvestment theory. Among those who have contributed to this group of ideas may be included Michel Tougan-Baranowski, Arthur Spiethoff, Albert Aftalion, Kurt Wicksell, Joseph Schumpeter, Gustav Cassel, D. H. Robertson, J. M. Clark, and Wilhelm Röpke.

In the capitalistic, or roundabout, system of production, progress is jerky, not smooth. The difference in the time element between the early stages of production (i.e., the capital-goods stages) and the later stages of production and distribution of consumers' goods is a most important one. "He who today buys a machine or builds a house or a factory does not, like the man who buys a loaf of bread, have to repeat the performance tomorrow, but perhaps in ten or more years."[1] Capital goods have to be provided far in advance of the consumption of their ultimate product. The expenditures made for capital goods flow into the channels of consumption largely

[1] HANSEN, *op. cit.*, p. 69.

through the medium of wages; but the relations between the production of capital goods and the consumption of finished goods are not smooth. The characteristic procedure of production under the capitalistic system is a roundabout one. Before the final products are made available for consumption, factories are built, not merely to make the finished product, but to make the tools and equipment required to make the finished product, and so on through several stages reaching back to the raw material. All this takes time. When there is a scarcity of goods required for final consumption, the supply cannot be immediately increased; but months, possibly years, are needed to construct the necessary productive facilities. While this construction is going on, consumption tends to be increased because of the high rate of employment in the capital goods industries. This is the period of boom. Why is it not sustained?

The answers are various: inevitable errors and miscalculations accumulate; the supply of savings becomes exhausted, and further capital development can no longer be financed; new inventions and new opportunities for profit-making do not come along in a sufficiently steady flow to maintain an even growth of investment; the entrepreneurial spirit is not a steady surge, but manifests itself in periodic bursts of activity. Through all these explanations runs the common thread of an inevitable lack of harmony between the processes of production and consumption because of the capitalistic technique. Fluctuations in the capital goods industries by necessity tend to have a greater amplitude than fluctuations in consumer goods industries. This is the well-known principle of acceleration, pointed out by J. M. Clark:

> . . . the physical need for new equipment shows a tendency to fluctuate more intensely than the demand for the finished product, because it depends, not upon the total volume of demand, but upon the rate of growth (or shrinkage): the amount added, for example, during the current year. In other words, the velocity of output in the capital-making industries depends, not on the velocity of output in the industries which use the capital to make goods for consumption, but on its acceleration. Since this is bound to be a minus quantity nearly half the time, even if the demand for finished products never completely stops growing, it is easy to see that the makers of capital equipment are bound, in the nature of the case, to suffer an absolute decline in the demand for their products, not only semi-occasionally, but chronically, whenever ultimate demand slackens its rate of growth. And if the demand for finished products stops growing, the need for additional equipment naturally falls to zero, while a relatively slight decline in the demand for consumption means that the need for additional equipment becomes actually a minus quantity. It would then be economical to unmake some of the equipment and

something like this actually happens in extreme cases, for equipment is allowed to wear out without being fully replaced.[1]

The capitalistic system thus humps itself along instead of gliding smoothly. Periodically there is an outburst of activity in the capital goods industries, accompanied by increased activity in the consumer goods industries, subject to collapse as soon as the forward advance begins to slacken. Thus, according to Cassel, a "period of advance is one of special increase in the production of fixed capital; a period of decline, or a depression, is one in which this production falls below the point it had reached."[2]

According to this doctrine, the progress of capitalistic society may be likened, to use an humble analogy, to the forward motion of a measuring worm. An inchworm does not move along steadily, but after each forward stretch he stops and contorts himself. Out of this contortion emerges another long forward stretch, and then the same process is repeated. Similarly our modern machine system of production stretches itself out in a boom period until it is unable to go any farther. Then it halts and goes through a period of contortion out of which emerges another long stretch forward. It is frequently remarked that the causes of depression are to be found in business booms, that reaction inevitably follows after any prolonged upward spurt. It is probably equally true that prosperity is an inevitable aftermath of depression. Under the stress of business adversity, there are brought forth new ideas, new inventions, new methods, new leaders, new courage. But an even flow of progress is impossible.

An apt metaphor is that of Albert Aftalion:

> If one rekindles the fire in the hearth in order to warm up a room, one has to wait a while before one has the desired temperature. As the cold continues, and the thermometer continues to record it, one might be led, if one had not the lessons of experience, to throw more coal on the fire. One would continue to throw coal, even though the quantity already in the grate is such as will give off an intolerable heat, when once it is all alight. To allow oneself to be guided by the present sense of cold and the indications of the thermometer to that effect is fatally to overheat the room.[3]

If emphasis is placed on the shortage of real savings as the condition which halts the expansion of the capital goods industries, then this view is in marked contrast to the underconsumption

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[1] *Studies in the Economics of Overhead Costs* (Chicago, University of Chicago Press, 1923), p. 390.
[2] *The Theory of Social Economy* (London, T. F. Unwin, 1923), p. 521.
[3] Quoted from von Haberler, *op. cit.*, p. 127.

theories, since according to these theories society ought to spend more and save less in order to avoid periodic crises, whereas if shortage of savings is the difficulty society ought to save more and spend less. Curiously enough, however, there is one definite link between the two schools of thought. It follows from J. M. Clark's acceleration principle that a decline in the rate of increase of consumption has a greatly magnified effect on the capital goods industries. Conceivably, therefore, the disturbing influences may arise from the consumption end. Obviously this line of thought leads to the type of underconsumption theory set forth by H. G. Moulton (see above, p. 363) and developed also in part by J. M. Keynes and R. F. Harrod, and not the simple type of underconsumption theory represented by J. A. Hobson and C. H. Douglas.

One of the most effective modern exponents of the capitalistic production theories is Joseph Schumpeter. It is his view that great importance must be ascribed to the periodic appearance of what he calls a "swarm of entrepreneurs." The significant effect on business of new inventions and technical improvements arises not from their discovery but from their application. As a result of laboratory research, for instance, many possibilities may exist for innovations, but the practical realization of these possibilities waits on the activity of entrepreneurs. Professor Schumpeter holds that there are definite reasons why entrepreneurs appear in swarms or clusters rather than being evenly distributed through time, namely, "because the appearance of one or a few entrepreneurs facilitates the appearance of others, and these the appearance of more, in ever-increasing numbers."[1] It is this swarmlike appearance of entrepreneurs which causes the activity in the capital goods industries, that is, the business boom, which in turn inevitably brings on the depression.

IV. The Profit Motive. Since profit is such a central factor in the economic system, the notion that the profit motive plays an important part in business fluctuations is naturally a more or less prominent feature of many theories of the business cycle. As already indicated, the simple type of underconsumption theory looks on an excess of profits as one of the important causes of cyclical downturn; but there is another view which assigns quite an opposite role to profit. According to this, the downturn comes not because profits are too large but because profits are not large enough, because businessmen and investors cannot find enough profit-making

[1] *The Theory of Economic Development* (Cambridge, Harvard University Press, 1934), p. 228.

opportunities. Among the many writers who have stressed this relationship of profit to the business cycle may be mentioned Thorstein Veblen, Jean Lescure, Wesley C. Mitchell, J. M. Clark, Sumner H. Slichter, and Leonard P. Ayres.

The decisions of businessmen are constantly made with reference to the outlook for profits. If there is a favorable outlook for profits, business spending tends to increase. Innovators are encouraged to make commitments. Speculative enterprise flourishes. As soon, however, as the outlook for profits becomes clouded, businessmen become chary of future commitments and proceed with caution. The contagion of this view spreads, and thus a period of liquidation and depression is inaugurated. Changes in the profit outlook, therefore, are held to be of central importance in determining those decisions of businessmen which trace the pattern of prosperity and depression. Price changes affect the profit outlook critically. In a period of recovery, rising prices increase profit possibilities because they tend to widen the margin between the selling price of the output and the costs of production, partly as a consequence of the relative slowness with which wages advance. Rising prices thus commonly are associated with prosperity. In such a period, future earning power tends to be overestimated, and enterprises are capitalized on bases which earnings eventually fail to support. One reason for this is that rising prices introduce a certain fictitious or "paper" element into profit, and businessmen commonly do not perceive the extent of this fictitious element in their profits until too late. (Accounting practices are partly at fault.) In the meantime, as the boom develops, there comes a period when wages and other costs begin to catch up with the advance in selling prices, and profit margins are narrowed. It is not necessary on this theory that profit margins should actually contract; it is enough if businessmen expect them to contract. Such a development may take place partly because the bank reserve situation at this stage is beginning to hamper further expansion of credit, partly because during the boom period mistaken judgment has permitted unsound situations to develop in particular industries, with resulting accumulations of unsold goods. As Dr. Mitchell puts it,

> When profit margins are threatened by the encroachments of costs, when these encroachments cannot be offset by further advances of selling prices, and when the rate at which profits are capitalized is reduced by the rise of interest, then creditors begin to take alarm and press for the settlement of their claims.[1]

[1] WESLEY C. MITCHELL, *Business Cycles* (Berkeley, University of California Press, 1913), p. 512.

It may be added also that, even before creditors begin to press their claims, businessmen will find it advantageous to pay off bank loans rather than buy goods, particularly if profit prospects have declined to a point where prospective earnings are at a lower rate than the interest being paid on borrowed money. A decline in business spending, for such reasons, is a powerful factor in bringing on a depression. When businessmen are using their income to reduce bank loans, i.e., to put credit money out of existence, rather than to buy goods, we have the familiar spectacle of a sharp decline in the operations of the capital goods industries. When prices fall, the producers must either reduce their costs of production or lower their output; and if they accept the latter alternative, as they commonly do, then unemployment develops rapidly. The effort of each individual business to render its own position secure contributes directly to the general uncertainty of all business. As Professor Slichter says, "It would be difficult to exaggerate the disastrous effect upon the demand for commodities produced by the reduction of bank loans by nine billions of dollars during the first three years of the present depression."[1]

Another important factor which may contribute to the shrinkage of the profit margin in particular industries, and which almost certainly is an important cause of the severity and prolongation of depressions, is that which is now generally designated by the term "sticky prices." For various reasons connected partly with the increased size of business enterprise and the decreasing number of competitors in certain fields, partly with the development of certain marketing policies and practices, and partly with the rise of certain social and political doctrines, flexibility no longer obtains in many parts of the price structure. Instead of "market" prices, we have "administered" prices, and these readily become rigid prices. Rigidities in the price structure, though they may seemingly enhance the profit prospects of some concerns and industries, often operate to narrow the outlook for profitable operation in other industries. Particularly after a downward turn has been initiated in the business cycle, the almost fatal slowness with which relative prices are adjusted as between industries and commodities leads to large declines in production and employment. Present-day conditions of the economic system apparently are such that numerous businessmen prefer to decrease production and lay off employees rather than to lower prices.

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[1] *Towards Stability* (New York, Holt, 1934), p. 27.

The changes which have led to this situation are not merely those of business organization and structure; to some extent there has been a change in the outlook of the community. The philosophy of pioneer groups "on the make" has been replaced by a philosophy of "security," a fierce clinging to the paper values of yesterday's balance sheet, an unwillingness to write off the debt based on those paper values, and a general insistence that the future be poured into the mold of the present.

On this view of the business cycle, the chief desideratum, then, is a steady flow of opportunities for money-making, such as new inventions, new areas to be settled and developed, new cities to be built, cheaper ways of producing goods, and so on, coupled with flexible prices and the necessary degree of confidence in the future. But such a combination is little short of Utopian.

V. Maladjustments in the Exchange of Goods. The business cycle theories thus far enumerated have concerned themselves with the processes of consumption, of financing, and of production. There is also a group of theories which take cognizance of the possibility that the sources of business fluctuations should be sought in the area of marketing, merchandising, and the interpretation of demand. Contributions to this line of thought have been made by Sir William Beveridge, F. W. Taussig, C. O. Hardy, and A. C. Pigou. In an individualistic competitive economy, the complex task of adjustment of supply and demand is in the hands of hundreds of thousands of independent entrepreneurs. In the operations of these hundreds of thousands of entrepreneurs, each governed by his calculations with respect to profit, it is inevitable that mistakes should occur; and, since businesses are largely interdependent, serious mistakes occurring in one industry have repercussions in others. The possibilities of trouble from this source have been greatly augmented by modern developments. With the increasingly roundabout or typically capitalistic character of the whole industrial process, not only has the greater degree of specialization in production enlarged the number of points along the line at which exchange must be made, that is, points at which a product must be marketed before the consumer can enjoy the final good, but the degree of specialization in the marketing process has itself become more pronounced. Thus the separation between producers and consumers has widened not only with respect to intermediate functions but also with respect both to time and to distance. This accentuated division between the two necessarily complementary parts of the community's economic life has been one of the apparently inevitable consequences of our system of capitalistic development.

A second consequence of this development is one which, curiously enough, pulls in the opposite direction. In the days when there was direct contact in the market place among individuals in their capacities as producers and consumers, demand was a relatively simple phenomenon. The goods demanded were those which we now characterize as necessities. Consumers were governed by their needs. Purchases were not to any great extent deferable. Little variety of choice existed because little was demanded. But with the development of the capitalistic system, there has come a pronounced change in the character of demand. In part, this is what we refer to when we speak of a rising standard of living. Furthermore, with a rising standard of living, there has come a change in the make-up of consumer demand. Buying is governed by a philosophy of desires rather than by a philosophy of needs. A larger and larger part of our expenditures is for goods whose utility is social rather than individual. The motives which we seek to gratify as consumers have become steadily more complex and in consequence less stable. A larger and larger part of the community's expenditure is of this social and optional nature, and the options are for the most part exercised emotionally rather than rationally. To put it another way, the phenomena of fashion have become of paramount importance in any analysis of demand. All this means that demand has become not only complex, but also increasingly unpredictable.

According to this line of analysis, it is not the changes in consumer demand which cause the trouble, but rather the inaccuracy of producers' estimates, both quantitative and qualitative, with respect to demand. Mistakes are inevitable, and with the lengthening of the roundabout or capitalistic system of production the errors not only remain undiscovered for a longer period but are increasingly hard to correct because of the size of the commitments made. Each producer is uncertain not only with respect to his own demand but also with respect to the actions of his competitors. Says Sir William Beveridge,

> Every one of ten bootmakers may accurately estimate the total demand for boots, say 10,000 pairs, at the lowest remunerative price. Each of the ten, however, desires to have the supplying of as large a share as possible of this demand—say of a fifth rather than of a tenth. The ten together will therefore set about producing twice as many boots as can be sold at a profit.[1]

These difficulties are accentuated by the division of labor. Highly specialized capital equipment suited only to the mass production of a particular good cannot be transferred to the production

[1] W. H. BEVERIDGE, *Unemployment* (London, Longmans, 1930), p. 59.

of other goods; and on top of this inflexibility, there is the further consequence that large investments in specialized machinery and equipment, since they represent sunk costs rather than optional costs, are conducive to extreme price cutting and destruction of the profits of others.

VI. The Psychological Factor. A. C. Pigou, F. W. Taussig, F. Lavington, and recently J. M. Keynes stress heavily the emotional influences affecting business judgment. Calculations of businessmen are not coldly rational. Their expectations of the future take the form of alternating waves of optimism and pessimism. It is not necessary to look outside the business situation itself for the sources of the emotional reactions of the business community. In the upswing of the business cycle not only is optimism contagious, but the optimistic miscalculations of one group give rise to similarly optimistic miscalculations by other groups. Ambitious ventures are the order of the day. Profit prospects are painted in roseate hues. Promoters flourish. Business leaders give exuberant interviews to the trade and daily press. Financial writers point out that the constructive factors dominate the situation. Statisticians demonstrate that stock values have reached a new and permanently higher plateau. In this atmosphere ambitious enterprises are launched, and orders which accrue to other businesses from these in turn form the basis for more expansion. No one listens to counsels of caution and restraint.

Then one day there is a note of uncertainty in the business and political news; a slight chill of caution succeeds the atmosphere of ebullient enthusiasm. Faint tremors of apprehension run through the speculative structure. Shortly some untoward event, such as the failure of an important business concern, is widely heralded as an omen of evil things to come. Soon there are whispers of ill tidings of all sorts. And as the errors of the preceding orgy come to light, the emotional pendulum swings in the other direction. Pessimism succeeds optimism and spreads with equal, if not greater, rapidity. The future is dark indeed. No rumor of dire disaster is too fantastic to repeat. Everyone believes the worst. There is a mad scramble to unload, and by the very act of seeking safety the business world pulls down its own house.

VII. Keynes' General Theory of Employment, Interest, and Money. The most recent views of J. M. Keynes as presented in *The General Theory of Employment, Interest and Money*,[1] though at bottom depending on concepts essentially psychological, are never-

[1] New York, Harcourt, 1936.

theless so broadly eclectic that they may be accorded a separate grouping.

It is not merely, in fact not even primarily, a theory of the business cycle which Professor Keynes presents. It is rather an effort to rewrite an important chapter in economics, an attempt to explain why orthodox economic theory has not been more successful in accounting for business depressions. The classical economic doctrine commonly known as Say's law runs to the effect that supply creates its own demand, that production and consumption are necessarily complementary, that if production is sustained demand will necessarily take care of itself. On the basis of this postulate, depression has to be explained largely in terms of frictions, lags, and maladjustments, with the underlying forces always tending toward a position of equilibrium with full employment. Keynes denies the general validity of this concept, holding it to be only a special case: there is no necessary reason why the point of equilibrium should be one that requires full employment; on the contrary, there frequently exist circumstances under which equilibrium will be reached at a point considerably short of full employment.

The reasons why this is true lie in the factors governing income, consumption, saving, and investment. These are factors which may be observed in the behavior of the monetary system, but it is the acts of individuals rather than the operations of the banking and currency system that cause this behavior. The fundamental concept is the flow of spending, both business spending and consumer spending; but particularly important is that business spending which takes the form of new investment.[1]

Consumption is governed by the "propensity to consume." The effect of the psychological factors governing the propensity to consume is that, as income increases, consumption increases, but by a smaller absolute amount than the increase in income. Therefore saving increases as income rises, and vice versa. Consequently

[1] This theory is somewhat different from those theories which are based on the alleged lack of correspondence between saving and investment. Keynes asserts the formal equality of saving and investment. This equality does not mean, however, that, when an individual saves, the aggregate investment is necessarily increased by an equal amount, since the reduced consumption resulting from the saving reacts on the incomes of others, and the effects are felt through changes in the total volume of income. The very effort of the community to save a high proportion of income is self-defeating because of the resulting contraction of total income. Income, consumption, saving, and investment constitute a closed system; but the size of it cannot be taken as fixed. Changes in consumption and investment affect the amount of total income, which is to say that they affect the volume of employment. The question whether investment and saving are to be regarded as formally equal depends partly on the definition of the terms and partly on whether the situation is viewed in retrospect or in prospect.

a rise in income requires an increase in new investment to fill the gap. But there is no necessary reason why such business spending in the form of new investment should automatically be forthcoming.

Business spending is governed by the "expectation" of entrepreneurs with respect to profit. This expectation of prospective yields on investments is by no means a matter of logical calculation. On the contrary, it is largely an emotional matter. The entrepreneur is concerned not merely with the logical calculation of risks and rewards but with the guess as to what estimates the great mass of other entrepreneurs are placing on those risks and rewards. The amount of investment which entrepreneurs will make is governed by what they think additional investment will yield in comparison with existing interest rates. This yield of additional investment is what Keynes refers to as "the marginal efficiency of capital." The prospective marginal efficiency of capital is thus partly a matter of emotional outlook; yet investment is determined not merely by the marginal efficiency of capital but by the relation between this and the rate of interest.

Here we come to the pivotal factor in Keynes' theory. If the rate of interest is simply a price which brings into equilibrium the demand for investment and the willingness to save, then in spite of the psychological factors affecting the expectations of prospective yields on investment the system still may be kept in balance (aside from frictional problems), since the rate of interest will adjust itself to changes in the demand for investment. Precisely at this point, according to Keynes, comes the difficulty. The rate of interest is not, as has been supposed, such an equilibrium price of savings; but it is rather the "reward for parting with liquidity for a specified period." It is a measure of "liquidity preference" or of "propensity to hoard." The rate of interest thus also becomes largely a psychological matter. In fact, "its actual value is largely determined by the prevailing view as to what its value is expected to be."[1] With both the expectations as to capital yields and the interest rate itself so largely affected by the emotional outlook, there can be no guarantee that new investment will come forward to fill the gap.[2]

The rate of interest, together with expectations as to the future yields of capital investment, controls the price of capital assets.

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[1] *The General Theory*, p. 203.

[2] In some respects, Keynes is inclined to emphasize the secular aspects of his theory: in modern times, a high rate of liquidity preference taken in conjunction with a diminishing marginal efficiency of capital, due in part perhaps to a declining rate of increase in population, has made the problem of obtaining full employment practically insoluble under conditions of *laissez faire*.

When this price rises, new investment increases, and vice versa. Hence the volume of new investment tends to fluctuate, being dependent essentially on two emotional judgments concerning the future. This fluctuation in investment has inevitable effects on the scale of output and employment; the quantity of consumer goods which it is profitable to produce depends upon the quantity of industrial goods being produced. There is always this relation between the output of consumption goods and the output of capital goods, for income arises partly from production of consumption goods and partly from production of capital goods. Full employment is possible only when there is new investment, i.e., provision for future consumption, sufficient to absorb any excess of income over expenditures on present consumption. The proportion of any increase in income which will be devoted to consumption is the "marginal propensity to consume." Given this marginal propensity to consume, an increase in investment will stimulate the industries producing for consumption and will lead to a total increase of employment which is a multiple of the primary employment resulting from the investment itself. The value of the "multiplier" will, of course, differ with any changes in the marginal propensity to consume; the greater the marginal propensity to consume, the greater the investment multiplier, i.e., the less the investment required to fill the gap.[1]

Broadly, the business cycle is a matter of cyclical change in the marginal efficiency of capital. The larger the supply of capital goods, the lower this marginal efficiency becomes; the accumulation of physical capital during a boom, for instance, forces it down. But there is also a secular aspect: countries rich in capital goods find increasing difficulty in providing new opportunities for profitable investment; they are faced with a diminishing marginal efficiency of capital. A country with a large supply of capital goods, particularly if it should be one with a stationary or declining population, might, over long periods, have a relatively low marginal efficiency of capital. Given this low marginal efficiency, the necessary volume of new investment to bring about business revival is difficult to obtain unless the rate of interest is kept very low. But monetary

[1] R. F. Harrod, in a further extension of the Keynesian system of analysis, has developed a relationship, similar to the multiplier, between the demand for consumption goods and the demand for capital goods. Any decline in the rate of increase of consumption will entail a calculable decline in the rate of investment (cf. H. G. Moulton, J. M. Clark); but since the value of the Keynes multiplier falls as output increases, that is, the marginal propensity to consume decreases, it is impossible for consumption to continue to expand at the necessary rate. Thus as soon as consumption ceases to increase at the rate required to keep up a constant volume of investment, there is a marked decline in investment and consequently in employment.

measures reducing the interest rate and making money easy are of no avail until business confidence has recovered. " . . . it is not so easy to revive the marginal efficiency of capital, determined, as it is, by the uncontrollable and disobedient psychology of the business world. It is the return of confidence, to speak in ordinary language, which is so insusceptible to control in an economy of individualistic capitalism."[1] This is the line of reasoning which leads Keynes to the conclusion that "the duty of ordering the current volume of investment cannot safely be left in private hands."[2] The government must adjust the propensity to consume and the inducement to invest.

Keynes is definitely at variance with those writers who consider that the proper procedure for controlling the business cycle is to check a business boom by advancing the interest rate.

> . . . the remedy for the boom is not a higher rate of interest but a lower rate of interest! For that may enable the so-called boom to last. The right remedy for the trade cycle is not to be found in abolishing booms and thus keeping us permanently in a semi-slump; but in abolishing slumps and thus keeping us permanently in a quasi-boom.[3]

B. PRICING POLICIES

3. The International Nickel Company of Canada, Limited

POLICY OF LONG-RUN PRICE STABILITY

During the depression which began in 1929, The International Nickel Company of Canada, Limited, suffered a large reduction in earnings; but its financial condition remained strong, and the price of nickel (which was set for the world by the company as the principal producer) was not reduced.

Nickel was first produced in Canada in 1885.[4] The Canadian Copper Company, organized in 1886, became the first large producer of the white metal. Other companies, however, were formed subsequently to exploit the Ontario resources.

In 1902, the principal companies were these: Canadian Copper Company, Orford Copper Company, American Nickel Works, Anglo-American Iron Works, and Vermilion Mining Company of Ontario,

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[1] Keynes, *The General Theory*, p. 317.
[2] *Ibid.*, p. 320.
[3] *Ibid.*, p. 322.
[4] See *Report of the Royal Ontario Nickel Commission* (1917) for the early history of the industry.

Ltd. In that year, these companies were merged to form The International Nickel Company (a New Jersey corporation). In 1928, The International Nickel Company of Canada, Limited, became the parent company.

In the following years, all other nickel producers were absorbed except one. That one, the Mond Nickel Company (a British organization), was absorbed in 1929, leaving International, for the moment at least, the only nickel producer in Canada, where nine-tenths of the world supply was produced.

In 1930, production of nickel was begun by the then newly organized Falconbridge Nickel Mines, Ltd. Within a few years, Falconbridge was producing about 10% as much nickel as International. The former's estimated ore reserves (in 1935), however, amounted to only 4,000,000 tons, averaging 1.93% nickel, and 0.9% copper. International's ore reserves were estimated at more than 200,000,000 tons and were said to be slightly richer in nickel and copper content.

Sales and profits of the International Nickel Company advanced sharply during the war of 1914–1918, when tough steels for armor plate and munitions were much in demand and high prices accompanied large consumption. By 1922, however, despite a modest price reduction, sales had tumbled to less than 20% of the war level.

Under the leadership of Robert C. Stanley, who became president in 1922, International inaugurated a research program to develop and promote new uses for nickel. The program met with marked success, and the use of nickel grew substantially. The following excerpts from the company's annual report for 1931 indicate the progress:

> . . . the 1931 consumption of nickel in its largest market, the United States, amounted to 160 per cent of the average for the years 1920–21–22 and to 85 per cent of the average for the years 1926 and 1927, whereas the similar figures for the automobile and truck production in the United States during the same years were 115 per cent and 60 per cent, and those for the steel ingot production, 80 per cent and 55 per cent respectively.
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> . . . . . .
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> . . . the amount of nickel used per ton of alloy steel produced in the United States increased about 25 per cent in 1931 as compared with 1930.
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> . . . . . .
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> The Company's markets for its products are now primarily industrial in character. Sales of nickel in all forms during 1931 were largely in excess of similar sales in 1921, showing an increase of 104 per cent. This comparison is significant in that it clearly indicates that the consumption

of nickel is increasing more rapidly than that of most other metals. This satisfactory increase in sales is to be attributed not only to the recognized value of nickel but to the fact that for the past ten years technical research and development have been employed on a progressive scale to demonstrate its worth and to extend its uses.

In 1934, the estimated division of the consumption of nickel among its principal uses was as follows:

USES OF NICKEL IN 1934[1]

	Percentage
Nickel steels in automobiles	20
Nickel steels in other applications (about one-third munitions)	15
Pure nickel, for radio, coinage, chemical industry	17
Nickel-silver and nickel-copper alloys	18
Nickel for plating (as under chromium plating)	10
Monel metal	9
Alloy cast iron	4
Heat-resistant and electrical-resistant alloys	3
Miscellaneous	3

The approximate nickel content of the more important materials listed above was as follows[2]:

	Nickel Content
Nickel steels	0.5%– 7%
Nickel-steel castings	1.0 – 4
Corrosion-resistant steels	7.0 –35
Nickel silver	10.0 –30
Nickel bronzes	0.5 – 5
Copper-nickel alloys	15.0 –20
Monel metal	66⅔
Alloy cast iron	0.5 –15
Iron-nickel alloys	
Nonmagnetic	10.0 –25
Low-expansion	35.0 –45
Highly magnetic	45.0 –80
Heat-resistant steels	7.0 –35
Heat-resistant alloys	35.0 –85
Electrical-resistant alloys	Up to 85

The uses for each of these metals, as listed by the company, were industrial, with the exception of nickel silver and monel metal. The former was used in silver-plated ware and as a base for filled jewelry; the latter for a variety of household uses such as sinks, cabinets, and utensils.

Except during the period from 1921 to 1926, the International Nickel Company changed the price of nickel only infrequently.

[1] *Fortune*, August, 1934, p. 102.
[2] Adapted from the company's annual report for 1931.

After the 1921–1926 period of frequent small changes in price with a range from 35 cents to as low as 26 cents, the price was raised gradually to 36 cents in 1926, where it stayed until 1929, when it was cut to 35 cents. The price was not changed during the depression which began in 1930.

The report of the company for the year ended December 31, 1930, included the following statement on price policy:

> In considering the nickel market situation it should be noted that your company has been fortunate in its conservative price policy, with which, it is gratifying to state, large consumers of nickel generally have expressed entire satisfaction.

The following statements on nickel prices and stocks were made in the article on nickel which appeared in the 1935 *Minerals Yearbook* of the U. S. Department of the Interior:

> Both prices and stocks of nickel are controlled by the principal nickel producer of Canada. The price of electrolytic nickel has remained unchanged at 35 cents a pound through the period 1929–34. The price for ingot and shot nickel, much of which is made from remelted electrolytic, has been 1 cent higher—36 cents—except that ingot was 35 cents in 1929 and 1930. Common objections to a fixed monopolistic price are balanced to some extent at least by the freedom of nickel from price disturbances that introduce a speculative factor into plans for the industrial use of virtually all other metals. Control of production also has permitted the restriction of stocks to reasonable quantities that can be carried without menacing the financial status of producers. Both these factors probably have aided the rapid and orderly recovery of the nickel industry.

What considerations presumably were responsible for the price policy of the International Nickel Company during the period 1929–1935?

Exhibits 1 to 6 follow:

Exhibit 1. Comparative Consolidated Income Account, Years Ended December 31, 1928–1935.
Exhibit 2. Comparative Consolidated Balance Sheet, as of December 31, 1929–1935.
Exhibit 3. Average Published Price of Nickel in New York, 1900–1935.
Exhibit 4. Sales of Nickel by The International Nickel Company, Limited, and Estimated World Consumption of Nickel, 1928–1935.
Exhibit 5. Average Yearly Quoted Prices of Copper, 1926–1935.
Exhibit 6. Annual World Production and World Consumption of Copper, 1928–1935.

EXHIBIT 1

THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED

Comparative Consolidated Income Account, Years Ended December 31, 1928–1935

(U. S. dollars)

	1928	1929	1930	1931	1932	1933	1934	1935
Operating earnings*	$16,076,596	$29,353,073	$18,389,983	$10,556,001	$ 4,473,914	$16,707,647	$27,672,126	$38,164,101
Other income	629,999	1,800,587	616,858	499,792	35,740	250,520	324,964	502,606
Total income	$16,706,595	$31,153,660	$19,006,841	$11,055,793	$ 4,509,654	$16,958,167	$27,997,090	$38,666,707
General expenses, etc.	$ 967,479	$ 1,846,316	$ 1,552,027	$ 1,328,206	$ 1,006,853	$ 1,072,095	$ 1,384,869	$ 1,505,933
Interest	.....	448,066	481,158	439,356	336,889	449,763	400,973	193,429
Taxes	1,188,679	2,682,395	1,229,658	507,278	139,401	1,504,744	2,803,610	4,602,325
Retirement, insur., etc., reserve	556,765	886,051	828,143	675,979	398,418	717,328	804,844	1,380,656
Depreciation and depletion	1,594,355	3,054,835	3,145,795	3,010,477	2,763,438	3,551,653	4,115,315	4,897,837
Net profit	$12,399,317	$22,235,997	$11,770,060	$ 5,094,497	$ 135,345(d)	$ 9,662,584	$18,487,479	$26,086,527
Preferred dividends	$ 557,034	$ 2,040,501	$ 1,933,920	$ 1,933,938	$ 1,933,909	$ 1,933,898	$ 1,933,898	$ 1,933,899
Common dividends	4,331,095	12,375,704	14,148,941	6,560,468	.....	.....	7,289,085	10,933,627
Surplus for year	$ 7,511,188	$ 7,819,792	$ 4,312,801(d)	$ 3,399,909†(d)	$ 2,069,254(d)	$ 7,728,686‡	$ 9,264,496	$13,219,001
Earned per share, preferred	$139.12	$80.48§	$42.60§	$18.44§	Nil	$34.97	$66.92	$94.42
Earned per share, common	1.05	1.47	0 67	0.22	$0.14(d)	0.53	1.14	1.66
Number of preferred shares	89,125‖	276,278‖	276,278‖	276,278‖	276,278	276,278	276,278	276,278
Number of common shares	11,258,208‖	13,758,208‖	14,584,025‖	14,584,025‖	14,584,025	14,584,025	14,584,025	14,584,025

(d) = Deficit.
* After manufacturing and selling expenses, ordinary repairs, and maintenance.
† Before surplus debit adjustments, $342,363 for foreign exchange, and $146,084 for Canadian taxes.
‡ Before crediting $350,000 tax adjustments.
§ On basis of $100 par shares.
‖ Issued or issuable.
Source: Moody's Manual of Investments.

EXHIBIT 2

THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED

Comparative Consolidated Balance Sheet, as of December 31, 1929–1935

(U. S. dollars)

	1929	1930	1931	1932	1933	1934	1935
Assets							
Property Owned and Operated	$156,163,837	$168,271,830	$170,850,899	$171,242,663	$171,458,770	$173,551,173	$186,960,168
Less: Depreciation and Depletion	19,865,479	22,790,350	24,602,850	27,222,400	30,547,153	34,359,613	39,749,057
Net Property	$136,298,358	$145,481,480	$146,248,049	$144,020,263	$140,911,617	$139,191,560	$147,211,111
Sundry Securities*	$ 2,910,339	$ 6,939,327	$ 7,080,390	$ 7,032,981	$ 10,165,109	$ 13,243,257	$ 3,164,129
Inventories†	17,109,312	21,060,096	21,429,936	20,623,390	18,815,604	20,683,443	21,358,495
Bills and Accounts Receivable	8,487,682	6,155,744	4,701,715	2,454,363	5,886,424	5,100,980	6,031,417
Cash, Call and Time Loans	16,395,333	9,284,368	2,405,180	4,601,297	14,085,611	18,789,023	30,473,312
Government Securities‡	745,675	745,675	706,840	1,191,803	1,530,401	1,674,522	2,246,713
Deferred Charges						71,098	127,117
Total	$181,946,699	$189,666,690	$182,572,110	$179,924,097	$191,394,766	$198,753,883	$210,612,294
Liabilities							
Preferred Stock	$ 27,627,825	$ 27,627,825	$ 27,627,825	$ 27,627,825	$ 27,627,825	$ 27,627,825	$ 27,627,825
Common Stock§	57,360,542	60,766,771	60,766,771	60,766,771	60,766,771	60,766,771	60,766,771
Bills Payable (Long Term)	1,500,000	1,200,000	900,000	600,000			
Subsidiary Debenture Stock‖	7,626,672	7,509,040	7,385,402	7,901,111	7,757,468	5,050,914	
Accounts Payable and Pay Rolls	6,101,325	3,125,923	2,307,688	1,773,981	2,669,492	2,648,302	3,945,048
Accrued Taxes	3,921,366	3,533,477	1,001,854	755,027	1,868,744	3,034,864	5,192,479
Preferred Dividends Payable	483,473	483,484	483,485	483,475	483,475	483,475	483,475
Reserves	3,937,797	4,641,356	5,208,626	5,403,153	7,529,227	7,310,490	7,895,703
Capital Surplus	48,428,730	60,132,646	60,132,646	59,924,195	59,924,195	60,841,225	60,606,500
Earned Surplus	24,958,969	20,646,168	16,757,813	14,688,559	22,767,569	30,990,017	44,094,493
Total	$181,946,699	$189,666,690	$182,572,110	$179,924,097	$191,394,766	$198,753,883	$210,612,294
Current Assets	$ 42,738,003	$ 37,245,883	$ 29,243,671	$ 28,870,854	$ 40,318,040	$ 46,247,969	$ 60,109,936
Current Liabilities	10,506,164	7,142,883	3,793,028	3,012,483	5,021,711	6,166,641	9,621,002
Working Capital	$ 32,231,839	$ 30,103,000	$ 25,450,643	$ 25,858,371	$ 35,296,329	$ 40,081,328	$ 50,488,934

* At cost less reserve.

† At lower of cost or market.

‡ Market, Dec. 31: 1932, $1,208,660; 1933, $1,552,097.

§ Represented by no par shares: 1929, 13,758,208; 1930 to 1933, incl., 14,584,025.

‖ Debenture stock of British subsidiaries: £375,000 1st mortgage debenture 5s (called for redemption June 1, 1934); £1,117,808 mortgage debenture 5½s, and £153,300 mortgage debenture 6¼s (called for redemption June 1, 1934).

Note: 1932 and 1933 accounts certified by Price, Waterhouse & Co. In converting the various currencies to U. S. dollars, the general principles of exchange conversion in effect in 1932 have again been employed: the recording of the cost of property at the rates effective at the date of reorganization or subsequent acquisition and the providing of depreciation at parity of exchange; investments in United States dollars at cost or less; inventories in United States dollars at cost or market, whichever is lower; other current asset and current liability items in United States dollars at closing rates December 31, 1933; capital stock at parity of exchange; debenture stock at the rates effective at the date of reorganization or subsequent issue. The net result of exchange adjustments 1933, as already stated, was a credit of $1,739,617.06. This amount is not reflected in income but has been carried to contingent reserve.

Source: Moody's Manual of Investments.

EXHIBIT 3

AVERAGE PUBLISHED PRICE OF NICKEL IN NEW YORK, 1900–1935

(Cents per pound)

1900	47¢	1909	36¢	1918	40¢	1927	36¢
1901	50	1910	30	1919	40	1928	36
1902	47	1911	30	1920	40	1929	35
1903	40	1912	30	1921	35	1930	35
1904	40	1913	30	1922	35	1931	35
1905	40	1914	30	1923	29	1932	35
1906	42	1915	30	1924	28	1933	35
1907	45	1916	35	1925	34	1934	35
1908	43	1917	40	1926	36	1935	35

Source: Reports of Dominion Bureau of Statistics.

EXHIBIT 4

SALES OF NICKEL BY THE INTERNATIONAL NICKEL COMPANY, LIMITED, AND ESTIMATED WORLD CONSUMPTION OF NICKEL, 1928–1935

(Pounds)

Year	International Nickel Company's Sales of Nickel in All Forms, including Alloys	World Consumption of Nickel (New, Other than Scrap)*
1928	98,000,000	117,000,000
1929	125,577,789	136,000,000
1930	75,284,352	88,000,000
1931	55,739,047	73,000,000
1932	34,406,953	57,000,000
1933	74,356,969	96,000,000
1934	91,459,554	122,000,000
1935	129,850,207	160,000,000

* International Nickel Company's estimates.

Note: Both sets of figures are taken from annual reports of the International Nickel Company. Peak world consumption in the war year, 1918, was 94,000,000 pounds. The figure for the company's sales of nickel in 1928 is an estimate based on the stated percentage increase of 1929 over 1928, as given in the report for 1929.

EXHIBIT 5

AVERAGE YEARLY QUOTED PRICES OF COPPER, 1926–1935

Year	U. S. Domestic, F.O.B. Refinery (Cents per pound)	London Spot (Converted to cents per pound at current exchange rates)
1926	13.795	14.200
1927	12.920	13.468
1928	14.570	15.040
1929	18.107	18.413
1930	12.982	13.355
1931	8.116	8.522
1932	5.555	5.629
1933	7.025	6.877
1934	8.428	7.496
1935	8.649	7.753

Source: U. S. Department of the Interior, *Minerals Yearbook* (1936), p. 124.

EXHIBIT 6

ANNUAL WORLD PRODUCTION AND WORLD CONSUMPTION OF COPPER, 1928–1935

Year	World Production (Short tons)	World Consumption (Short tons)
1928	1,894,003	2,009,383
1929	2,118,209	2,076,844
1930	1,734,745	1,714,187
1931	1,487,992	1,406,535
1932	986,973	1,802,018
1933	1,137,388	1,242,513
1934	1,387,760	1,498,136
1935	1,603,132	1,795,578

Source: American Bureau of Metal Statistics, *Yearbook* (1935), pp. 10, 11.

4. PRICE RIGIDITY

ADMINISTERED PRICES AS A BASIC CAUSE FOR THE FAILURE OF LAISSEZ FAIRE[1]

The attached charts point to the widespread presence in our economy of inflexible administered prices which have produced highly disrupting effects in the functioning of the economy and which are largely responsible for the failure of a policy of laissez faire. The charts indicate that there are two essentially different types of market in operation—the traditional market, in which supply and demand are equated by a flexible price, and the administered market, in which production and demand are equated at an inflexible administered price. In the first type of market, economic adjustments are brought about primarily by fluctuations in price. In the second type of market, economic adjustments are brought about primarily by changes in volume of production, while price changes are of secondary significance in producing adjustment.

The difference between market prices and administered prices is clear. A market price is one which is made in the market as the

[1] Excerpt from a report by Gardiner C. Means, economic adviser on finance to the Secretary of Agriculture. The full report, under the title *Industrial Prices and Their Relative Inflexibility*, was submitted to the U. S. Senate on January 15, 1935, and subsequently was printed as Document 13, U. S. Senate, Seventy-fourth Congress, First Session.

result of the interaction of buyers and sellers. The prices of wheat and cotton are market prices as are many other agricultural products. This is the type of price around which traditional economic theory has been built.

An administered price is essentially different. It is a price which is set by administrative action and held constant for a period of time. We have an administered price when a company maintains a posted price at which it will make sales or simply has its own prices at which buyers may purchase or not as they wish. Thus, when the General Motors management sets its wholesale price for a particular model and holds that price for six months or a year, the price is an administered price. Many wholesale and most retail prices are administered rather than market prices. For administered prices, the price is rigid, at least for a period of time, and sales (and usually production) fluctuate with the demand at the rigid price.

Administered prices should not be confused with monopoly. The presence of administered prices does not indicate the presence of monopoly, nor do market prices indicate the absence of monopoly. In many highly competitive industries, such as the automobile industry, prices are made administratively and held for fairly long periods of time. On the other hand, it is conceivable that in a monopolized industry the product might be turned out according to some fixed production schedule and sold for what it would bring in the market regardless of price. Thus, in the first case, we would have administered prices in a competitive industry and, in the second, market prices in a monopolized industry. In general, monopolized industries have administered prices, but so also do a great many vigorously competitive industries in which the number of competitors is small. The bulk of the administered prices shown below are in competitive industries.

Exhibit 1 indicates the very great importance of administered prices in the American economy. It shows all the commodities making up the Bureau of Labor Statistics' wholesale price index (except railroad and utility rates and a few composite items), distributed according to frequency of price change. The chart covers the number of changes from month to month for each item during the 8-year period from 1926 to 1933. In the right-hand column of the chart are 125 items which changed practically every month in the 8 years. In the left-hand column are 95 items which changed price less than five times in 8 years. The remaining 527 items fall between these extremes. The U-shaped character of the distribution curve carries the usual suggestion that there are two quite different

types of price. It is clear that the highly flexible prices of the right-hand group of items are for the most part made in the market, and are the type of prices around which traditional economic analysis has been built. The inflexible prices of the group of items at the left of the chart are established administratively and held for appreciable periods of time. More than half the items covered in the chart averaged less than three changes a year. These items

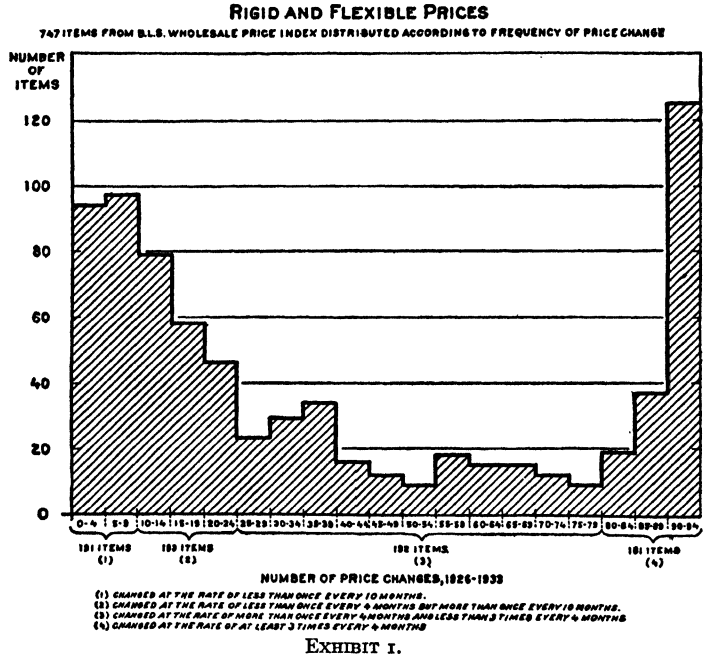


EXHIBIT 1.

represent a type of price essentially different in its effects from the flexible market price on which the policy of laissez faire has been founded.

Exhibit 2 shows clearly that frequency of price change and magnitude of price change in the depression have gone together. In this chart, the same items as in Exhibit 1 are distributed along the horizontal axis according to the same scale of frequency of price change used in the first chart, while the vertical scale represents the ratio of prices in 1932 to prices in 1929 taken as 100. Each dot represents one item, and its distance from the base line of 100 reflects its price change between 1929 and 1932. If it is below the base line, it has fallen during the depression; if above, it has risen.

At the right are the flexible priced items whose prices in 1932 centered around a price level half that of 1929, while the bulk of the administered prices at the left are centered around 90% of the predepression levels, though with a considerable dispersion. The items which changed frequently in price show a large drop during

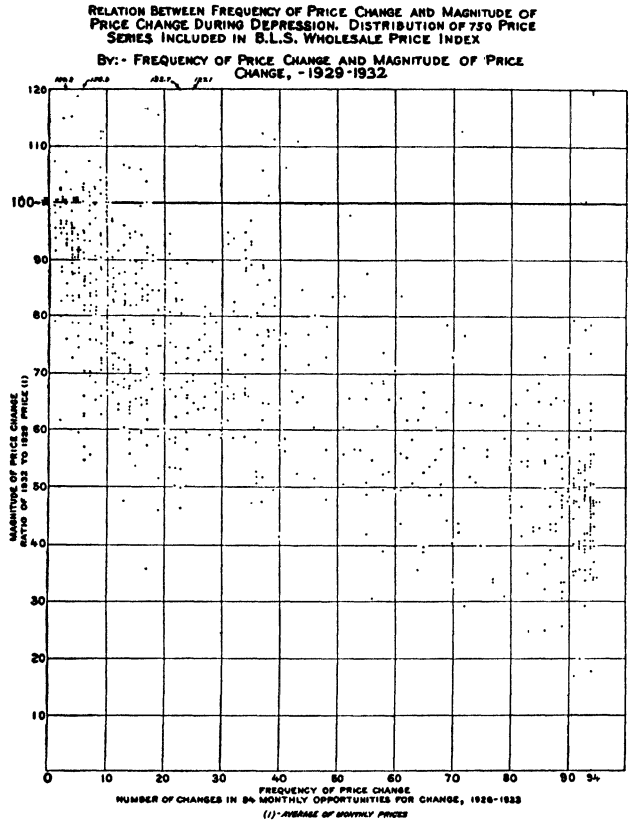


EXHIBIT 2.

the depression, while those having a low frequency of change tended to drop only a little in price.

Exhibit 3 indicates even more clearly this tendency of frequency of price change and magnitude of price drop in the depression to go together. It shows 10 unweighted price indexes computed by grouping into one index the prices of items which did not change at all in the 8-year period; grouping in another index those which changed in price every month; and dividing the remaining items into

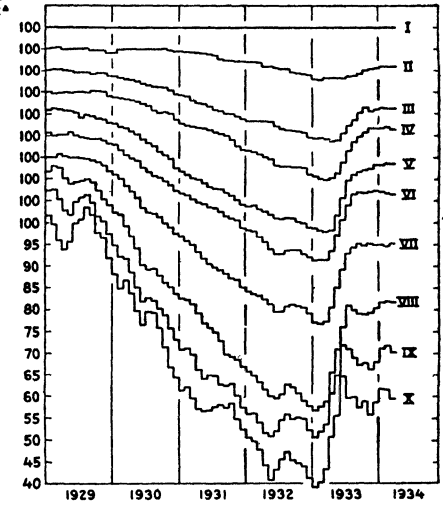
eight groups approximately equal in number, selected and arranged according to increasing frequency of price change. Again, the big drop in price is in the items which were clearly not administered, while the administered prices tended to show less price drop.

Exhibits 4 and 5 indicate the wholly different economic effect of flexible market prices and inflexible administered prices Exhibit 4 shows the character of the adjustment which takes place in a market

RELATION BETWEEN FREQUENCY OF PRICE CHANGE AND MAGNITUDE OF PRICE CHANGE DURING DEPRESSION

PRICE INDEXES FOR 750 ITEMS INCLUDED IN B.L.S. WHOLESALE PRICE INDEX GROUPED ACCORDING TO FREQUENCY OF PRICE CHANGE (1926-1933)[1]

INDEX	NO. OF ITEMS	FREQUENCY OF PRICE CHANGE[a]
I	14	0
II	77	1-4
III	76	5-8
IV	82	9-13
V	96	14-21
VI	88	22-35
VII	86	36-60
VIII	85	61-87
IX	83	88-93
X	63	94
	750	



(1) ARITHMETIC AVERAGE OF MONTHLY PRICE RELATIVES BASED ON AVERAGE OF MONTHLY PRICES IN 1926 AS 100
[a] NUMBER OF CHANGES IN 94 OPPORTUNITIES FOR CHANGE

EXHIBIT 3.

of the traditional type in which prices are flexible. It reflects the change in prices and production for agriculture as a whole during the depression. Not until the control program in 1933 was there any significant drop in agricultural production. Practically the whole impact of falling demand worked itself out in falling prices.

Exhibit 5 shows in somewhat exaggerated form the opposite development, which takes place in a market of the second type, in which prices are held essentially rigid by administrative action. It reflects the changes of prices and production of agricultural implements. Practically the whole of the impact of falling demand worked itself out in falling production and only to a secondary extent by falling prices. The exaggeration comes partly from the fact that such partially counterbalancing items as improvements in

quality and reduction in the direct costs of production are nowhere indicated and partly because certain minor concessions in the time payments on certain items were made, based on fluctuations in the

PRICES AND PRODUCTION FOR AGRICULTURE, 1926-1933
(1926=100)

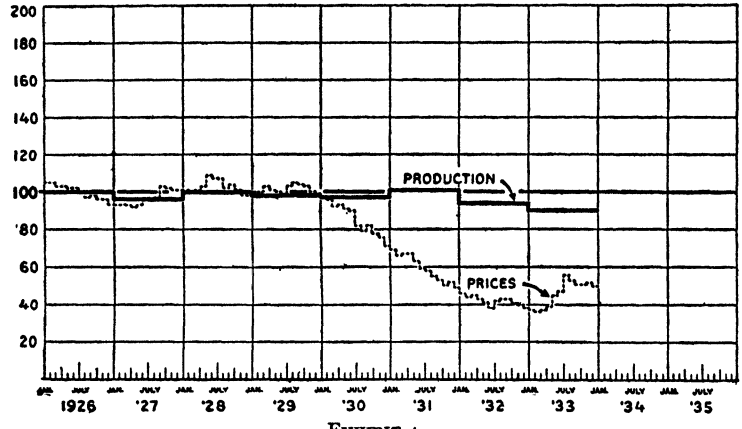


EXHIBIT 4.

PRICES AND PRODUCTION FOR THE AGRICULTURAL IMPLEMENTS INDUSTRY, 1926-1933
(1926=100)

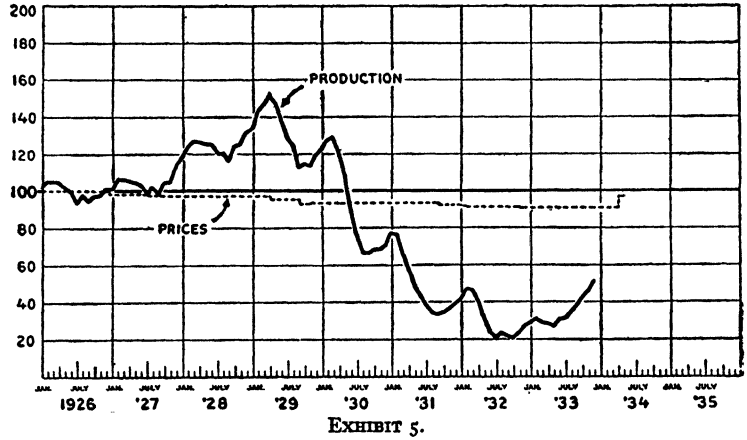


EXHIBIT 5.

price of certain agricultural products. Neither of these affects the essential picture told by the chart, the rigid prices and fluctuating production, which is in so much contrast to the flexible prices and stable production assumed by traditional economists and typical of the field of agriculture.

Exhibit 6 indicates the difference in economic effect of administered and market prices. It shows the relative changes in prices and production for the consumers' perishable- and semiperishable-goods industries and the capital-goods industries. For consumers' goods, prices dropped appreciably, while production dropped to a lesser extent. For the capital-goods industries, the prices dropped little, while production dropped out from under the relatively

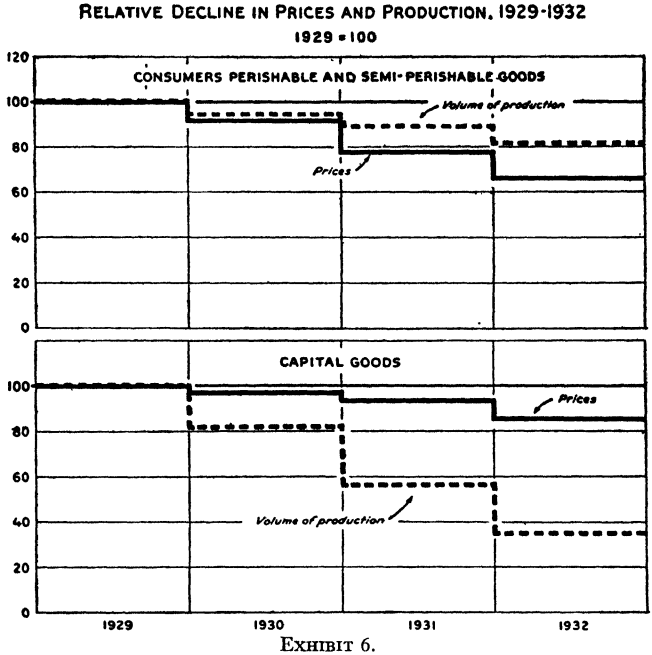


EXHIBIT 6.

inflexible prices. An important part of the difficulties in the capital-goods industries must be attributed to this fact that prices did not adjust.

Exhibit 7 indicates the disrupting effect of administered prices on the price structure. It shows the downswing of prices during the depression and their subsequent upswing since March, 1933. The indexes for the same 10 commodity groups covered in Exhibit 3 are arranged in a new fashion, with time represented by the successive lines on the chart and the price relatives for different commodity groups arranged along the horizontal axis according to increasing frequency of price change. Thus, at the left are the commodity groups made up of items that changed infrequently in price. At the

right are the commodity groups made up of items which changed price frequently. Each group is represented by a series of dots indicating the level of prices at successive dates, with the 1929 prices as 100. Thus, the prices of group *X* dropped as follows: 1929, 100; January, 1930, 91; January, 1931, 64; January, 1932, 52; January, 1933, 41. For the inflexible group I, prices remained constant. For

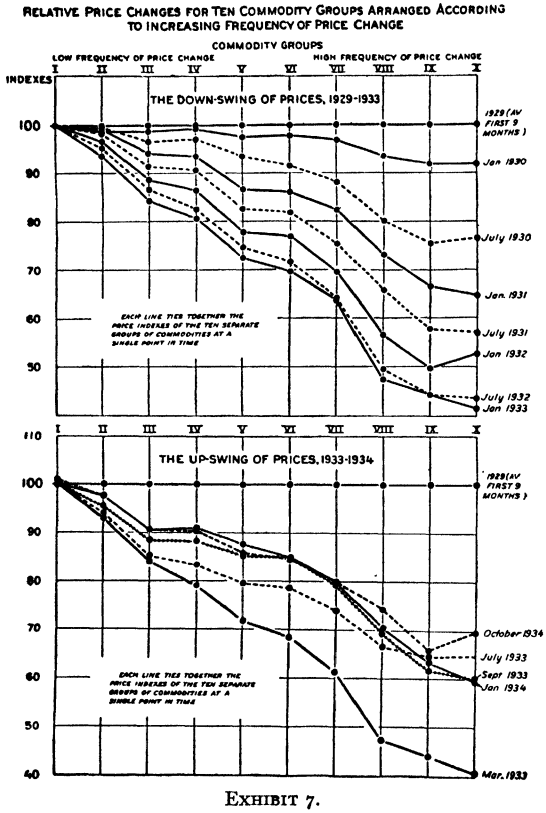


EXHIBIT 7.

intermediate groups, the successive prices fell to intermediate degrees. Each line on the chart ties together the price relatives of the 10 different commodity groups at one particular date. Thus, for January, 1930, the price relatives for the 10 groups lie along the second line, while their price relatives for January, 1933, lie along the bottom line. The progress of the depression is shown by the general swing down of the successive lines. The whole price structure pivoted around the rigid prices. The relative uniformity of the

swing down should be noted, for it seems to reflect a very real set of basic price relationships. The corresponding upswing of prices since March, 1933, is shown in the lower part of the chart.

If the corresponding indexes of production for each group of items were available, they would show that the downswing of production had pivoted around the group of flexible-priced commodities. Production at the right of the chart would have stayed up, while production at the rigid-price end of the chart would have dropped most. While exactly corresponding production figures are not available, the relation of price drop and production drop for 10 major industries from 1929 to the spring of 1933 is shown below:

Commodity Group	Per cent Drop in Prices	Per cent Drop in Production
Agricultural implements	6	80
Motor vehicles	16	80
Cement	18	65
Iron and steel	20	83
Auto tires	33	70
Textile products	45	30
Food products	49	14
Leather	50	20
Petroleum	56	20
Agricultural commodities	63	6

One can make the broad generalization, having of course many exceptions, that for industries in which prices dropped most during the depression production tended to drop least, while for those in which prices were maintained the drop in production was usually greatest. Indeed, the whole depression might be described as a general dropping of prices at the flexible end of the price scale and a dropping of production at the rigid end, with intermediate effects between.

. . . . . .

The shift from market to administered prices reflected in the foregoing charts is the development which has destroyed the effective functioning of the American economy and produced the pressures which culminated in the new economic agencies of government.

The following memorandum attempts to examine the implications of this shift as they relate to national policy and particularly to the structure and functions of AAA and NRA:

1. The National Recovery Administration and Agricultural Adjustment Administration were created in response to an overwhelming demand from many quarters that certain elements in the making of industrial policy (including agriculture as an industry) should no longer be left to the

market place and the price mechanism but should be placed in the hands of administrative bodies—code authorities, crop control committees, etc. This demand is not only a product of emergency conditions, but is also a reflection of more basic dissatisfactions with the results of laissez faire, such as are reflected in the demands for weakening the antitrust laws, strengthening labor organization, intervening to aid the farmers, and for such economic reorganization as will bring the higher standard of living made possible by modern technology.

2. The whole trend of social development both in this country and abroad has been to recognize the failure of a complete laissez-faire policy.

3. The basic cause for the failure of a laissez-faire policy is to be found in the very same forces which have made possible a high standard of living for all, namely, the gradual, century-long shift from market to administrative coordination of economic activity which has resulted in modern industrial organization and modern technology. This shift to administration has brought a new type of competition and inflexible administered prices which disrupt the workings of the market.

4. A century ago, the great bulk of economic activity in the United States was conducted on an atomistic basis by individuals or families—as is most of agriculture today—while the actions of the separate individuals were coordinated by the market. The individual produced for sale, and his activity was geared to and in part controlled by flexible market prices. Balance between the actions of individuals was maintained—in so far as it was maintained—by the impersonal forces of the market and the law of supply and demand. Through the market, the apparently unrelated activities of individuals were thus made to mesh into a single coordinated whole, and industrial policy was made by the market as a result. The policy of laissez faire has rested on the assumption that the market would continue to make industrial policy and would remain a satisfactory coordinating mechanism.

5. But gradually more and more of economic coordination has been accomplished administratively. Great numbers of individuals have been drawn into large factories or business organizations, and their activities have come to be coordinated within the separate enterprises by administrative action. In a single factory, the separate activities of thousands of workers are coordinated by the factory management so as to mesh into a single producing organization. Within single corporate enterprises, tens and even hundreds of thousands of individuals have their economic activity coordinated by administrative direction. In 1929, the activity of over 400,000 workers was meshed into a great communication system by the management of the American Telephone & Telegraph Co. Contrast the coordination and balance among this group of workers with that among 400,000 separate farmers whose action in producing more or less of each product is controlled and balanced only by the market. In the first, we have the extreme of administrative coordination; in the second, the extreme of market coordination.

6. The shift from market to administrative coordination has gone so far that a major part of American economic activity is now carried on by great administrative units—our great corporations. More than half of all manufacturing activity is carried on by 200 big corporations, while

big corporations dominate the railroad and public-utility fields and play an important role in the fields of construction and distribution.

7. This development of administrative coordination has made possible tremendous increases in the efficiency of industrial production within single enterprises. The large number of workers brought into a single organization has allowed a high degree of subdivision of labor and the use of complicated series of machines, so that the volume of production has been expanded way beyond the capacity of the same number of workers operating independently. Organization has made for rapid and extensive development of technology, and the improving technology in turn has increased the advantages of administrative coordination. The telephone, the automobile, modern plumbing are the joint product of technology and administration. The possibility of a high standard of living for all rests on these two interrelated factors.

8. But the very concentration of economic activity which brought increased productivity has by its nature destroyed the free market and disrupted the operations of the law of supply and demand in a great many industries and for the economy as a whole.

9. Evidence of this disruption is to be found in the administrative character and relative inflexibility of price in a great many industries and the fact that, on the whole, prices during the depression have tended to go down least where the drop in demand has been greatest.

10. The failure of prices to adjust is perfectly familiar to businessmen in nearly every industry. But the implications of this familiar fact for the economy as a whole have not been recognized.

11. In a large part of industry, the market is not equating supply and demand through a flexible price mechanism, but is bringing an adjustment of production to demand at administratively determined prices. Thus, General Motors may set the f.o.b. price of a 1934 Chevrolet at $500 and produce the half-million cars demanded at that price, yet be willing and eager to produce and sell a million cars at that price if only there were buyers.

12. The presence of administered prices, while it does not indicate monopoly, does mean that the number of concerns competing in the market has been reduced to the point that the individual concern has a significant power to choose within limits between changing its prices and changing its volume of production or sales. When any small drop in demand occurs, it is in a position to hold its price and reduce its production without losing all its business. As a result, it tends to hold up price and reduce volume of production for the industry as a whole.

13. But this means that individuals have a direct power over industrial policy which they exercise in making business policy for their own enterprise.

14. The distinction drawn here between industrial policy and business policy is of the greatest importance.

15. According to laissez-faire principles, industrial policy was supposed to result from the interaction in the market of the business policies of a large number of independent units, no one of which had any significant power. In the truly atomistic economy to which the principles of laissez faire applied, no individual buyer or seller alone had any significant power

over either price or total volume of production for the industry. Prior to AAA, agricultural products, such as wheat and cotton, were produced and marketed under these conditions.

16. Where the number of competing units in a particular industry has been reduced to a relatively small handful, industrial policy is no longer made wholly by the market but in part by individuals. Industrial policy becomes subject to administrative control even though there is no monopoly or collusion between the separate enterprises.

17. But when the businessman has the power to affect industrial policy, he almost necessarily makes wrong industrial decisions. The very position, experience, and training of the businessman which lead him to make the correct decisions on business policy tend to force him to make the wrong decisions on industrial policy in spite of the utmost public spirit which he, as an individual, may seek to exercise. The fact that his decisions are wrong from the point of view of the public interest is no necessary reflection on either his character or his intelligence, but arises from the nature of the situation within which he operates and the functions which he performs.

18. The businessman is expected to make business policy in a way to maximize the profits of his own enterprise. When he has the power to choose between lowering price and lowering production, good business policy frequently requires him in the presence of falling demand to hold price and curtail his production, even though this means idle men and idle machines. The amount by which he can count on increasing his sales by lowering price is usually so small that the whole balance of his interest as a businessman points toward a restriction of production. The fact that he can lay off his workers enables him to cut production without having to carry the burden of idle workers as he does that of idle machines. His interest dictates lowering price only when he is able to squeeze his costs, particularly his labor costs. At best, it is an even choice whether he will choose to maintain profits or minimize losses by seeking a relatively large profit margin on a reduced volume or a small margin on a maintained volume of sales; and in such a situation the easier device, and the one involving the lesser risk, is the device of holding price and accepting curtailed volume. It is only because this holding of prices has become widespread and customary that the term "price chiseler" could be a term of opprobrium in an economy supposed to be coordinated through flexible prices.

19. The net effect of business control over industrial policy is, therefore, to aggravate any fluctuations in economic activity and prevent any necessary readjustments. An initial drop in demand would result, not in price readjustments, but in maintained prices and curtailment of production, thus throwing workers and machines out of employment, reducing money income and spending power, and further reducing demand. The inflexible administered prices resulting from the shift from market to administration thus act as a disrupting factor in the economy and could cause an initial small drop in demand to become a national disaster.

20. Only as the businessman was willing to go directly counter to the interests of his enterprise as a profit-making concern and against business tradition would he make the kind of decisions which, if made throughout

industry, would keep the economy functioning, and would serve the fundamental interests of business itself. If during the depression individual businessmen throughout the economy had been persuaded to lower their prices, thus making decisions which appeared by all the standards available to them to be adverse to their interests, the result would actually have been in their interest, since it would have reduced the severity of the breakdown.

21. So long, therefore, as concentration exists and important powers over industrial policy are exercised in the guise of business policy and result in inflexible administered prices, the market cannot be expected to coordinate and balance economic activity under a policy of laissez faire.

22. Thus, administrative coordination—the very thing that has made modern technology and a high standard of living possible—has destroyed the effectiveness of the market as an over-all coordinator by the inflexible administered prices which are inherent in the reduction of competing units it has produced.

23. It is the effects of this failure of the market mechanism which have brought the overwhelming demand from many quarters for governmental intervention in economic matters. This inflexibility has impeded the balancing of trade between nations, disrupted the workings of monetary policy, brought the banking system to its knees, obstructed the full use of human and material resources, disorganized the flow of savings into useful equipment, brought an unbalanced national budget, and greatly increased economic insecurity.

What are the essential differences between "administered" prices and "market" prices? Are administered prices necessarily inflexible?

How far do administered prices explain differences in relative wholesale prices? What other explanations are there?

Are there reasons to expect that the differences in price behavior of various groups of commodities will persist in the future?

What criticism may be made of the Means theory?

APPENDIX[1]

In February, 1933, the U. S. Bureau of Labor Statistics wholesale price index for the United States reached its lowest point since before the war of 1914–1918. As shown in the first column of

[1] The material for February, 1933, is taken from a mimeographed report of the U. S. Bureau of Labor Statistics, *The Trends of Wholesale Prices, June, 1929, to 1933.* The data for April, 1937, and November, 1937, are computed from figures shown in Bulletin 572, *Wholesale Prices, 1931*, the monthly bulletin on *Wholesale Prices* for April, 1937, and the mimeographed report *Average Wholesale Prices and Index Numbers of Individual Commodities* for November, 1937, published by the U. S. Bureau of Labor Statistics.

Exhibit 8, the all-commodities index was 37.2% below the June, 1929, level. Among the several commodity groups, over this period, the prices of metals and metal products had declined the least, and the prices of farm products the most.

EXHIBIT 8

PERCENTAGE OF DECLINE IN WHOLESALE PRICES FROM JUNE, 1929, TO FEBRUARY, 1933, TO APRIL, 1937, AND TO NOVEMBER, 1937, BY GROUPS OF COMMODITIES

Commodity Group	Decline from June, 1929, to		
	February, 1933	April, 1937	November, 1937
All commodities	37.2%	7.6%	12.5%
All commodities other than farm products and foods	28.2	5.9	8.3
Nonagricultural	31.9	7.1	9.3
Raw materials	49.9	8.2	20.1
Semimanufactured articles	39.1	3.1	13.6
Finished products	30.8	8.0	8.7
Farm products	60.4	10.7	26.7
Foods	45.8	13.7	16.2
Building materials	26.7	1.6*	1.6
Chemicals and drugs	23.7	7.0	14.1
Fuel and lighting materials	24.7	9.1	7.5
Hides and leather products	37.0	1.5	6.0
House-furnishing goods	23.6	5.9	4.4
Metals and metal products	23.5	4.7	4.3
Textile products	43.2	11.8	21.0
Miscellaneous	28.2	1.6	8.5

* Increase.

Sources: Figures for February, 1933, from U. S. Bureau of Labor Statistics, *The Trends of Wholesale Prices, June, 1929, to 1933.*

Figures for April, 1937, and November, 1937, computed from material in U. S. Bureau of Labor Statistics, Bulletin 572, *Wholesale Prices, 1931*, the monthly bulletin on *Wholesale Prices* for April, 1937, and the mimeographed report *Average Wholesale Prices and Index Numbers of Individual Commodities* for November, 1937.

Thereafter, except for a decline during the first five months of 1936, the index rose intermittently until April, 1937, when it reached the highest point it had attained since May, 1930. Inspection of the figures for April, 1937, in relation to those for June, 1929, as given in the second column of Exhibit 8, shows that the prices of building materials were slightly above those of June, 1929, and that the prices of foods were farthest below. In November, 1937, while the decline from April, 1937, was still in progress, it was indicated by the figures, as shown in the third column of Exhibit 8, that the prices of building

EXHIBIT 9

NUMBER OF ARTICLES, BY GROUPS OF COMMODITIES, IN EACH CLASSIFICATION ACCORDING TO PERCENTAGE OF CHANGE IN WHOLESALE PRICE FROM JUNE, 1929, TO FEBRUARY, 1933

Percentage Change in Wholesale Price	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting Materials	Metals and Metal Products	Building Materials	Chemicals and Drugs	House Furnishing Goods	Miscellaneous	Total
Decrease											
Under 10 %	1	6	4	...	5	21	4	..	7	..	48
10 % and under 20 %	..	8	6	7	2	38	21	21	11	9	123
20 % and under 30 %	3	6	7	8	2	24	20	5	20	13	108
30 % and under 40 %	..	16	9	21	6	9	16	20	13	10	120
40 % and under 50 %	8	30	6	31	1	8	7	10	4	5	110
50 % and under 60 %	31	39	4	31	1	9	5	2	2	4	128
60 % and under 70 %	13	12	3	9	1	3	3	4	..	3	51
70 % and under 80 %	7	2	2	4	4	1	..	..	..	..	20
80 % and under 90 %	2	1	..	...	..	...	1	..	..	3	7
No change	..	1	..	...	..	13	7	14	4	3	42
Increase	2	1	..	1	2	4	2	13	..	2	27
Total	67	122	41	112	24	130	86	89	61	52	784

Source: U. S. Bureau of Labor Statistics, *The Trends of Wholesale Prices, June, 1929, to 1933.*

EXHIBIT 10

INDEX OF WHOLESALE PRICES BY GROUPS OF COMMODITIES, 1913–1936

(1926 = 100)

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
All commodities	69.8	68.1	69.5	85.5	117.5	131.3	138.6	154.4	97.6	96.7	100.6	98.1
All commodities, other than farm products and foods	70.0	66.4	68.0	88.3	114.2	124.6	128.8	161.3	104.9	102.4	104.3	99.7
Nonagricultural commodities	69.0	66.8	68.5	85.3	113.1	125.1	131.6	154.8	100.1	97.3	100.9	97.1
Raw materials	68.8	67.6	67.2	82.6	122.6	135.8	145.9	151.8	88.3	96.0	98.5	97.6
Semimanufactured articles	74.9	70.0	81.2	118.3	150.4	153.8	157.9	198.2	96.1	98.9	118.6	108.7
Finished products	69.4	67.8	68.9	82.3	109.2	124.7	130.6	149.8	103.3	96.5	99.2	96.3
Farm products	71.5	71.2	71.5	84.4	129.0	148.0	157.6	150.7	88.4	93.8	98.6	100.0
Foods	64.2	64.7	65.4	75.7	104.5	119.1	129.5	137.4	90.6	87.6	92.7	91.0
Building materials	56.7	52.7	53.5	67.6	88.2	98.6	115.6	150.1	97.4	97.3	108.7	102.3
Chemicals and drugs	80.2	81.4	112.0	160.7	165.0	182.3	157.0	164.7	115.0	100.3	101.1	98.9
Fuel and lighting materials	61.3	56.6	51.8	74.3	105.4	109.2	104.3	163.7	96.8	107.3	97.3	92.0
Hides and leather products	68.1	70.9	75.5	93.4	123.8	125.7	174.1	171.3	109.2	104.6	104.2	101.5
House-furnishing goods	56.3	56.8	56.0	61.4	74.2	93.3	105.9	141.8	113.0	103.5	108.9	104.9
Metals and metal products	90.8	80.2	86.3	116.5	150.6	136.5	130.9	149.4	117.5	102.9	109.3	106.3
Textile products	57.3	54.6	54.1	70.4	98.7	137.2	135.3	164.8	94.5	100.2	111.3	106.7
Miscellaneous	93.1	89.9	86.9	100.6	122.1	134.4	139.1	167.5	109.2	92.8	99.7	93.6

EXHIBIT 10 (*Continued*)

INDEX OF WHOLESALE PRICES BY GROUPS OF COMMODITIES, 1913–1936

(1926 = 100)

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
All commodities	103.5	100.0	95.4	96.7	95.3	86.4	73.0	64.8	65.9	74.9	80.0	80.8
All commodities, other than farm products and foods	102.6	100.0	94.0	92.9	91.6	85.2	75.0	70.2	71.2	78.4	77.9	79.6
Nonagricultural commodities	101.4	100.0	94.6	94.8	93.3	85.9	74.6	68.3	69.0	76.9	80.2	80.7
Raw materials	106.7	100.0	96.5	99.1	97.5	84.3	65.6	55.1	56.5	68.6	77.1	79.9
Semimanufactured articles	105.3	100.0	94.3	94.5	93.9	81.8	69.0	59.3	65.4	72.8	73.6	75.9
Finished products	100.6	100.0	95.0	95.9	94.5	88.0	77.0	70.3	70.5	78.2	82.2	82.0
Farm products	109.8	100.0	99.4	105.9	104.9	88.3	64.8	48.2	51.4	65.3	78.8	80.9
Foods	100.2	100.0	96.7	101.0	99.9	90.5	74.6	61.0	60.5	70.5	83.7	82.1
Building materials	101.7	100.0	94.7	94.1	95.4	89.9	79.2	71.4	77.0	86.2	85.3	86.7
Chemicals and drugs	101.8	100.0	96.8	95.6	94.2	89.1	79.3	73.5	72.6	75.9	80.5	80.4
Fuel and lighting materials	96.5	100.0	88.3	84.3	83.0	78.5	67.5	70.3	66.3	73.3	73.5	76.2
Hides and leather products	105.3	100.0	107.7	121.4	109.1	100.0	86.1	72.9	80.9	86.6	89.6	95.4
House-furnishing goods	103.1	100.0	97.5	95.1	94.3	92.7	84.9	75.1	75.8	81.5	80.6	81.7
Metals and metal products	103.2	100.0	96.3	97.0	100.5	92.1	84.5	80.2	79.8	86.9	86.4	87.0
Textile products	108.3	100.0	95.6	95.5	90.4	80.3	66.3	54.9	64.8	72.9	70.9	71.5
Miscellaneous	109.0	100.0	91.0	85.4	82.6	77.7	69.8	64.4	62.5	69.7	68.3	70.5

Source: *Survey of Current Business;* and U. S. Bureau of Labor Statistics, Bulletin 521, *Wholesale Prices, 1929,* and monthly bulletin on *Wholesale Prices* for October, 1937.

materials had declined least from the June, 1929, level and that the prices of farm products had again declined most.

In Exhibit 9, a frequency distribution is presented of the percentage changes from June, 1929, to February, 1933, of the individual commodities in the U. S. Bureau of Labor Statistics index.

Exhibit 10 shows the index numbers of wholesale prices by groups of commodities from 1913 to 1936.

5. Freeport Sulphur Company

POLICY OF LONG-RUN PRICE STABILITY

The Freeport Sulphur Company, the second largest producer of brimstone in the world, from time to time instituted research into the uses of sulphur with a view to determining the probable effect of price changes on the quantity that would be sold and on the ultimate welfare of the company. One such analysis was made in the spring of 1939, partly because of the company's interest in the problem and partly in preparation for testimony to be taken in connection with the investigation by the Temporary National Economic Committee.[1] The survey confirmed the executives of the Freeport Sulphur Company in their opinion that a fluctuating sulphur price would not benefit the company, the company's customers, or the public at large.

World consumption of sulphur from all sources, including pyrites, metallurgical gases, and so forth, in 1937 was estimated to have been 8,804,000 long tons. Of this, about 26% was used in the United States. There were five sources from which this sulphur was obtained. Listed in the order of their importance they were as follows:

1. Pyrites (an iron sulphide ore containing from 40% to 48% sulphur). Pyrites was produced in 23 countries, of which Spain and Japan were the most important. Pyrites served principally as a raw material for the production of sulphuric acid.
2. Native Sulphur (brimstone). Native sulphur was produced in 15 countries from naturally occurring ores containing elemental sulphur. There were various methods of production. In the Gulf Coast deposits of the United States, the Frasch hot-water process was used and a product

[1] The TNEC was created by a joint resolution of Congress on June 16, 1938. Public hearings before the Committee began on December 1, 1938; and the first testimony about the sulphur industry was taken on March 14, 1939.

EXHIBIT 1

SOURCES OF SULPHUR CONSUMED IN THE WORLD, 1937

(Long tons)

Producing Country	Pyrites	Native Sulphur		Smelter Gases	Manufactured Gases	Petroleum Refinery Gases	Total
		Frasch Process	Other Processes				
Algeria	12,466						12,466
Australia	40,000			*			40,000
Belgium				110,000	3,209		113,209
Bolivia			2,000				2,000
Canada	54,595			64,167			118,762
Chile			27,598				27,598
China and Chosen	6,000		3,000				9,000
Cyprus	182,000						182,000
Finland	41,000						41,000
France	67,000			45,000			112,000
Germany	182,000			110,000	45,000		337,000
Great Britain				140,000	79,000		219,000
Greece	100,000		3,000				103,000
Italy	424,000		472,274				896,274
Japan	900,000		240,000	70,000			1,210,000
Java			12,400				12,400
Jugoslavia	68,000						68,000
Mexico			150				150
Norway	455,593						455,593
Poland	34,000			50,000			84,000
Portugal	297,021						297,021
Russia	300,000		30,000				330,000
Spain	1,077,489						1,077,489
Sweden	74,000			17,359			91,359
South Rhodesia	8,000						8,000
Turkey			2,721				2,721
United States	235,520	2,454,831	7,060	180,000	12,000	20,000	2,909,411
Union of South Africa	12,000						12,000
Others	29,000		3,965				32,965
Totals	4,599,684	2,454,831	804,168	786,526	139,209	20,000	8,804,418
Percentage of world total	52.3%	27.9%	9.1%	8.9%	1.6%	0.2%	100.0%

* Quantity unknown.
Source: Freeport Sulphur Company.

EXHIBIT 2

SOURCES OF SULPHUR CONSUMED IN THE UNITED STATES, 1937

	Percentage Distribution
1. Native sulphur—Gulf Coast (Frasch process)	71.7%
2. Native sulphur—Utah, California	0.3
3. Imported pyrites—472,000 tons (48% sulphur)	9.8
4. Domestic pyrites—526,000 tons (40% sulphur)	9.1
5. By-product smelter acid—834,000 tons—60° acid	7.9
6. Hydrogen sulphide from petroleum-refinery gases	0.9
7. By-product sulphur from manufactured gases	0.3
Total	100.0%

References: 1, 3, 4, 5. *Chemical & Metallurgical Engineering*, February, 1939.
2. *Minerals Yearbook*, 1938.
6, 7. From reported sizes of operating installation. No actual data published.
Source: Freeport Sulphur Company.

of a purity in excess of 99% was obtained. Elsewhere, especially in Italy and Japan, flotation, melting, or distillation processes were employed.

3. Smelter Gases. The roasting of sulphide ores for the production of copper and zinc yielded enormous tonnages of sulphur as sulphur dioxide. Economic considerations prevented the recovery of all this sulphur, but enough was recovered to make smelter gases an important source of sulphur. Although some elemental sulphur was produced, most of the sulphur was recovered as sulphuric acid.

4. Manufactured Gases. Production of gaseous fuels from coke, coal, and lignite was accompanied by the production of hydrogen sulphide from the sulphur content of these materials. This hydrogen sulphide, being a contaminant, had to be removed before the gases could be utilized. Processes for removing it resulted in the production of elemental sulphur or, finally, of sulphuric acid.

5. Petroleum Refinery Gases. Developments in petroleum-refining technique in the United States resulted in the necessity of removing hydrogen sulphide from gases to be further processed. This introduced a new source of sulphur in the United States, but authorities believed that it would not become important anywhere else.

Exhibit 1 shows the relative importance of each of these sources of sulphur in the major producing countries of the world. A tabulation of the source of the sulphur consumed in the United States is given in Exhibit 2.

The Freeport Sulphur Company produced about 30% of the native sulphur, or brimstone, mined in the United States. The largest producer, the Texas Gulf Sulphur Company, mined nearly two-thirds of the total. Together these two companies produced more than 70% of the world's elemental sulphur. About 30% of the output of the Freeport Sulphur Company was exported through an export sales company jointly owned by the Freeport and Texas Gulf companies. The sales of this exporting company were allocated equally between the two.

In order to gauge the probable effect of a change in price on the consumption of sulphur, the Freeport Sulphur Company in its 1939 survey made an analysis of the demand for sulphur in the following industries: fertilizer, paper, rubber, rayon, petroleum, iron and steel, paint, and nonclassified chemicals.

To illustrate the type of analysis which the company made, the portion of the report devoted to the use of sulphur in the fertilizer industry is quoted in its entirety:

SULPHUR IN FERTILIZER

The consumption of fertilizer materials in 1937 reached a peak along with total sulphur consumption, and a consideration of the best available estimates for 1937 gives a good idea of the importance of fertilizers as a sulphur outlet.

Native Sulphur	Long Tons Consumed	
Superphosphate	320,000	
Ammonium sulphate	111,000	
	431,000 tons	—Equal to 26% of the native sulphur consumed in U. S. in 1937
Sulphur from Pyrites and Smelter Gases		
Superphosphate	172,000	
Ammonium sulphate	55,000	
	227,000	
Total	658,000 tons	—Equal to 29% of total sulphur from all sources consumed in U. S. in 1937

Superphosphate. The production of one ton of standard grade superphosphate (i.e., 16% available P_2O_5) requires 0.53 tons of 50° Be. sulphuric acid, which is equivalent to about 224 pounds of sulphur. Superphosphate currently sells at $8.25 per ton. With sulphur at $16 per long ton, the cost of the sulphur used in the production of one ton of superphosphate is $1.60, or 19.4% of the selling price.

To be more realistic, delivery costs should be added to the price of sulphur. At an average combination acid-fertilizer plant where sulphur delivers for, say, $21 per ton, sulphur cost is a large item of the total production cost. The different items making up the cost of 2.17 short tons of 16% A.P.A. superphosphate and the corresponding figures for the cost of one ton follow:

Items	Cost for 2.17 Tons	% of Total	Cost for 1 Ton
1 long ton 70% B.P.L. *Phosphate Rock* at $3.25 mines plus $3.00 freight	$ 6.25	41.5%	$2.88
1.07 short ton 50° Be. H_2SO_4 requiring 460 lb. *Sulphur* at $21 per ton	4.32	28.7	1.99
Acid Production Cost—$2.65 per ton 100% H_2SO_4 equivalent to $1.65 per ton 50° Be	1.76	11.7	0.81
Processing Cost—Above raw materials yield 1.82 tons 19% A.P.A. superphosphate at $1.50 per ton processing	2.73	18.1	1.26
Total	$15.06	100.0%	$6.94

Various mine prices for sulphur would affect these costs as follows:

Mine Price of Sulphur	Superphosphate Cost per Ton	Sulphur Cost* per Ton of Superphosphate	Sulphur Cost* as % of Total Cost
$16	$6.94	$1.99	28.7%
14	6.75	1.80	26.6
12	6.56	1.61	24.5
10	6.37	1.42	22.3

* Includes delivery expense of $5 per ton.

A price reduction in sulphur from $16 to $10 f.o.b. mines would reduce the sulphur cost item from $4.32 to $3.08 and would reduce the cost of superphosphate from $6.94 to $6.37 per ton. The sulphur cost at $10 per ton would be 22.3% of production cost instead of 28.7% at $16 per ton. These figures indicate that scaling down the price of sulphur would have relatively little effect on superphosphate cost.

Ammonium Sulphate $(NH_4)_2SO_4$. Ammonium sulphate is manufactured as a by-product in the coking of coal. The quoted prices of ammonium sulphate, as collected by the Bureau of Mines, have been as follows:

	(Per 100 lb.)
1934	$1.23
1935	1.20
1936	1.26
1937	1.39

At a $16 mine price, sulphur accounts for 14.7% of ammonium sulphate cost at $25 per ton. The following figures show that reductions in the price of sulphur would result in only a slight decrease in ammonium sulphate cost, the decrease being smaller than the variations in price caused by conditions in the industry itself.

Mine Price of Sulphur	$(NH_4)_2SO_4$ Cost per Ton	Sulphur Cost per Ton of $(NH_4)_2SO_4$	Sulphur Cost as Percentage of Total Cost
$16	$25.00	$3.68	14.7%
14	24.54	3.22	13.1
12	24.08	2.76	11.5
10	23.62	2.30	9.7

How a Change in Sulphur Price Would Affect the Farmer. An average cotton farmer in North Carolina, South Carolina, Georgia, or Alabama uses about 250 pounds of 3-8-3 fertilizer per acre. The numbers designating the fertilizer refer, respectively, to the nitrogen, phosphate, and potash contents. This fertilizer has been quoted at $16.72 per ton.

One ton of 3-8-3 would contain

240 lb. $(NH_4)_2SO_4$	=	62 lb. sulphur
1000 lb. superphosphate	=	112 lb. sulphur
		174 lb. sulphur

The 250 lb. of 3-8-3, therefore, would contain 22 lb. of sulphur. At various mine prices per long ton of sulphur, this would cost, per acre, as follows:

Mine Price of Sulphur	Cost of Sulphur per Acre
$16	15.7 cents
14	13.7
12	11.8
10	9.8

A farmer with 200 acres would have a fertilizer bill of about $400 at present prices. Other prices remaining the same, a cut in sulphur to $10 f.o.b. mines would save him $12, or about 3% of his fertilizer bill.

Between the sulphur producer and the farmer are the acid producer, fertilizer manufacturer, mixing plant, and local dealer, all of whom might cut in on the reduction. It is true that an integrated fertilizer plant would eliminate most of these middlemen, but the farmer would still be on the end of the line; and even if he were given the entire benefit of the possible savings, these savings would not be sufficient to stimulate further fertilizer consumption—nor to solve "the farm problem."

The results of the analyses of the other industries were summarized as follows:

Paper and Pulp. The sulphur content of pyrites can be delivered to certain Canadian paper mills for half the price of mined sulphur. These mills continue to use mined sulphur, however, because of its technical advantages and the reliability of the supply.

The amount of sulphur currently being used in the production of paper is the result of technical study and is independent of the price of sulphur. No more or no less could be used and still obtain the same results.

Various prices of sulphur would affect the cost of production of sulphite pulp and newsprint as follows:

Mine Price of Sulphur	Sulphur Cost per Ton of Sulphite Pulp	Sulphur Cost per Ton of Newsprint	Sulphur Cost as Percentage of Selling Price of Newsprint at $50 per Ton
$16	$1.79	38 cents	0.76%
14	1.56	31	0.62
12	1.34	27	0.54
10	1.12	22	0.44

In the past 10 years, the price of newsprint has varied from $62 to $40 per ton because of conditions within the industry. The price of sulphur is therefore far less important than other factors affecting the price of newsprint. So far as the pulp and paper industry is concerned, it can be concluded that the amount of sulphur used is independent of any price of sulphur within the range of $10 to $20 per long ton f.o.b. mines.

Rubber. Sulphur is an essential raw material, and there is no available substitute for it in the vulcanization process. The cost of the quantity used in the production of an average tire represents but 3/100 of 1% of the selling price.

Rayon. At a mine price of $16 per long ton, the cost of sulphur in a pound of viscose rayon is about 8/10 of 1 cent; this is about 10% of the total cost of the raw materials, but is less than 2% of the current selling price of 50 cents per pound. While the production of viscose rayon has increased from 70,000,000 pounds in 1927 to 325,000,000 pounds in 1937, the price has been reduced from $1.50 per pound to 50 cents per pound. A reduction in the price of sulphur at the present time from $16 at the mines to $10 would allow a reduction in the price of rayon of only 3/10 of

1 cent per pound if the total reduction in sulphur price were passed on to the final customer.

Petroleum. During the last 15 years, the amount of sulphur consumed by the petroleum industry for each barrel of oil has fluctuated widely as the technical processes have been rapidly changed. The amount of sulphur used always depends upon the chemical requirements and not upon cost.

EXHIBIT 3

FREEPORT SULPHUR COMPANY

Net Earnings and Investment 1919–1938

Year Ended	Capital Stock	Earned Surplus	Paid-in Surplus	Total Investment	Net Profit or Loss after All Surplus Adjustments
November 30, 1919	$3,500,000	$4,677,001	.....	$ 8,177,001	$1,064,218*
November 30, 1920	3,500,000	5,212,455	.....	8,712,455	535,454
November 30, 1921	3,500,000	4,720,027	.....	8,220,027	492,428*
November 30, 1922	7,323,022	4,466,530	.....	11,789,552	253,497*
November 30, 1923	7,323,022	5,236,640	.....	12,559,662	770,110
November 30, 1924	7,323,022	4,673,119	.....	11,996,141	563,521*
November 30, 1925	7,323,022	5,423,428	.....	12,746,450	750,309
November 30, 1926	7,323,022	6,034,519	.....	13,357,541	611,091
November 30, 1927	7,323,022	6,751,507	.....	14,074,529	3,818,825
November 30, 1928	7,323,022	5,239,015	.....	12,562,037	3,231,494
December 31, 1929†	7,323,022	3,357,641	.....	10,680,663	2,497,690
December 31, 1930	7,323,022	2,903,370	.....	10,226,392	2,465,105
December 31, 1931	7,323,022	3,179,199	.....	10,502,221	1,917,978
December 31, 1932	7,323,022	3,749,957	.....	11,072,979	2,030,445
December 31, 1933	9,428,238	4,603,118	$1,135,980	15,167,336	2,478,840
December 31, 1934	9,193,905	4,415,105	1,370,313	14,979,323	1,477,090
December 31, 1935	9,193,905	5,037,038	1,370,313	15,601,256	1,492,109
December 31, 1936	9,193,905	5,962,239	1,370,313	16,526,457	1,795,378
December 31, 1937	9,193,905	7,397,616	1,370,313	17,961,834	2,793,742
December 31, 1938	7,963,800	7,264,787	1,370,313	16,598,900	1,506,059

* Red figures.
† Thirteen months.
Source: Freeport Sulphur Company.

Currently about $\frac{4}{10}$ of 1 pound of sulphur is used per barrel of crude oil, the products of which have a market value of about $3. At $16 per long ton, the cost of sulphur is less than $\frac{1}{10}$ of 1% of this market value.

Iron and Steel. Although accurate figures are not available, indications are that the equivalent of about 18 pounds of sulphur are used per ton of pickled steel. In 1937, the average quotation for a ton of finished steel was $51, so that the cost of sulphur used in its production would represent less than $\frac{1}{4}$ of 1% of its market value.

Paint and Varnish. In the production of lithopone and titanium, two pigments used in the paint industry, sulphur represents but 1.4% and 2.9% of the market value, respectively. Since these are only pigments, the percentage to the market value of paint is even less.

EXHIBIT 4

SULPHUR CONSUMED IN THE UNITED STATES, 1927–1937, BY USES

(Long tons)

Use	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Chemicals	523,000	555,000	598,000	504,000	355,000	321,000	491,000	512,000	555,000	620,000	777,000
Fertilizers and insecticides	300,000	245,000	415,000	418,000	254,000	155,000	242,000	247,000	239,000	266,000	415,000
Pulp and paper	260,000	250,000	265,000	235,000	178,000	153,000	197,000	176,000	204,000	260,000	302,000
Explosives	65,000	60,000	67,000	48,000	39,000	27,000	37,000	43,000	42,000	53,000	68,000
Dyes and coal-tar products	40,000	42,000	47,000	41,000	39,000	34,000	40,000	34,000	39,000	46,000	49,000
Rubber	35,000	40,000	43,000	31,000	23,000	18,000	24,000	30,000	33,000	39,000	37,000
Paint and varnish	5,000	5,000	5,000	4,500	4,000	4,000	4,000	4,000	48,000	54,000	64,000
Food products	3,000	5,000	5,000	4,500	4,700	4,000	4,000	4,000	4,000	4,500	6,000
Miscellaneous	118,000	123,000	136,700	110,600	72,000	40,000	75,000	60,000	68,500	78,000	82,000
Total	1,349,000	1,325,000	1,581,700	1,396,600	968,700	756,000	1,114,000	1,110,000	1,232,500	1,420,500	1,800,000

Source: Testimony by Dr. Montgomery before the Temporary National Economic Committee; data taken from *Minerals Yearbook*.

Nonclassified Chemicals. Most of the sulphur going into nonclassified chemicals is used as sulphuric acid for the production of sodium sulphate, aluminum sulphate, copper sulphate, niter cake, and various less important

EXHIBIT 5

SELECTED INDICES OF WHOLESALE PRICES, AND PRICE OF SULPHUR AT THE MINE, 1913–1938

Year	Wholesale Price Indices (1926 = 100)		Price of Sulphur at Mine (Dollars per long ton)
	All Commodities Other than Farm Products and Food	Chemicals	
1913	70.0	89.4	$18.25
1914	66.4	91.0	18.25
1915	68.0	127.8	18.25
1916	88.3	196.9	24.00
1917	114.2	187.6	31.75
1918	124.6	187.3	32.50
1919	128.8	145.8	21.00
1920	161.3	166.5	16.00
1921	104.9	108.9	14.00
1922	102.4	97.2	14.00
1923	104.3	100.6	14.00
1924	99.7	102.2	14.00
1925	102.6	104.1	16.00
1926	100.0	100.0	18.00
1927	94.0	99.6	18.00
1928	92.9	100.5	18.00
1929	91.6	99.1	18.00
1930	85.2	93.7	18.00
1931	75.0	83.0	18.00
1932	70.2	79.5	18.00
1933	71.2	79.6	18.00
1934	78.4	79.6	18.00
1935	77.9	86.9	18.00
1936	79.6	87.2	18.00
1937	85.3	89.9	18.00
1938	81.7	81.6	18.00*

* In October, 1938, the price was reduced to $16 a long ton.
Sources: Wholesale price indices from publications of the U. S. Bureau of Labor Statistics. Price of sulphur from Freeport Sulphur Company.

chemicals. It is not considered necessary to go into any description of the costs of production of these chemicals since in all cases sulphuric acid is used because it is the cheapest reagent available for the purpose.

In 1926, the price of sulphur had been established at $18 per long ton f.o.b. the mines and had remained unchanged until the autumn of 1938. The management of the Freeport Sulphur Company believed that there was evidence to show that the purchasers of sulphur liked the stable price system. Under this system, sulphur purchasers found it unnecessary to take inventory losses on sulphur. The constant availability of supply made it easy for customers to obtain sulphur and unnecessary for them to carry large stocks.

Throughout the 12 years in which the $18 price was in effect, all the major producers of brimstone had sold at the same price. Then, in September, 1938, the Freeport Sulphur Company learned of a reduction in price by competitors and shortly thereafter announced a price reduction to $16 per ton to meet the competition.

A statement of the Freeport Sulphur Company's net earnings and investment from 1919 through 1938 is given in Exhibit 3. Exhibit 4 shows the consumption of sulphur in the United States by industries from 1927 through 1937. Exhibit 5 shows the U. S. Bureau of Labor Statistics indices of wholesale prices of nonagricultural commodities and of chemicals, together with the quoted price of sulphur at the mine, from 1913 through 1938.

Did the Freeport Sulphur Company follow a sound pricing policy?

C. BANKING AND MONETARY POLICIES

6. Bank Credit and Business Cycles

Money Supply, Velocity of Circulation, and Interest Rates

I

Most economists state that the banking system can expand (contract) the quantity of money by increasing (decreasing) its loans and investments.[1] Some bankers, looking at the operations of a single bank, deny the truth of this proposition and contend that a bank cannot create additional money, but can merely lend or invest part of such (already existing) money as is deposited in the bank.

The merits of the proposition may be studied under simplified conditions. Suppose that there are only two banks in an isolated

[1] The word "money" is interpreted to mean "media of exchange" or "means of payment" and to include, therefore, if not all bank deposits, at least those in checking accounts.

economy; that the people keep half their money in their pockets and half in checking accounts in the banks. Let partial balance sheets of the banks be:

Assets:	Bank *A*	Bank *B*
Cash	$ 25,000,000	$15,000,000
Loans	30,000,000	10,000,000
Liabilities:		
Deposits	$100,000,000	$30,000,000

The total deposits of the two banks equal $130,000,000. Under the assumption that the people keep half their money in their pockets and half in banks, they will have $130,000,000 in currency. The total amount of what would certainly be described on the balance sheets of the people as "Cash" will be $260,000,000.

Let Bank *B* increase its loans by $5,000,000. At the moment the loans are negotiated, the borrowers will be credited with the amount of the loans. Bank *B*'s balance sheet will be:

Assets:	
Cash	$15,000,000
Loans	15,000,000
Liabilities:	
Deposits	35,000,000

The borrowers draw checks for $4,000,000. Let all the checks be drawn in favor of persons with deposits in Bank *A*. Bank *B* will lose $4,000,000 (in clearings) to Bank *A*, and the balance sheets will be:

Assets:	Bank *A*	Bank *B*
Cash	$ 29,000,000	$11,000,000
Loans	30,000,000	15,000,000
Liabilities:		
Deposits	$104,000,000	$31,000,000

Bank *A*, taking account of the fact that its cash, which was already large, is increasing because of the increase in its deposits, increases its loans by $6,000,000. At the moment after the new loans are made, its balance sheet will read:

Assets:	
Cash	$ 29,000,000
Loans	36,000,000
Liabilities:	
Deposits	110,000,000

The borrowers then check out $5,000,000 of the newly borrowed funds, drawing checks in favor of persons who have deposits in Bank *B*. Bank *A* will meet adverse clearings in the amount of $5,000,000, and then the balance sheets of the two banks will be:

Assets:	Bank *A*	Bank *B*
Cash	$ 24,000,000	$16,000,000
Loans	36,000,000	15,000,000
Liabilities:		
Deposits	105,000,000	36,000,000

Let the people in the community become aware that the 50-50 distribution of money between their pockets and their bank accounts has been upset. They still have the original $130,000,000 in their pockets, and they now have $141,000,000 in the banks. They draw checks therefore in favor of themselves, to transfer some funds from bank accounts to pockets. From Bank *A* they withdraw $4,125,000; from Bank *B*, $1,375,000. (These amounts are roughly proportionate to the deposits in each bank.) The bank balance sheets then are:

	Bank *A*	Bank *B*
Assets:		
Cash	$ 19,875,000	$14,625,000
Loans	36,000,000	15,000,000
Liabilities:		
Deposits	100,875,000	34,625,000

The public now have $135,500,000 in their pockets and $135,500,000 in bank deposits, totaling $271,000,000. Inasmuch as they had only $260,000,000 in the beginning, the questions now are: Of what does the $11,000,000 consist? Is it money? Where did it come from?

II

Exhibits 1, 2, and 3 present, for the period 1929–1934, year-end balance sheets of three banks, the National City Bank of New York (New York), the National Bank of Commerce (Houston, Texas), and the First National Bank of Englewood (Chicago, Illinois).

At the meetings of the American Bankers Association held in Chicago in September, 1933, Jesse H. Jones, Chairman of the Reconstruction Finance Corporation said in part:

> Probably the greatest obstacle in the NRA program would be the failure of banks to extend available credit—credit for every unit in our economic structure—the average man—butcher, baker, candlestick maker. Many of these bank lines have been taken away and cannot be too easily reestablished, but the banker should make every effort to rebuild these units. The period of liquidation is over and a great deal can be done in this respect if the banks will set themselves to the task. The Blue Eagle should be on the vault door as well as on the bank window, and while the first requirement in banking must be safety for depositors, all business has its place—big and little—from farm to factory, from the peanut vendor to the biggest business establishment, and no community can prosper if its banks fail to supply local credit.
>
> Bank deposits must finance business, and banks that are over-liquid should reverse their policies and take a constructive part in the recovery program. Hoarders of available credit are little better than hoarders of currency. By no stretch of the imagination can a solvent bank need more than 50% liquidity, and 40% should be a plenty. Calling loans and forcing liquidation, as some highly liquid banks have done, and are still

EXHIBIT 1

COMPARATIVE BALANCE SHEET OF THE NATIONAL CITY BANK OF NEW YORK
NEW YORK, NEW YORK

James H. Perkins, Chairman of Board. Gordon S. Rentschler, President

(000 omitted)

December 31	1929	1930	1931	1932	1933	1934
Assets						
Cash and Due from Banks	$ 437,125	$ 391,218	$ 358,195	$ 300,619	$ 364,532	$ 450,286
Loans, Discounts and Acceptances	1,245,424	1,015,388	913,237	619,791	497,027	482,835
U. S. Government Bonds and Certificates	178,466	177,466	250,612	364,537	228,936	431,938
State and Municipal Bonds	24,685	21,974	8,486	52,809	66,054	63,857
Stock in Federal Reserve Bank	6,600	6,600	6,600	6,600	6,600	6,600
Other Bonds and Securities	74,467	82,048	106,892	120,371	65,141	71,661
Ownership of International Banking Corporation	6,000	8,000	8,000	8,000	8,000	8,000
Bank Premises	34,953	52,348	61,523	59,842	56,654	58,162
Items in Transit with Branches	22,964	33,846	9,846	10,350	20,001	
Customers' Liability Account of Acceptances	165,163	148,092	126,850	66,297	68,839	56,678
Other Assets	10,394	7,265	7,734	6,045	5,055	10,094
Total	$2,206,241	$1,944,245	$1,857,975	$1,615,261	$1,386,839	$1,640,111
Liabilities						
Common Stock	$ 110,000	$ 110,000	$ 124,000	$ 124,000	$ 77,500	$ 77,500
Preferred Stock	.....	.....	.....	.....	50,000	50,000
Surplus	110,000	90,000	90,000	76,000	30,000	30,000
Undivided Profits	19,650	24,555	11,347	5,454	5,088	8,273
Deposits	1,649,554	1,460,031	1,418,703	1,299,378	1,117,159	1,394,604
Liability as Acceptor, et cetera	292,164	237,026	166,721	71,634	73,879	65,780
Circulation	100	.....	.....	2,000	25,000	
Reserve for Unearned Interest	6,156	4,203	4,411	1,654	2,245	2,214
Reserve for Interest, Taxes, et cetera	8,394	9,934	11,059	5,240	4,418	4,258
Preferred Dividends Payable	.....	.....	.....	.....	.....	1,005
Common Dividends Payable	3,465	.....*	6,200	3,100	1,550	3,100
Items in Transit with Branches	.....	.....	25,534	.....	.....	3,377
Contingencies	6,758	8,496	.....	26,801		
Total	$2,206,241	$1,944,245	$1,857,975	$1,615,261	$1,386,839	$1,640,111

* Included in Reserve for interest, taxes, etc.

Source: Poor's *Bank, Government, and Municipal Volume*, 1932, 1935.

doing, breaks men's hearts, destroys values, often the savings of a lifetime and creates unemployment. Certainly there is no reason why this policy should not now be reversed by the tightest of the tight. With the return of confidence and all the credit facilities available, banks can adopt a fair and helpful lending policy without the slightest risk to their own situations.

Sound banking principles and the proper yardstick to apply in bank investments is a question in which we are all interested. It would be very

EXHIBIT 2

COMPARATIVE BALANCE SHEET OF THE NATIONAL BANK OF COMMERCE HOUSTON, TEXAS

Jesse H. Jones, Chairman of Board. A. D. Simpson, President

(000 omitted)

December 31	1929	1930	1931	1932	1933	1934
Assets						
Cash and Due from Banks	$ 4,228	$ 5,639	$ 7,384	$ 7,573	$ 6,971	$13,678
Loans and Discounts	7,371	7,085	10,626	8,934	7,941	8,456
U. S. Government Bonds	1,862	1,737	2,057	3,193	6,308	8,696
Other Bonds and Securities	987	1,597	2,621	2,349	2,897	2,071
Federal Reserve Bank Stock	90	90	90	90	90	165
Bank Premises, Furniture and Fixtures	1,660	1,883	1,853	1,824	1,893	1,851
Other Real Estate	.....	.....	.....	.....	.....	194
Other Assets	68	61	244	190	265	239
Total	$16,266	$18,092	$24,875	$24,153	$26,365	$35,350
Liabilities						
Common Stock	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Preferred Stock	.....	.....	.....	.....	.....	2,500
Surplus	2,000	2,000	2,000	2,000	2,000	2,000
Undivided Profits	434	534	205	225	225	225
Reserve for Interest, Taxes, and Dividends	275	305	417	645	811	769
Due to Banks	770	582	1,775	1,636	1,971	3,297
Circulation	500	500	1,000	974	987	981
Deposits	11,287	13,077	18,478	17,673	19,371	24,578
Other Liabilities	.....	94				
Total	$16,266	$18,092	$24,875	$24,153	$26,365	$35,350

Source: Poor's *Bank, Government, and Municipal Volume*, 1932, 1935.

helpful if this body could determine what constitutes sound banking for the average bank: what percentage of the bank's deposits should be liquid, what constitutes liquidity, and how and where the balance should be invested, whether in the community that furnishes the deposits, or in foreign securities which events have proven are no better in point of liquidity and, generally speaking, not as sound as local loans.

We have all been disappointed in our secondary reserve accounts and may assume that cash and governments are the items to be counted liquid. One of the worst sins of banking in recent years was this draining of deposits out of our country banks by investing in securities, foreign and otherwise; not necessarily bonds of foreign countries, but securities

foreign to the locality and foreign to good banking principles. Shall we repeat this, or shall we look more to the local or home unit?

With deposit insurance, there will not be the occasion for such extreme liquidity as some banks have felt necessary, and if 25, or 30, or 40, or even 50% liquidity could be adopted as sound constructive banking, bank management and bank supervision would have a standard to go by.

EXHIBIT 3

COMPARATIVE BALANCE SHEET OF THE FIRST NATIONAL BANK OF ENGLEWOOD
CHICAGO, ILLINOIS
J. M. Nichols, President
(000 omitted)

December 31	1929	1930	1931	1932	1933	1934
Assets						
Cash and Due from Banks	$1,379	$1,731	$2,297	$2,462	$2,883	$1,287
Loans and Discounts	2,389	1,630	672	594	675	630
U. S. Government Bonds	450	473	713	532	3,000	5,360
Other Bonds	3,130	3,548	2,696	1,695	381	
Stocks	34	34	34	34	34	34
Bank Premises, Furniture and Fixtures	75	72	69	66	60	51
Overdrafts	1	.....	.....	1		
Other Assets	61	65	54	36	48	60
Other Real Estate	.....	.....	.....	.....	170	211
Total	$7,519	$7,553	$6,535	$5,420	$7,251	$7,633
Liabilities						
Capital Stock	$ 200	$ 200	$ 200	$ 200	$ 200	$ 200
Surplus	600	600	600	600	600	600
Undivided Profits	139	146	149	149	151	153
Reserve for Taxes, Interest, et cetera	48	40	40	57	42	19
Circulation	5					
Deposits	6,512	6,559	5,546	4,413	6,257	6,657
Other Liabilities	15	8	.....	1	1	4
Total	$7,519	$7,553	$6,535	$5,420	$7,251	$7,633

Source: Poor's *Bank, Government, and Municipal Volume*, 1932, 1935.

In this connection the supervisors of banks—National and State—might well take stock of their standards and methods. Certainly, banks should have strict supervision; but continued criticism of sound loans that may be slow is discouraging to the banker, destroys his morale, and makes it difficult for him to accommodate his clientele.

And, too, there is inconsistency in one branch of the Government asking the banks to lend and to co-operate in the recovery program, while another branch insists upon further liquidation.

Banks can be perfectly sound even though they may accumulate a substantial amount of slow loans; and the mere fact that a loan stays in a bank for some time, even for several years, does not mean that it could not be collected on short notice if necessary. Therefore, such a loan, if well secured, should not be in the slow column.

Again, if we collect all of our loans and invest the money in Government bonds, we will find ourselves with one principal borrower—the United States Government—whose notes, in that situation, would be no better than the notes and investments we liquidated to buy the Government bonds.

I disagree with no one in the argument that there is not a plentiful supply of liquid loans, but what are we going to do about it? Will we continue to force liquidation or will we take the pressure off and allow our borrowers a little freedom and an opportunity to work out their problems, and probably to employ somebody and buy something?

Credit is the life-blood of business; and there can be no sustained prosperity, no return to normal conditions, without actual bank credit for all legitimate purposes.

We have made mistakes enough, and in all probability will make just as many in future; but let us not make the mistake of continuing the policy of drying up credit and forcing the Government further into the banking business.[1]

But a free lending policy was also criticized at the meetings. G. V. McLaughlin, President of the Brooklyn Trust Company and of the New York State Bankers' Association, spoke as follows:

. . . It has been said that we should not permit our banking system to become a football for speculators. To this I will add that neither should we permit it to become a football for politicians. . . .

. . . Bankers must defend their business and its policies against the more or less irresponsible remarks of various persons in public life and others whose words command publicity. Many of these gentlemen seem to feel free to "take a crack" at bankers regardless of whether they know the facts of the banking situation, and their remarks influence public opinion. Unless we answer them, our case at the bar of public opinion will be lost by default.

For example, the question of credit expansion is now very much in the public eye, and has been more or less so for the past two years. The cry has been raised, loudly and frequently, that banks are hindering business recovery by refusing to extend credit. Some financial news writers have been kind enough to answer for us by explaining that banks cannot extend credit beyond the legitimate demand for it without violating the principles of sound banking. Yet, I cannot recall that any banker (myself included) has ever come forward with any facts in defense of his policies.

My own institution, in common with other New York City banks, has been carrying excess reserves at the Federal Reserve Bank almost continuously for more than a year because we have more funds than we can safely loan or invest. In order to determine the cause of this situation, we made an analysis of all applications for business loans ranging from $2,000 upward received during the first eight months of this year.

The results answered the question as far as we were concerned. We found that the demand for business credit had shrunk 50% from the

[1] *Commercial and Financial Chronicle*, Vol. 137, No. 3561, September 23, 1933, American Bankers Convention Section, pp. 18–19.

corresponding period in the preceding year—which was itself a slack period. We also found that we had granted 81% of all the business credit applied for, and declined only 19%. I want to suggest that other bankers analyze all of their policies that come under criticism, and be prepared to answer critics with facts.[1]

III

Economists have long distinguished between the supply of money and its velocity of circulation. The supply of money is the

EXHIBIT 4

MONEY SUPPLY OF THE UNITED STATES, JUNE 30, 1921–1937

(Millions of dollars)

June 30	Adjusted Demand Deposits All Banks	Money in Circulation	Total Money
1921	$17,660	$3,698	$21,358
1922	18,464	3,362	21,826
1923	19,617	3,759	23,376
1924	20,325	3,662	23,987
1925	21,920	3,590	25,510
1926	22,428	3,623	26,051
1927	23,101	3,579	26,680
1928	23,256	3,643	26,899
1929	23,482	3,660	27,142
1930	22,729	3,381	26,110
1931	20,946	3,670	24,616
1932	16,275	4,634	20,909
1933	15,501	4,784	20,285
1934	18,603	4,684	23,287
1935	21,754	4,783	26,537
1936	26,220	5,222	31,442
1937	26,794	5,509	32,303

Source: Figures for June 30, 1921–1933, were published by Dr. Currie in *The Supply and Control of Money in the United States*, p. 33. The table subsequently was revised and brought up to June 30, 1937. It is the revised figures which are shown here.

more closely connected with the banking situation; that is, the supply of money is much more subject to the control of a central bank than is the velocity of circulation, which is much affected by psychological factors.

As to what constitutes the supply of money, Lauchlin Currie has written as follows:

[1] *Ibid.*, p. 19.

We may, in the first place, list cash as one of the constituents of money. The only *caveat* here is that it is only that cash which is in the hands of the people which should be so classified. . . . As our second constituent of money we may list demand deposits or deposits subject to check. . . .

Banks, it cannot be repeated too often, derive their peculiar economic significance not from the fact that they are lenders—there are many other

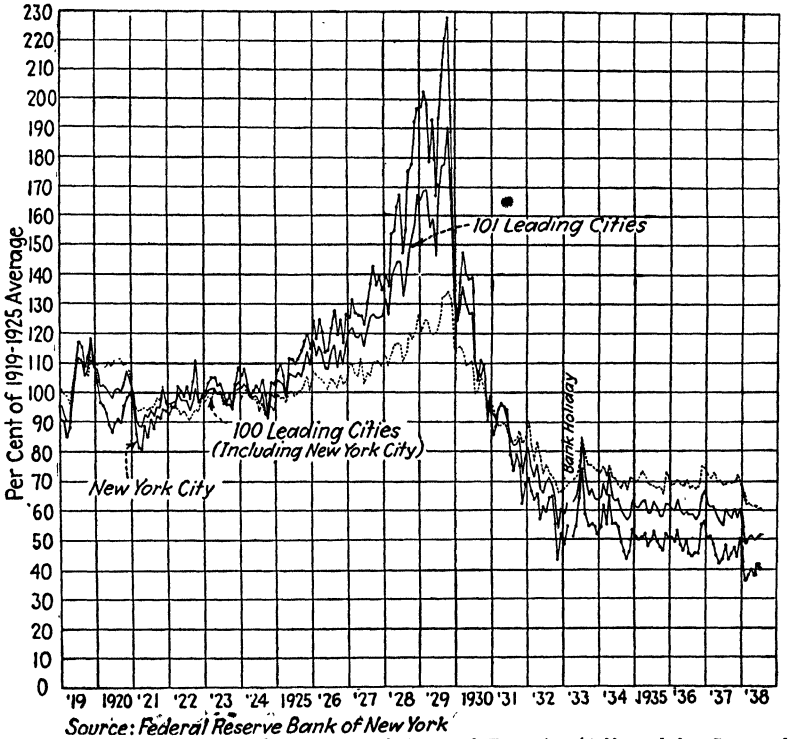


EXHIBIT 5.—Annual Rate of Turnover of Demand Deposits (Adjusted for Seasonal Variation).

lenders—but from the fact that they furnish, in modern countries, almost the entire supply of the community's means of payment. Hence there is ample justification for distinguishing those bank debts which are represented by demand deposits from all other debts. Loans, on the other hand, are not means of payment any more than houses or wheat. They must all be exchanged for demand deposits or cash before they can be "spent." . . .

The conclusion of this discussion is, then, that money will be understood to include only cash in the hands of the public, and, in this country, demand deposits, including government deposits, but excluding interbank deposits.[1]

[1] LAUCHLIN CURRIE, *The Supply and Control of Money in the United States* (Cambridge, Harvard University Press, 1934). Quoted by permission.

On the basis of this definition, Dr. Currie has estimated the supply of money in the United States from 1921 to 1937 as shown in Exhibit 4.

It is in the velocity of turnover of money that any marked variability in the effective supply of money is to be found. While we do not have information on the rate at which currency passes from hand to hand, we do have reasonably accurate figures on the rate of turnover of demand deposits (see Exhibit 5). Such figures suggest a considerable increase in turnover during the peak expansion period that terminated in 1929—the extraordinary increase in New York City being associated with stock market activity—and a substantially reduced turnover of deposits during depression years. Much of the high activity of prosperous times seems to be supported by increases in velocity rather than increases in bank loans; much of the slack in depression is taken up through a slowing down of turnover rather than a curtailment of money supply.

IV

The principal types of interest rates, listed in decreasing order of cyclical variability, are as follows[1]:

1. The stock exchange call-loan renewal rate in New York, which in the period from 1919 to 1934 varied from nearly 11% (monthly average of daily figures) to as low as 1% (see Exhibit 9). While call-money rates have shown a wide range of variability, they do not normally affect other bank rates much and they apply to only a very small portion of the total loanable bank funds of the country.

2. The rate on prime commercial paper (4 to 6 months), which varied over the period 1919–1934 from 8% to less than 1%.

3. The rediscount rate of the Federal Reserve Bank of New York, which varied from 7% to 1½% from 1919 to 1934.

4. The rate for prime bankers' acceptances, 90 days, which for the 1919–1934 period reached a high in 1920 of a little over 6% and a low in 1934 of about ¼ of 1%.

5. The line of credit of customers' rate, which is the characteristic and typical bank rate of the country. This rate varies according to the locality and wealth of the community and has ranged in the eastern money centers between about 7% and 3½%, with somewhat higher rates for the less desirable loans. For the great bulk of bank loans, the normal rate charged to customers varies relatively little from year to year. The variability is not in the normal rate but in arrangements that may be made, such as the amount of balance which the bank requires a customer to keep. Bank loans on real estate and mortgages are especially inflexible.

6. Yields on high-grade corporation bonds, which over the period 1919–1934 have varied between 7% and 3½%.

[1] See CARL SNYDER, "The Influence of the Interest Rate on the Business Cycle," *American Economic Review*, Vol. XV, No. 4, December, 1925, pp. 684–699.

7. The rate on real estate loans and farm mortgages, which has ranged, according to localities, from about 5% to 10%, but varies in each locality from year to year only within narrow limits.

8. The rate on credit extended on open account by manufacturers and sellers to their customers. This rate may vary from zero (the same price for cash and credit sales) to such high rates as a 5% discount for 60 days, which would amount to over 30% per annum. These rates of course are not paid if the purchaser is able to borrow or obtain money in any other way.

From the point of view of the volume of loanable funds, much the most important rates are those on bonds, real estate and farm mortgages, and line of credit loans; and it is these rates which vary least with the business cycle. The rates which vary substantially affect a relatively small portion of funds loaned; and the extremely variable rates, an even smaller proportion. To quote Mr. Snyder,

> What do vary widely, both in volume and rate, are the loans which belong to what are loosely termed the bankers' secondary reserves, that is, the most liquid types of loans obtainable of which the great bulk are loans on stocks and bonds. Inasmuch as, generally, commercial loans cannot easily be contracted without serious injury to business and inasmuch as it is the primary interest of the bankers to serve their steady customers, it follows naturally that the marginal and to a great extent the speculative types of loans are the most characteristically affected by any expansion or contraction of the demands for business. . . . As there is a more or less steady minimum demand for loans of this liquid type and in times of speculative activity an intense demand, rates of this type will run up in a fashion all out of proportion to the normal rates of business loans. . . .

V[1]

The operations of an individual institution engaged in a commercial banking business may be expected to trace a course determined largely by the relations between fluctuations in general bank credit and the other manifestations of the business cycle.

During the depression phase of the cycle, while unemployment is widespread, wages are falling, commodity prices are low, and industrial and commercial activities are slack, bank loans are declining, and reserves are mounting; in the later stages of the depression phase, an abundance of bank credit is available to finance reviving business and new enterprises, and the rate of interest is attractive to borrowers. As business expands and moves out of the trough of depression into the improvement phase, bank loans increase in volume; and an expansion of loans is accompanied by rising

[1] This section has been adapted from W. L. Crum and H. B. Vanderblue, "The Relations of a Commercial Bank to the Business Cycle," *Harvard Business Review*, Vol. III, No. 3, April, 1925, pp. 297–311.

deposits. The progress of business improvement carries industrial and trade activities into the prosperity phase, marked by productive operations on a scale at or approaching capacity, sharply rising commodity prices, heavy speculative commitments on commodities, and large orders for future delivery of equipment. This phase of the cycle witnesses continuing expansion in bank loans, featured by a slackening in the concurrent rise of deposits. In the later stages of this phase, bank reserves are drawn down, credit becomes scarce, and the rate of interest advances briskly.

If the pace of business is maintained in the face of these warnings, a credit stringency develops, financial crisis occurs, loans are called or their renewal is refused, the enforced abandonment of speculative commitments precipitates a collapse of commodity prices, business activities are discontinued or sharply curtailed, and the economic system enters upon a new depression phase. If the pace of business in the prosperity phase slackens before the actual development of credit stringency, the prosperity phase may shade into depression—or mild recession—without any of the abrupt manifestations of a crisis. Whether or not a crisis occurs, the decline of business activity to depression levels leads to a commencement and repetition of those phases of the credit cycle already described.

It should not be inferred that fluctuating credit conditions constitute the sole and sufficient cause of cyclical movements in business. The credit supply is but one of the forces which operate to produce the business cycle, and it may fairly be doubted whether cheap credit alone can lift business out of depression. Nor is the decline of business activity from prosperity invariably due to limitations in credit supply; but such limitations—although they may not actually take the form of a pronounced credit stringency—undoubtedly contribute to the curtailment of activity. Moreover, the role of credit in the business cycle does not arise necessarily from the form of our banking system; while variations in the lawful reserve requirements probably modify in a measure such a role, the general extension of credit at the close of depression and the restraint upon borrowing at the peak of prosperity are features of a policy dictated by sound banking doctrine resting upon abundant experience.

What bearing have the several phases of the credit cycle on the operations and the policy of an individual banking institution? If the loan and deposit accounts of a bank move in general conformity with similar series for the banking system as a whole, there is indication that the individual bank is going with the current, expanding its profitable operations in periods of sound credit

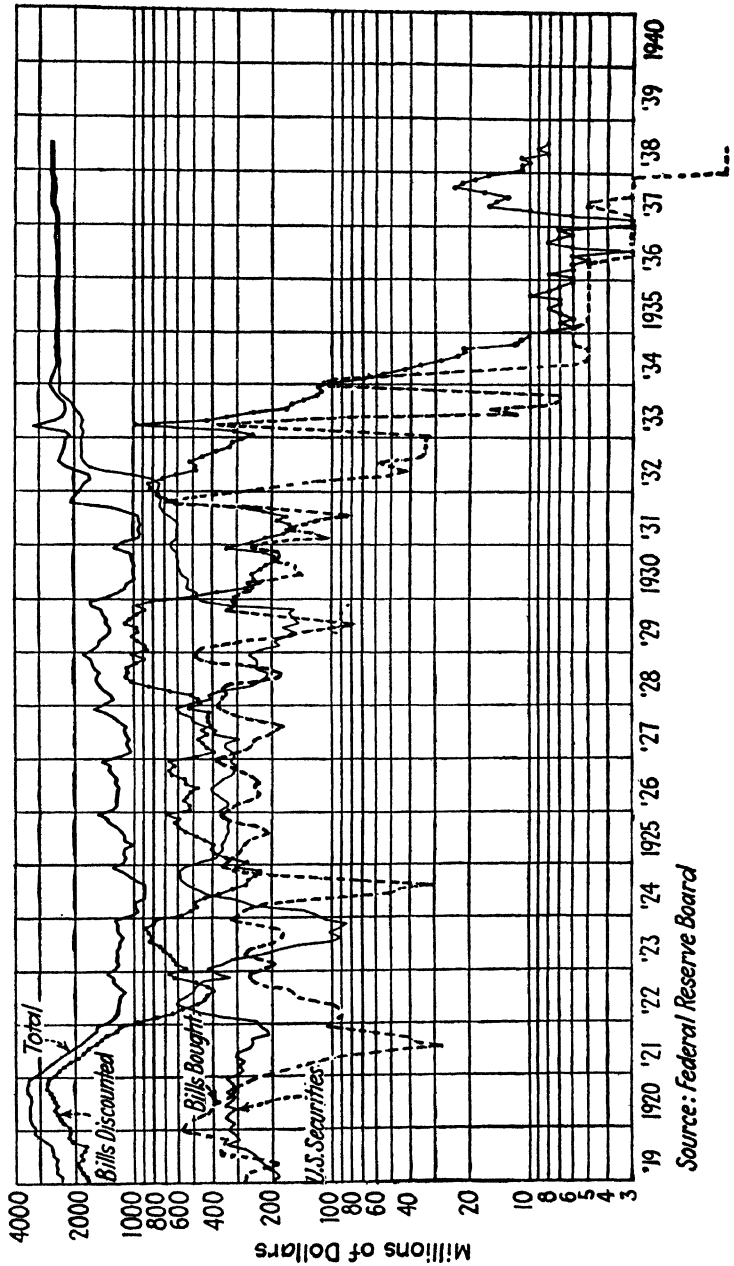
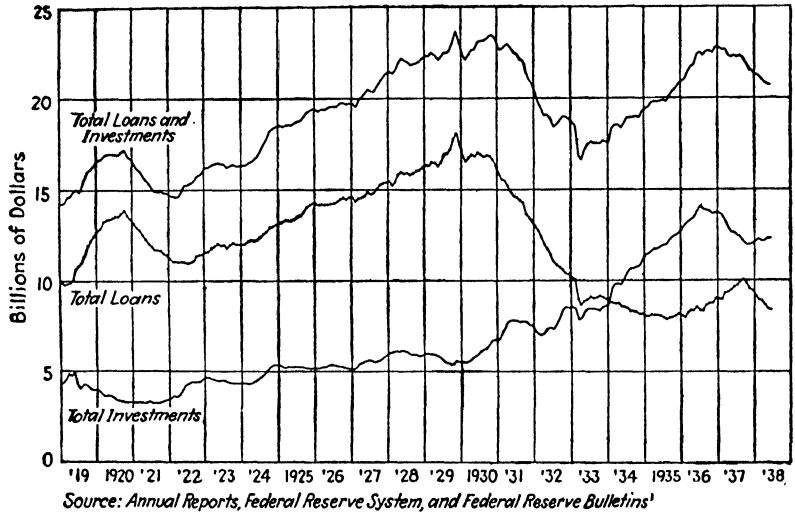


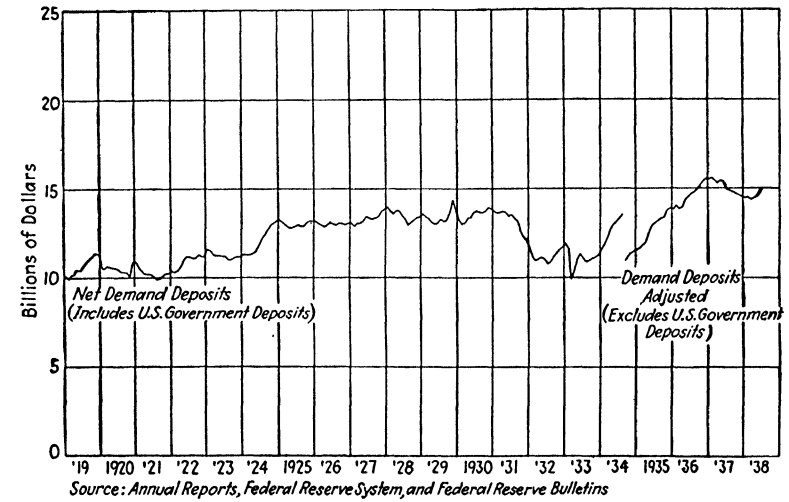
EXHIBIT 6.—Reserve Bank Credit Outstanding.

conditions and curtailing its accounts promptly and drastically during financial strain.



Source: Annual Reports, Federal Reserve System, and Federal Reserve Bulletins

EXHIBIT 7.—Loans and Investments of Reporting Member Banks in 101 Leading Cities.



Source: Annual Reports, Federal Reserve System, and Federal Reserve Bulletins

EXHIBIT 8.—Demand Deposits of Reporting Member Banks in 101 Leading Cities.

The management of a bank is especially tested at times of crisis. If its loan policy has been such that resources are not sufficiently liquid to meet the emergency demands of the crisis, its customers

suffer severe losses and the bank itself may be forced to close its doors. If, on the other hand, its operations have been regulated so that the arrival of financial strain finds it able to finance the exceptional requirements of its own customers and perhaps assist in carrying the load of other banks, it helps cushion the shock of the

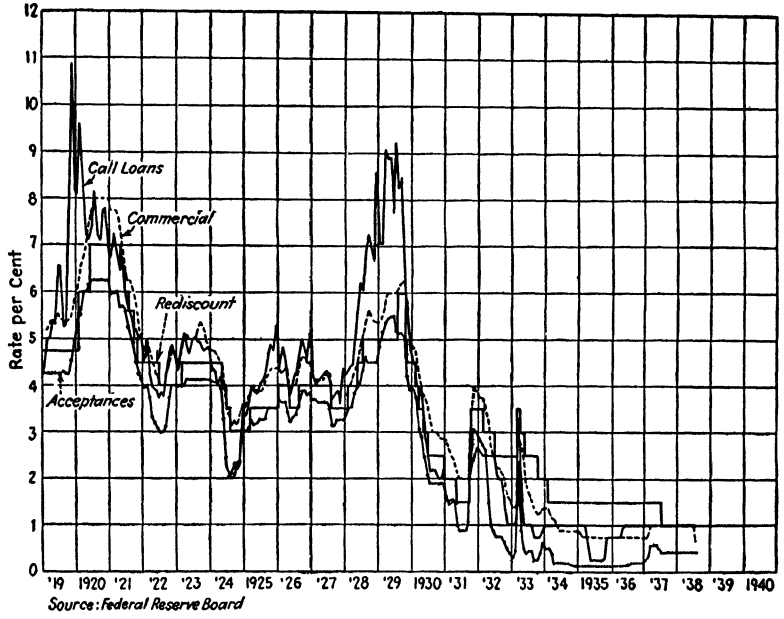


EXHIBIT 9.—Money Rates in New York City.

business collapse and, in the long run, greatly strengthens its own prestige and power.

VI

In Exhibit 6 are charted total reserve bank credit outstanding, bills discounted, bills bought, and U.S. securities for the period 1919–1938. Exhibit 7 shows loans and investments, and Exhibit 8 demand deposits, of reporting member banks in 101 cities during this period. Exhibit 9 shows money rates in New York City from 1919 to 1938.

What is the relationship among cyclical movements of interest rates, deposits, loans, velocity of circulation of money, and volume of business activity?

Did the National City Bank decrease its loans after 1929 because its deposits were decreasing, or did the decrease in its loans cause the decrease in deposits?

What was the liquidity ratio of the National Bank of Commerce of Houston on December 31, 1934? Did the condition of the bank on that date indicate that a prudent policy had been followed by the bank? Ought all banks to have followed the same policy?

"Indeed, if we were living in a cash economy and desired for some strange reason to make the economy highly susceptible to violent fluctuations, we could scarcely do better than to invent the present credit system." Is this a correct appraisal?

D. ANALYSIS OF A CYCLICAL MOVEMENT

7. The 1937 Business Slump[1]

CAUSES OF A PARTICULAR CYCLICAL DOWNTURN

In March, 1933, business activity as measured by the Annalist Index reached a low point of 62.5; thereafter it rose intermittently until August, 1937, when it stood at 111.0, the highest figure since October, 1929. This 4½-year period was not, of course, one of steady, unbroken advances; there had been setbacks ending in November, 1933, September, 1934, May, 1935, February, 1936, and January and June, 1937.

I. SEVERITY OF THE 1937 SLUMP

In August, 1937, another setback began which was still in progress when the December figure of 80.9 was published. This drop, unlike the others, was severe and sudden, and gave rise to talk of another depression. The following tabulation shows the magnitude of several of the recessions over the 4½-year period, and indi-

[1] The *New York Times*, in its financial column on January 2, 1938, stated: "In the reportorial lexicon there are at least a dozen standard terms to designate the various stages of business on the downside, but the dividing lines are not always clear. The terms in descending order are: 1, Fair; 2, Spotty; 3, Slack; 4, Dull; 5, Setback; 6, Reaction; 7, Recession; 8, Slump; 9, Depression; 10, Panic; 11, Collapse. The final stage necessarily would have to be 'Chaos.'"

cates the importance of the decline which commenced in August, 1937.

Date	Annalist Index	Percentage Drop from All-time High of 117.2 Reached in June, 1929	Date and Index Number at Peak Immediately Preceding This Low		Number of Months from Peak Immediately Preceding This Low	Percentage Drop in That Time
			Date	Index Number		
March, 1933.....	62.5	46.7 %	October, 1932	69.8	5	10.5 %
November, 1933.....	75.3	35.8	July, 1933	94.0	4	19.9
September, 1934.....	71.4	39.1	May, 1934	86.4	4	17.4
May, 1935.....	81.8	30.2	January, 1935	87.2	4	6.2
February, 1936.....	88.9	24.2	December, 1935	96.7	2	8.1
January, 1937.....	104.2	11.1	December, 1936	110.5	1	5.7
June, 1937.....	106.7	9.1	May, 1937	110.0	1	3.0
August, 1937.....	111.0	5.3				
December, 1937.....	80.9	31.0	August, 1937	111.0	4	27.1

As this table shows, the index dropped 27.1% in 4 months; this was the sharpest decline ever recorded. The drop over a period of 45 months from the all-time peak of the index to March, 1933, had amounted to 46.7%; the decline from June, 1929, to December, 1929, a period of 6 months at the beginning of the great depression, was only 13.5%.[1]

II. CAUSES

In regard to the causes of the 1937 slump, numerous theories were advanced. Naturally the proponents of any one theory did not ignore the possible influence of other factors. The following broad categories of explanations, therefore, are not mutually exclusive:[2]

A. Policies of the managers of the currency
B. Too little government spending
C. High inventories
D. High prices
E. High costs, especially caused by
   1. High taxes
   2. High wage rates
F. Lack of confidence, caused by
   1. Too much government spending

[1] Other selected indicators of business activity in 1937 are shown in Exhibit 1, p. 444.
[2] Exhibits 2 to 11 present data bearing on some of the arguments which follow. To facilitate comparisons and to show the relative movement of the indices, the high point reached in the late 1920's, the low point in the depression following 1929, the low point of the 1937 slump, and the December, 1937, figure are also given.

2. Overregulation of exchanges
3. Speeches by government officials
4. Undistributed profits tax

G. Strike of capital

A. Policies of the Managers of the Currency. Advocates of the theory that the policies of the managers of the currency were responsible for the slump held that the United States was operating under a system of managed currency primarily in the hands of the Board of Governors of the Federal Reserve System, although the fiscal policy of the government and the actions of the Secretary of the Treasury also affected the monetary situation. A chronological review of seven important actions of the managers of the currency, together with comments taken from the *Federal Reserve Bulletin*, follows.

In July, 1936, the Board of Governors raised the reserve requirements for member banks 50%, the change to become effective at the close of business on August 15. In a statement for the press, the Board gave the following reasons:

> This action eliminates as a basis of possible injurious credit expansion a part of the excess reserves,[1] amounting at present to approximately $3,000,000,000 and expected to increase to nearly three and a half billions by the time this action takes effect. These excess reserves have resulted almost entirely from the inflow of gold from abroad and not from the System's policy of encouraging full recovery through the creation and maintenance of easy money conditions. This easy money policy remains unchanged and will be continued.
>
> The part of the excess reserves thus eliminated is superfluous for all present or prospective needs of commerce, industry, and agriculture and can be absorbed at this time without affecting money rates and without restrictive influence upon member banks, practically all of which now have far more than sufficient reserves and balances with other banks to meet the increases. Furthermore, by this action the remaining volume of excess reserves, which will still be larger than at any time in the System's history prior to the recent large inflow of gold, is brought within the scope of control by the Federal Open Market Committee, which, as constituted by the Banking Act of 1935, consists of the members of the Board of Governors and five representatives elected regionally by the Federal Reserve banks.[2]

[1] The term "excess reserves" refers to the deposits of member banks with their Federal Reserve bank in an amount over and above that required by law. The importation of gold and the buying of government bonds on the open market by the Federal Reserve System augment excess reserves by increasing the deposits of member banks (and hence of Federal Reserve banks), rather than increasing their loans to customers. During the period after 1929, excess reserves became larger because of the banks' inability to make loans or invest in profitable assets, and because of their desire for liquidity.

[2] *Federal Reserve Bulletin*, August, 1936.

On December 21, 1936, the Treasury announced that it would follow a policy of "sterilizing" the new gold acquired from time to time, so that excess bank reserves would not be affected by its purchases of gold. The Secretary said that the Treasury

. . . proposes, whenever it is deemed advisable and in the public interest to do so, to take appropriate action with respect to net additional acquisitions or releases of gold by the Treasury Department. This will be accomplished by the sale of additional public-debt obligations, the proceeds of which will be used for the purchase of gold, and by the purchase or redemption of outstanding obligations in the case of movements in the reverse direction.[1]

On January 30, 1937, the Board of Governors again increased the reserve requirements of member banks by 33⅓%. "For the purpose of affording member banks ample time for orderly adjustment to the changed requirements," one-half of the increase was to become effective as of the opening of business on March 1, 1937, and the remaining half as of the opening of business on May 1, 1937.

A little later in the spring, the Board of Governors made the following observation about the excess reserve situation:

In view of the large amount of excess reserves remaining after the increase in requirements on March 1 and their broad distribution, member banks were able to make the change with very little borrowing. The great majority of banks had sufficient reserves in excess of requirements to meet the increase; some banks, in addition, drew upon their balances with other banks; and a certain number of banks found it necessary to liquidate some earning assets.

In February and March there was a substantial volume of sales of Government obligations, both by banks and by other holders. These sales reflected in part adjustment of reserve positions by banks in connection with the increase in reserve requirements, and in part other influences, particularly profit-taking at the high levels of prices reached in recent months.

As a result of the selling of securities yields on Government obligations, both long-term and short-term, showed sharp advances in February and March. There were also increases in open-market money rates on bankers' acceptances and commercial paper and in yields on corporate bonds. . . .[2]

In April, 1937, at the suggestion of the Federal Open Market Committee, the Board of Governors adopted the policy of buying United States Government obligations on the open market. The policy was announced as follows:

With a view (1) to exerting its influence toward orderly conditions in the money market and (2) to facilitating the orderly adjustment of mem-

[1] *Ibid.*, January, 1937.
[2] *Ibid.*, April, 1937.

ber banks to the increased reserve requirements effective May 1, 1937, the Open Market Committee of the Federal Reserve System is prepared to make open-market purchases of United States Government securities for the account of the Federal Reserve banks in such amounts and at such times as may be desirable. This purpose is in conformity with the policy announced by the Board of Governors of the Federal Reserve System in its statement on January 30, 1937, which declared, with reference to the increase in reserve requirements, that by this action the System would be placed in a position where such reduction or expansion of member bank reserves as may be deemed in the public interest may be effected through open-market operations.[1]

Between April 4, when this statement was issued, and April 28, the Federal Reserve System increased its holdings of United States Government obligations by $96,000,000.

In August, 1937, discount rates were reduced at several of the Federal Reserve banks in order to ease money markets further:

The Board of Governors today approved the action of the directors of the Federal Reserve Banks of Atlanta and Chicago in reducing the discount rate from 2 per cent to 1½ per cent, effective in the 6th and 7th Federal Reserve Districts, respectively, on August 21, 1937.[2]

In September, 1937, at the suggestion of the Board of Governors, the Secretary of the Treasury released approximately $300,000,000 of gold from the Treasury's inactive gold account in order to place an equivalent amount of funds at the disposal of the banks and correspondingly increase their available reserves. A statement for the press said, in part:

This action is in conformity with the usual policy of the System to facilitate the financing of orderly marketing of crops and of autumn trade. Together with the recent reductions of discount rates at the several Federal Reserve banks, it will enable the banks to meet readily any increased seasonal demands for credit and currency and contribute to the continuation of easy credit conditions.[3]

In November, 1937, the Federal Reserve System again began to purchase United States Government obligations to increase the reserve balance of member banks:

In November the Federal Reserve banks purchased $38,000,000 of United States Government obligations, in accordance with the policy announced last September. As a consequence in part of these purchases and in part of a decrease in required reserves, the volume of excess reserves

[1] *Ibid.*, May, 1937.
[2] *Ibid.*, September, 1937.
[3] *Ibid.*, October, 1937.

of member banks increased to over $1,100,000,000 in the latter part of November.[1]

Appearing before the Senate Committee on Money and Banking on December 8, 1937, Marriner S. Eccles, Chairman of the Board of Governors, summarized the reasons behind these various actions of the Federal Reserve System as follows:

> . . . It would have been unfortunate if the recent cycle of inflation had continued. Had it done so, it would have carried the country along a little longer on the basis of increasing costs, more credit would have been built up only to be liquidated, the national economy would have been even more out of balance, and the present decline would have been severer than it is.[2]

A number of observers took a serious view of the consequences flowing from the Federal Reserve Board's restrictive measures. For example, L. D. Edie said that the country's first experience with deflation under a managed currency "has been sad and costly and many people cannot see much to prefer in deflation Roosevelt-style over deflation Hoover-style." He was of the opinion that it was difficult to accept the "official explanation" of Washington that money had nothing to do with this deflation and that the causes of the 1937 collapse were almost wholly nonmonetary. He cited three monetary phenomena as responsible for the decline:

> 1. *Fiscal Policy.* [The fiscal policy of the Federal Government] crept on the country unnoticed, because nearly everybody in the financial district was still worried about the unbalanced budget. In fact, the Treasury was making a transition from huge deficits to small deficits. . . . [This transition] enabled the Government to begin to reduce its obligations in the hands of the public. . . . Beginning about July, 1936, the banks ceased to finance the deficit, and in the following 12 to 18 months they were sellers of governments. Thus the era of deficit financing came to a temporary close, and did so at a time when nearly everyone was still shouting about wild inflation.
>
> 2. *Federal Reserve Policy.* On top of this change in fiscal policy, there came a change in Federal Reserve policy. It took the form of doubling the legal reserve requirements of member banks and of sterilizing further gold imports. These measures had the effect of reducing sharply the excess reserves of the members banks. Thus far the effect was intended. But soon there came a series of consequences not intended, climaxing in the August crisis in the government bond market, just a few days before the Treasury financing to meet September requirements. This was serious and obviously unanticipated. The slip in calculations apparently occurred in the items of interbank deposits.
>
> Excess reserves had become interwoven with the banking fabric more intimately than had been realized. They had led to creation of abnor-

[1] *Ibid.*, December, 1937.
[2] *American Banker*, December 10, 1937.

mally large bankers' balances in the larger cities, principally in New York. When excess reserves were pulled down, these interbank deposits were pulled down. When the New York banks found themselves losing deposits rapidly, they proceeded to sell governments. This pressure on the New York banks was a prime cause of the break in government bonds in August.

3. *Shortage of Bank Capital.* While fiscal policy and Federal Reserve policy were thus giving the country a double-barreled dose of deflation [a capital shortage in the commercial banking system] was exerting a similar influence. . . .

During the depression of 1929 to 1933, the commercial banking system contracted capital, surplus and undivided profits about $3,000,000,000 and contracted bank deposits about $18,000,000,000.

During the succeeding period, 1933 to 1937, the commercial banking system expanded deposits back to about the former peak, but the capital account remained practically at the depression bottom. There has been a little gain in capital account, but not much. Every one knows the reason. Under extremely easy money the banks could not earn enough to do much more than barely meet their dividend requirements. They could not build up capital account by retaining earnings.

Easy money has been defined as a policy of "keeping credit cheap and plentiful." It actually has done the first part all right. It has kept credit cheap. But, just because it has done so, it has kept the capital account of the banking system anything but plentiful. A basic trouble with the banking system of 1937 has been a capital shortage, and that shortage has existed because of easy money.

. . . . . .

The combination of three things—fiscal policy, Federal Reserve policy, and capital shortage—meant deflation, and deflation of a severe degree. It brought on a sharp contraction of bank credit. This contraction began as early as January, 1937; it slowed down a little in May and June; but it broke out sharply again in July and August.[1]

B. Too Little Government Spending. Many authorities declared that the period of recovery from 1932 to 1937 had been to a large extent artificial, inasmuch as it was stimulated by deficit-financed government spending. As Mr. Edie pointed out in his article, such deficit spending had practically stopped during 1937. The government had been taking as much out of the country's purchasing power by taxation (including social security taxes) as it had been adding by its spending.

Alvin H. Hansen summarized this point of view as follows:

. . . The recovery was a "consumption recovery." The upswing moved forward under the stimulus of an expanding consumer demand fed by (a) consumers' instalment credit supporting purchases of automobiles

[1] *New York Herald Tribune*, Annual Financial Forecast and Review, January 3, 1938.

and other durable consumers' goods, and (b) governmental expenditures. The recovery, many believe, ceased when these two stimuli played out. Business had refused to make forward commitments beyond immediate requirements, and when consumption tapered off, new investment was no longer urgent. . . . [1]

Those who attributed the slump to too little government spending carried Professor Hansen's argument further and said that, if the cessation of spending had been a contributing cause of the depression, resumption of spending would bring recovery. Hence, they advocated further pump priming and demanded that the government increase its allotment to WPA for building roads, for housing, and so forth.

Others modified this argument somewhat and admitted that deficit-financed government spending would have to stop sometime; but they insisted that the 1937 cessation had been poorly timed and too abrupt. If the cessation had been effected gradually, business could have continued the spending program and maintained the purchasing power of the country.

There were also those who pointed out that the real difficulty was not that the government had stopped its deficit-financed spending, but that business had not taken up the burden of furnishing purchasing power by capital expenditures. Business, especially public utilities, railroads, and the housing industry, had been expected to expand, thereby making the recovery natural and allowing the government to withdraw its artificial stimulation.[2]

C. High Inventories. Winthrop W. Case considered the commodity situation largely responsible for the slump. He commented as follows:

. . . There were, however, certain developments in 1936 and early 1937 more immediately responsible for the present reaction. The payment of the bonus in 1936 released a flood of money which gave business a stimulus that could only be temporary.

More important was the commodity situation. In 1936 the excessive stocks of basic commodities that had so burdened world commerce during the depression had largely been disposed of. At the same time the needs of industry everywhere were expanding rapidly. Growing world recovery almost overnight awoke fears of a commodity shortage. On top of this was superimposed increasing rearmament abroad, and especially the British program. Buyers began to bid up prices; speculators were drawn in by rising markets and added to the demand; and a real commodity boom was under way.

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[1] *The New Republic*, February 2, 1938.

[2] The reasons for the failure of business to live up to these expectations are more fully covered under "Lack of Confidence" (see "F" below).

Rising commodity prices, together with higher wages and other costs as well as the recurrent threat of labor troubles, led to higher prices for manufactured goods and the building up of stocks and inventories by manufacturers, wholesalers, and retailers all along the line. This caused an expansion of business that was not based on any real demand by consumers. Forward buying by manufacturers and distributors—the placing of orders in anticipation not of present but of future needs—was much in evidence. Industry as a whole took on some of the appearance of a good old-fashioned boom.

The prices of stocks responded. They continued to rise, partly in sympathy with the advancing commodity markets, in part apparently under the stimulus of the large year-end bonuses and heavy dividends at the end of 1936—the latter in some measure the result of the undistributed profits tax. Above all, however, was what we now see to have been excessive optimism which confused sound business prospects with speculative and fictitious demand.

The commodity boom exploded early last April. While the primary reason was, of course, that all bubbles must burst, a number of developments precipitated the collapse. The expected requirements of commodities for rearmament purposes were found to be exaggerated. Commodity producers the world over showed themselves able to expand their output more rapidly than had been anticipated, in order to meet increasing demand.

A statement by President Roosevelt to the effect that basic commodity prices were too high carried the implied threat of measures to bring them lower. At the same time there were rumors suggesting that our Treasury might lower its price for gold. This would have reversed the 1933–34 devaluation, and would therefore have also reversed the rise in the prices of many commodities which that devaluation caused. The rumors proved unfounded, it is true, but carried sufficient weight to aid in toppling over a market already vulnerable.

. . . . . .

The general rise in prices of manufactured goods met with sufficient resistance from the public to check sales somewhat. The excessive size of inventories became apparent. Manufacturers and distributors thereupon abandoned forward buying and restricted their purchases to most urgent needs, setting in motion a fresh deflation of commodity prices. The new drop in prices of course acted in turn as a further check on buying.

The curtailment of government spending at this time deprived business of some of the artificial support to which it had become accustomed. The persistent failure of the construction industry to recover was felt more keenly. Another major industry, the railroads, caught between rising wages and other costs and passenger fares and freight rates that could not be easily increased was confronted with serious financial difficulties which further weakened confidence.

The stock market had weakened in sympathy with the collapse of the commodity boom, but had partly regained its losses by the latter part of last summer. By that time, however, the outlook for business was already becoming less satisfactory. Factories were still operating at

high rates in many cases but new orders were not coming in. The stock market appraised the year's profit prospects with less and less favor as the autumn wore on, and security prices declined drastically. The losses, paper or real, that were suffered by security holders acted as a further damper on business, both by curtailing the owners' resources and expenditures and by the pessimism they engendered. The vicious circle of declining commodity and security prices, falling business activity and sales, and rising unemployment and relief was completed.[1]

D. High Prices. In contrast to Mr. Edie's theory, Mr. Eccles held the opinion that monetary action had not caused the slump and that monetary action would not rectify it, at least until monopolistic prices had been reduced and all prices restored more closely to balance. Following are excerpts from two speeches in which he discussed his theory:

" . . . Restrictive practices [which raised costs and diminished production] were responsible for the present decline in economic activity, and a continuation of such policies would make impossible any progress toward a full and continuous employment of the nation's workers and productive plant.

. . . . . .

" . . . Competition has declined and monopolistic elements have increased over large sectors of our economy.

. . . . . .

"Broadly speaking, I feel that the resumption of an orderly recovery depends upon the adjustment downward of those monopolistic or controlled prices and wage rates which still remain too high in relation to consumer purchasing power and an adjustment upwards of such prices and wage rates as may be too low in relation to the cost of living.

"In my opinion the extent of the present recession will depend upon how rapidly the more serious maladjustments between prices and buying power are corrected and increased national income is created by the activity of private business."[2]

"The disparity between incomes of unorganized workers, farmers and others, and those of organized workers, caused the recession. Prices for farm products were too low when compared with prices of basic industrial materials, such as steel.

. . . . . .

"The slowness with which one group of prices goes up, or the other group goes down, will determine the extent of this depression. . . . "[3]

President Roosevelt, throughout the earlier years of the New Deal, had insisted that the only way to get out of the depression was

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[1] *New York Times*, January 2, 1938.
[2] *New York Times*, December 15, 1937.
[3] *American Banker*, December 10, 1937.

to raise prices. Then on April 2, 1937, he made the announcement that prices of durable goods were too high. This, as pointed out by Mr. Case, helped to stop the boom in commodities; and the President was accused of inconsistency in trying to raise and lower prices at the same time.

In the refutation of this argument, government spokesmen followed the same lines as Mr. Eccles' theory, that some prices were too high while others were too low. Building prices, they pointed out, were higher in 1937 than in 1929, and for this reason housing had not furnished the expected stimulus to recovery after the government had ceased its deficit-financed spending. They declared that such prices were out of line with wages and other prices only because of the monopolistic practices of business, and that, so long as these continued, recovery was impossible.

Robert H. Jackson, Assistant Attorney General of the United States, in a speech delivered on December 29, 1937, also blamed monopolies for the recession. He said:

> . . . If the great industries subject to monopoly control wish to raise their prices 10% there can be no public debate. There is no hearing of those who must pay the exaction and those who lay the burden need acknowledge no public responsibility.
>
> Prices are no longer determined by the law of supply and demand in many basic industries.
>
> "The imperial freedom of design" has developed dangerous and self-destructive tendencies. As Senator Borah, veteran fighter against monopoly, said yesterday, "I can see no recovery for a vast portion of our people so long as private interests fix prices and thereby continue to deplete purchasing power."[1]

E. High Costs. In response to the argument that monopolistic practices made certain prices high and prevented recovery, businessmen insisted that the high prices were attributable not to monopoly but to high costs, especially the high costs of labor and taxes. They cited the fact that labor had been encouraged by the government to insist upon wage increases together with shorter hours, so that labor's remuneration was entirely out of line with its productivity. They pointed out that these high wage costs plus heavy taxes (ranging through the undistributed profits tax, social security tax, and other new taxes, as well as old taxes at higher rates) were the cause of high prices, and concluded that the government was inconsistent in advocating low prices while causing the businessman to pay such high costs.

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[1] *New York Times*, December 30, 1937.

Gustav R. Stahl summarized the situation as follows:

When business costs rise faster than finished prices, business profits shrink. When business profits seem headed for the vanishing point, business management curtails and finally stops making new commitments. Idle plants become preferable to operating at a loss, especially with recalcitrant working forces. So a strike of employers followed a strike of employees. Now the business economy is in a downspin.[1]

Mr. Stahl also reported that industrial disputes had broken all records for the number of man-days of work lost during 1937, had caused a direct wage loss of more than $140,000,000 to the strikers involved, and had had an important effect in reversing the upward trend of industrial production. He stated that the decline in production brought about by strikes had prevented the strikers from making up the millions of dollars they had lost in wages when they gambled on victory.

In interpreting a recent study made by The Brookings Institution, Harold G. Moulton charged that the business recession was caused primarily by the aggressive labor movement which started in the first quarter of 1936 and resulted in reduction of hours and advances in pay without regard to increased efficiency in methods of production. He said:

The simple truth of the matter is that we have not yet reached a stage of technological development at which it is possible for the American people to attain the standards of living which they desire with working time as short as that which now prevails in American industry generally.

Our research reveals that any one who favors a further general reduction in the length of the working week at this stage of our economic development is unwittingly favoring lower standards of living.[2]

F. Lack of Confidence. It has long been an axiom that businessmen must have confidence in the future before they will risk their money and their reputation in the hope of profits. Although numerous causes were advanced for lack of confidence in the 1937 slump, four were repeated more frequently than others.

1. *Too Much Government Spending.* Businessmen insisted that government spending had progressed to the point where more deficits might impair government credit, and that the added stimulus from any further "pump priming" would be offset by the lack of confidence produced by slowing up the investment of capital in private enterprises.

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[1] *New York Herald Tribune*, Annual Financial Forecast and Review, January 3, 1938.

[2] *New York Times*, January 27, 1938.

2. *Overregulation of Exchanges.* It was also pointed out that government regulation of exchanges had caused wide fluctuations in the market for securities, because the support which used to be present had been forbidden. Businessmen had no confidence in their ability to dispose of new security issues in such a market; thus the flow of new capital into private enterprise had been checked.

3. *Speeches by Government Officials.* Such speeches as those of Attorney General Jackson (see page 440) and Secretary Ickes (see page 443) were also cited as adding to the confusion of business, inasmuch as each threatened further regulation of an unknown type and magnitude. Once again, businessmen said, recovery was being penalized because business could not be certain of the rules for the future and could make no commitments with reasonable certainty.

4. *Undistributed Profits Tax.* Finally, businessmen pointed to the undistributed profits tax as retarding investment; existing corporations, they contended, were forced to follow unsound financial policies and forego natural expansion, while prospective businesses were kept from entering a field because of the small possibility of making worth while profits.

A view held by a large group of businessmen was expressed by Lammot du Pont, President of E. I. du Pont de Nemours & Company, Inc., in testimony before the Senate Committee on Unemployment on January 10, 1938. "A fog of uncertainty covered the business scene," he said. In his opinion, the major components of this fog were:

> The amount or type of taxes, the fear of higher prices due to the steadily increasing public debt and the uncertainty as to the future value of money, the unprecedented number of strikes last year, the fear of further changes in and the multiplication of legal rules under which business must operate.
>
> The capital gains tax undoubtedly has the effect of deterring capital investment. If an investment proves successful, most of the profit goes to the government. If unsuccessful, the individual bears all the loss; the investor hesitates to wager several to one on a venture attended with such risk.
>
> The undistributed profits tax inhibits the reinvestment of earnings of a corporation. If it turns in its need for capital to the investor public, it encounters today a lack of venture money. It cannot prudently use bank loans, which are short-time money, for venture purposes that require long-term patient money.
>
> Change of law with respect to these and certain other taxes, together with the simplification of the tax structure, would relieve management of some of the present worries and give greater confidence for the future.

One of the greatest requirements of the present situation is industrial peace, effective cooperation of management and wage-earners. This, however, will not be best attained by complicated new legislation. The tremendous progress during our lifetime in increasing wage rates and in shortening the working day has been effected under the American competitive system and by the advance in public opinion.

Further, I believe that business will recover only in an atmosphere of confidence in private industry, a wider understanding that the main burden of re-employment must fall on industry, not on government.[1]

G. Strike of Capital. The reaction of business in refusing to make investments because of lack of confidence was described by some as a strike of capital. This group attributed the recession to the fact that business refused to work because it did not like the rules.

Attorney General Jackson, in a speech on December 29, 1937, declared, "The government faces a general strike—the first general strike in America—a strike against the Government—a strike to coerce political action."[2]

On the following day, Secretary Ickes continued the charge:

> To the 120 million people of the United States, they [America's 60 families] have made the threat that unless they are free to speculate, free of regulations to protect the people's money; unless they are free to accumulate through legal tricks by means of corporations without paying their share of taxes; unless they are free to dominate the rest of us without restrictions on their financial or economic power; unless they are once more free to do all these things, then the United States is to have its first general sit-down strike—not of labor—not of the American people— but of the 60 families and of the capital created by the whole American people of which the 60 families have obtained control.[3]

What was the relative importance of the several sets of causes postulated for the 1937 slump? What other causes, if any, should be added?

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[1] *Ibid.*, January 11, 1938.
[2] *New York Times*, December 30, 1937.
[3] *Ibid.*, December 31, 1937.

EXHIBIT 1

SELECTED INDICATORS OF BUSINESS ACTIVITY

Date	U.S.B.L.S. Index of Wholesale Commodity Prices (1926 = 100)	Nat. Ind. Conf. Bd. Index of Cost of Living (1923 = 100)	Bd. of Gov. F.R. Index of Industrial Production (Adjusted; 1923–25 = 100)	Bd. of Gov. F.R. Index of Auto. Production (Adjusted; 1923–25 = 100)	Bd. of Gov. F.R. Index of Iron & Steel Production (Adjusted; 1923–25 = 100)	Bd. of Gov. F.R. Index of Value of Const. Contracts (Adjusted; 1923–25 = 100)
"Prosperity" high	3/23 } 104.5 11/25 }	11/25 105.9	6/29 125	6/29 153	7/29 149	2/26 } 139 6/28 }
"Depression" low	2/33 59.8	4/33 71.7	7/32 58	10/32 16	3/33 22	4–5/33 14
"Recovery" high	4/37 88.0	10/37 89.5	12/36 121	8/37 157	12/36 143	7/37 68
"Recession" low	12/37 81.7	....	12/37 84	12/37 78	12/37 49	10/37 52
Latest available (December, 1937)	12/37 81.7	12/37 88.6	12/37 84	12/37 78	12/37 49	12/37 61
1937						
January	85.9	86.9	114	120	139	63
February	86.3	87.2	116	120	129	62
March	87.8	87.9	118	121	126	56
April	88.0	88.3	118	130	130	53
May	87.4	88.8	118	135	134	56
June	87.2	88.9	114	130	119	61
July	87.9	88.9	114	129	140	67
August	87.5	89.0	117	157	142	62
September	87.4	89.4	111	135	125	56
October	85.4	89.5	102	142	100	52
November	83.3	89.0	88	92	68	56
December	81.7	88.6	84	78	49	61

EXHIBIT I (*Continued*)

SELECTED INDICATORS OF BUSINESS ACTIVITY

Date	Bd. of Gov. F.R. Index of Freight Carloads (Adjusted; 1923–25 = 100)		Bd. of Gov. F.R. Index of Department Store Sales (Adjusted; 1923–25 = 100)		U.S.B.L.S. Index of Employment (Unadjusted; 1923–25 = 100)		U.S.B.L.S. Index of Pay Rolls (Unadjusted; 1923–25 = 100)		Brokers' Loans to New York Stock Exchange Members (Millions)		Commercial Failures Total Liability (Thousands)		Machine Tool Builders' Assn. Index of Orders for Machine Tools and Forging Machinery (Unadjusted; 1926 = 100)	
"Prosperity" high	11/26 8/29	110	3/29 6/29 9/29	113	9/29	110.3	9/29	114.4	9/29	$8,549	8/26	$ 28,130	2/29	186.3
"Depression" low	3/33	48	3/33	58	7/32	61.0	3/33	38.3	7/32	242	4/32	101,069	3/33	7.4
"Recovery" high	4/37	84	2/37	95	8/37 9/37	112.3	5/37	110.1	4/37	1,187	7/37	7,766	4/37	282.5
"Recession" low	12/37	67	12/37	89	12/37	97.4	12/37	84.6	12/37	659	12/37	13,291	11/37	127.7
Latest available (Dec., 1937)	12/37	67	12/37	89	12/37	97.4	12/37	84.6	12/37	659	12/37	13,291	12/37	142.7
1937														
January		80		93		104.7		94.6		$1,026		$ 8,661		200.3
February		82		95		107.6		100.1		1,075		9,771		165.2
March		83		93		110.1		105.9		1,159		10,922		211.6
April		84		93		111.3		109.7		1,187		8,906		282.5
May		80		93		111.5		110.1		1,152		8,364		208.5
June		78		93		110.3		107.6		1,186		8,191		191.8
July		80		94		110.9		105.2		1,174		7,766		171.1
August		79		92		112.3		108.7		1,186		11,916		179.8
September		78		94		112.3		104.9		1,039		8,393		210.7
October		76		93		110.3		104.9		726		9,335		152.0
November		71		91		104.1		93.3		688		10,078		127.7
December		67		89		97.4		84.6		659		13,291		142.7

Source: *Survey of Current Business.*

EXHIBIT 2

SECURITIES ISSUED, BY MONTHS, 1936 AND 1937

(Millions of dollars)

Date	Total Domestic Issues for New Capital (including Federal, State, and Municipal Government issues)	Domestic Corporate Issues for New Capital	Total Refunding Issues	Corporate Refunding Issues
1936				
January	$124.0	$ 64.9	$287.6	$201.0
February	107.0	13.5	195.8	181.1
March	127.5	58.8	639.4	536.0
April	175.7	127.9	826.9	529.9
May	111.5	37.6	308.3	267.4
June	217.7	151.9	515.7	375.8
July	103.2	69.8	235.6	224.6
August	216.6	170.8	80.4	61.6
September	177.9	74.6	231.5	175.5
October	188.1	94.9	277.5	271.5
November	158.0	109.1	222.9	154.9
December	266.2	218.2	459.4	407.7
1937				
January	244.0	96.6	374.5	203.6
February	192.1	154.6	369.7	240.0
March	186.7	139.2	197.0	181.1
April	160.1	79.4	159.6	88.1
May	148.9	83.0	122.4	92.2
June	367.3	276.1	206.3	155.4
July	246.8	81.7	94.8	58.1
August	78.6	50.9	109.6	57.2
September	154.8	113.7	66.8	39.4
October	93.5	67.0	108.9	71.6
November	104.0	36.1	32.5	1.1
December	116.9	46.6	58.6	20.9
Monthly av.				
1929	785.0	666.8	117.5	114.5
1933	59.0	13.4	28.7	18.3

Source: *Survey of Current Business.*

EXHIBIT 3

INDEXES OF STOCK AND BOND PRICES, BY MONTHS, 1936 AND 1937

Date	Dow-Jones Index of 40 Corporation Bonds (% of par; 4% bonds)	Standard Statistics Index of Prices of 348 Industrial Stocks (1926 = 100)
1936		
January	92.72	114.5
February	96.41	120.9
March	96.50	124.6
April	94.97	125.3
May	94.88	116.2
June	96.11	120.6
July	97.35	124.3
August	99.38	128.4
September	101.19	130.2
October	102.59	136.0
November	102.70	144.3
December	103.04	142.6
1937		
January	102.91	146.3
February	101.32	151.7
March	98.86	152.6
April	95.81	146.5
May	96.60	136.7
June	95.56	134.0
July	96.71	139.4
August	95.85	143.5
September	90.79	126.2
October	84.32	107.4
November	77.65	96.1
December	77.73	95.2
Monthly average		
1929	79.21	189.4
1932	49.97	46.5
1933	58.64	65.7

Source: *Survey of Current Business.*

EXHIBIT 4

SELECTED FIGURES OF REPORTING MEMBER BANKS OF THE FEDERAL RESERVE SYSTEM IN 101 LEADING CITIES

(Millions of dollars)

Date	Total Loans	Investments			Deposits				Capital Account	Total Assets
		Total	United States Government Obligations		Domestic Interbank	United States Government	Demand (Adjusted)*	Time (excluding Interbank)		
			Direct	Fully Guaranteed						
1936										
January	$ 8,080	$12,848	$8,599	$1,155	$5,485	$654	$13,824	$4,892	$3,503	$31,056
February	7,981	13,072	8,708	1,194	5,512	545	14,064	4,893	3,505	31,140
March	8,223	13,222	8,737	1,247	5,516	646	13,881	4,923	3,512	31,255
April	8,361	13,384	8,767	1,273	5,351	758	13,982	4,971	3,527	31,437
May	8,355	13,477	8,877	1,285	5,346	752	14,371	5,051	3,541	31,715
June	8,535	13,838	9,202	1,303	5,371	797	14,563	5,037	3,543	32,195
July	8,374	14,110	9,484	1,278	5,904	829	14,752	5,007	3,488	32,948
August	8,365	13,932	9,357	1,254	5,729	821	14,785	5,019	3,488	32,516
September	8,628	13,892	9,320	1,246	5,761	837	14,962	5,036	3,503	32,961
October	8,718	13,848	9,310	1,255	5,950	793	15,152	5,070	3,517	33,411
November	8,755	13,689	9,232	1,255	6,106	548	15,362	5,032	3,539	33,714
December	9,030	13,730	9,241	1,242	6,025	601	15,544	5,045	3,555	34,047
1937										
January	8,998	13,736	9,263	1,230	5,953	611	15,516	5,052	3,563	33,631
February	8,982	13,618	9,118	1,212	5,854	409	15,572	5,094	3,568	33,498
March	9,286	13,324	8,802	1,206	5,546	369	15,429	5,142	3,578	33,130
April	9,399	12,881	8,447	1,181	5,424	312	15,283	5,145	3,581	32,774
May	9,523	12,678	8,320	1,163	5,032	201	15,420	5,194	3,593	32,467
June	9,697	12,633	8,355	1,160	4,927	378	15,300	5,233	3,602	32,632
July	9,743	12,476	8,268	1,170	4,984	447	14,984	5,254	3,597	32,367
August	9,929	12,403	8,229	1,160	4,880	515	14,918	5,245	3,607	32,051
September	10,026	12,161	8,068	1,131	4,878	616	14,843	5,283	3,612	32,362
October	9,890	11,999	7,914	1,132	4,976	555	14,756	5,278	3,617	32,252
November	9,559	11,997	7,970	1,127	4,928	424	14,636	5,287	3,623	31,844
December	9,451	12,033	8,046	1,113	4,943	579	14,570	5,203	3,630	31,912
June, 1929	16,480	5,751†	2,913	.....	.....	156	13,001§	6,739‖		
June, 1933	8,986	8,429†	5,362	.....	3,013‡	418	11,306§	4,700‖		
June, 1935	8,028	11,859	7,910	943	4,627	754	12,814	4,874	3,499	28,803

* Other than interbank and U. S. Government; less cash items in process of collection.
† U. S. Government direct obligations, plus other securities.
‡ Due to banks. § Net demand deposits. ‖ Time deposits. Source: *Federal Reserve Bulletin.*

EXHIBIT 5

CAPITAL AND DEPOSITS OF MEMBER BANKS OF THE FEDERAL RESERVE SYSTEM

(Millions of dollars)

Date	Number of Banks	Capital	Deposits
Dec. 31, 1928	8,837	$5,899	$39,067
Dec. 31, 1929	8,522	6,709	37,981
Dec. 31, 1932	6,816	5,409	28,690
Dec. 31, 1935	6,387	5,145	38,454
Dec. 31, 1936	6,376	5,275	42,885
June 30, 1937	6,357	5,339	41,490

Sources: *Twenty-third Annual Report of the Board of Governors of the Federal Reserve System, covering Operations for the Year 1936. Federal Reserve Bulletin*, September, 1937.

EXHIBIT 6

CAPITAL AND DEPOSITS OF ALL BANKS

(Millions of dollars)

Date	Number of Banks	Capital, Surplus, and Undivided Profits	Total Deposits
June 30, 1929	25,330	$ 9,587	$57,911
1930	24,079	10,108	59,847
1931	22,071	9,831	56,865
1932	19,163	8,539	45,390
1933	14,624	7,385	41,533
1934	15,894	7,853	46,625
1935	16,053	7,836	51,586
1936	15,803	7,971	58,340

Source: *Report of the Comptroller of the Currency, 1936.*

EXHIBIT 7

EXCESS RESERVES OF MEMBER BANKS OF THE FEDERAL RESERVE SYSTEM

(Millions of dollars; end-of-month figures)

1936	
January	$3,084
February	2,986
March	2,305
April	2,664
May	2,866
June	2,717
July	3,029
August	1,950
September	1,840
October	2,175
November	2,236
December	1,984
1937	
January	2,152
February	2,078
March	1,398
April	1,594
May	918
June	865
July	791
August	773
September	1,038
October	1,055
November	1,169
December	1,212
Monthly average	
1929	43
1933	528
1935	2,498

Source: *Federal Reserve Bulletin.*

EXHIBIT 8

FEDERAL RESERVE BANK CREDIT OUTSTANDING

(Millions of dollars; end-of-month figures)

Date	Total	United States Government Securities
1936		
January	$2,479	$2,430
February	2,482	2,430
March	2,474	2,430
April	2,475	2,430
May	2,474	2,430
June	2,473	2,430
July	2,462	2,430
August	2,471	2,430
September	2,473	2,430
October	2,476	2,430
November	2,453	2,430
December	2,500	2,430
1937		
January	2,497	2,430
February	2,465	2,430
March	2,458	2,430
April	2,565	2,525
May	2,585	2,526
June	2,562	2,526
July	2,574	2,526
August	2,577	2,526
September	2,579	2,526
October	2,580	2,526
November	2,606	2,564
December	2,612	2,564
June, 1929	1,400	216
1932	2,310	1,784
1933	2,220	1,998

Source: *Federal Reserve Bulletin.*

EXHIBIT 9

REDISCOUNT RATE OF THE NEW YORK FEDERAL RESERVE BANK

August, 1929	6 %
June, 1933	2½
1935 (entire year)	1½
January 1, 1936, to August 26, 1937	1½
August 27, 1937, to December 31, 1937	1

Source: *Federal Reserve Bulletin.*

EXHIBIT 10

BOND YIELDS

(Rate per annum; averages of daily figures)

Date	United States Treasury	Moody's 120 Domestic Corporate
1936		
January	2.68%	4.04%
February	2.62	3.95
March	2.54	3.95
April	2.51	3.97
May	2.50	3.96
June	2.50	3.94
July	2.50	3.90
August	2.43	3.85
September	2.41	3.79
October	2.42	3.75
November	2.29	3.71
December	2.27	3.67
1937		
January	2.29	3.67
February	2.31	3.75
March	2.50	3.87
April	2.74	3.97
May	2.67	3.91
June	2.64	3.90
July	2.59	3.88
August	2.59	3.88
September	2.67	3.98
October	2.65	4.12
November	2.60	4.21
December	2.54	4.16
1929	3.60	5.21
1933	3.31	5.89
1935	2.70	4.46

Source: *Federal Reserve Bulletin.*

EXHIBIT 11

UNITED STATES TREASURY FINANCING

(Millions of dollars)

Date	Total Gross Debt	Total Publicly Offered Interest-Bearing Debt*	Excess of Expenditures over Receipts	General Fund Balance		
				Total	Inactive Gold	Working Balance
1936						
January	$30,516	$29,618†	$ 228	$2,004	.....	$1,580
February	30,520	29,646†	277	1,767	.....	1,332
March	31,459	30,591†	181‡	2,866	.....	2,423
April	31,425	30,601†	383	2,442	.....	1,995
May	31,636	30,822†	302	2,358	.....	1,910
June	33,545	32,756†	1,807§	2,682	.....	2,225
July	33,436	31,321	118	2,230	.....	1,771
August	33,377	31,329	208	1,904	.....	1,441
September	33,831	31,830	169	2,188	.....	1,719
October	33,830	31,855	409	1,764	.....	1,291
November	33,791	31,877	303	1,406	.....	931
December	34,405	32,497	138	1,906	$ 26	1,401
1937						
January	34,503	32,582	348	1,726	127	1,118
February	34,601	32,617	279	1,539	205	849
March	34,732	32,722	257‡	1,826	343	995
April	34,944	32,884	345	1,702	568	642
May	35,216	33,107	217	1,754	758	501
June	36,427	33,734	432	2,553	1,087	970
July	36,716	33,918	249	2,639	1,213	915
August	37,045	34,146	103	2,902	1,335	1,051
September	36,875	33,877	108‡	2,860	1,209	1,128
October	36,956	33,900	283	2,676	1,271	875
November	37,094	33,924	215	2,608	1,243	831
December	37,279	34,018	136‡	2,973	1,228	1,202
Fiscal year ending June,						
1929	16,931	16,639†	188‡	325		
1933	22,539	21,782	2,602	862	.....	862
1935	28,701	26,910	3,002	1,841	.....	1,001

* Includes: Prewar Bonds, Treasury Bonds, U. S. Savings Bonds, Notes, and Bills.
Excludes: Adjusted Service issues, and Social Security issues.
† Includes small amounts not offered to public.
‡ Excess of receipts.
§ Includes the bonus payment of $1,673(000,000).
Source: *Federal Reserve Bulletin.*
Editors' Note: For somewhat different estimates, see case on Deficit Spending, Exhibit 4, pp. 516–518.

E. INVENTORY POLICIES

8. Baynes Company

CURRENT APPRAISAL OF THE DOWNTURN OF 1937

On September 27, 1937, the plant managers of the Baynes Company were given instructions to do all in their power to reduce inventories of both raw materials and finished products. These instructions represented a sharp reversal of the policy which the company had followed since 1933.

The Baynes Company manufactured and sold two important lines. One consisted of building materials used in all types of construction; the other a wide variety of industrial products used in equipping factories. Charts of the sales of each of these groups of products from 1929 through 1937 are given in Exhibit 1.

The president of the Baynes Company, Mr. Howard, who was extremely alert to the influence of government policies on the company's business, was impressed in 1933 with the "inflation psychology" underlying the President's recovery program. He noted all the words and actions of the Administration that were intended to raise prices: the repeated announcements that prices must return to the level of 1926; the devaluation of the dollar for the purpose of raising domestic prices; the purchase of gold at prices well above the world market, with the consequent incoming flood of gold which became the base of large excess bank reserves; the unbalanced budget and the rising public debt; the frequent proposals to issue new currency to pay debts and to meet current expenditures; the increase in costs, especially wages, under the NRA; and the increase in food prices following the restriction of agricultural production under the AAA.

In consequence of this government drive for higher prices, the Baynes Company instituted a policy of building up inventories by purchasing raw materials in advance of current needs and by increasing the rate of production to build up the inventory of finished goods. Exhibits 2 and 3 show the indices of physical volume of raw material and finished goods inventories of the Baynes Company from 1933, when this policy was inaugurated, through 1937.

The reversal of the policy of building up inventories came in 1937 as the result of a series of events. Mr. Howard had noted that, beginning in 1936, a surge of forward buying had taken place all over

the world. Businessmen, acting on the belief that inflation had caught on, in the latter part of 1936 placed orders beyond current

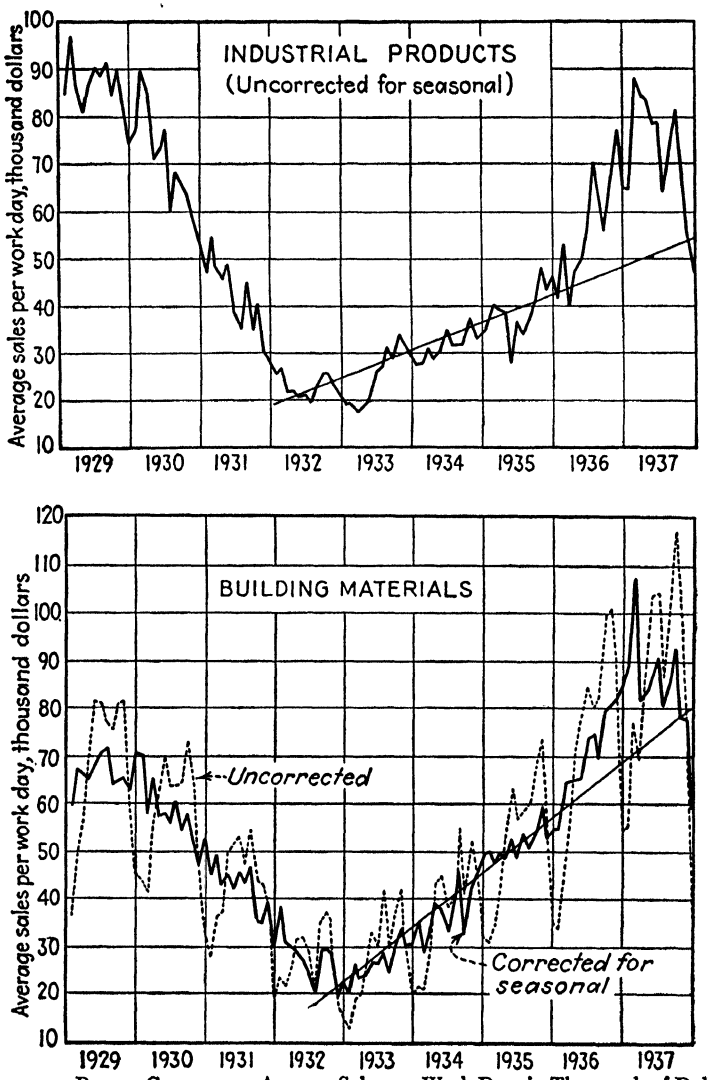


EXHIBIT 1.—Baynes Company. Average Sales per Work Day, in Thousands of Dollars.

requirements. The expectation of the advance in labor costs because of the success of the CIO unionization movement added still

another stimulus to the excessive forward buying. Forward buying in the world market was attributed to the war scare in Europe.

EXHIBIT 2

BAYNES COMPANY

Physical Volume of Raw Material Inventory

(1936 average = 100)

Month	1933	1934	1935	1936	1937
January	58	83	83	88	107
February	59	83	83	92	108
March	55	88	86	92	120
April	53	89	83	94	120
May	51	89	79	97	126
June	56	94	83	102	130
July	61	92	82	100	136
August	66	90	83	99	147
September	66	89	85	99	146
October	67	85	87	108	145
November	77	84	90	111	130
December	87	86	87	116	124

EXHIBIT 3

BAYNES COMPANY

Physical Volume of Finished Goods Inventory

(1936 average = 100)

Month	1933	1934	1935	1936	1937
January	63	65	77	94	105
February	64	67	82	100	110
March	62	69	83	106	116
April	62	68	83	107	117
May	63	72	80	108	117
June	62	73	81	103	110
July	57	76	82	100	113
August	62	78	83	101	118
September	59	76	82	100	117
October	61	72	83	97	120
November	60	75	85	93	124
December	57	69	81	92	123

Then in the early spring of 1937 there came some evidence that speculators were beginning to believe that they had driven prices too high. It had become apparent that rearmament was a slow process.

The London nonferrous metal market, after reaching a new high on March 11, showed signs of weakness and uncertainty.

On April 2, 1937, President Roosevelt made the pronouncement that the prices of durable goods, especially the basic material prices, had been increasing too rapidly and were too high. Mr. Howard said that this statement left him, like many other businessmen, stunned. He was unable to understand how the chief advocate of rising prices could so dramatically attempt to stop an increase, especially when foreign speculators were apparently beginning to believe that prices, especially of war materials, had reached a peak. The immediate reaction of the stock market to the President's speech was unfavorable; the downward movement which had set in about the middle of March continued until the end of June, when another upward movement began. Meanwhile, the management of the Baynes Company was undecided what policy to follow. Mr. Howard was unable to determine whether the Administration had reversed itself and abandoned its inflation drive or whether the President's speech was an isolated phenomenon without bearing upon the general policies of the government.

Mr. Howard, however, resolved his uncertainty in July. He was convinced that the refusal of Congress to pass the bill designed to pack the Supreme Court was a turning point in Administration activities. On July 22, the day when the bill was finally killed by being sent back to the Senate Judiciary Committee, Mr. Howard sent a memorandum to the vice president in charge of production, indicating that this change in the situation might call for a reversal of the company's inventory policy, for the following reasons:

> The final disposition by Congress of the bill to pack the Supreme Court indicates a basic change in events. Congress has definitely taken control of the government. Up till now the entire emphasis of the Administration has been upon inflation. The President himself did much to put an end to the rising price trend when, in April, he made the statement that prices were too high. The present action of Congress, therefore, confirms the opinion that from now on inflation will be of less importance.

After a series of conferences interrupted occasionally by summer-vacation schedules, a letter was sent, on September 27, to each of the plant managers instructing them to cut down inventories wherever possible. A portion of the letter follows:

> At the present time this company should attempt to cut down its inventories of both finished goods and raw materials. Raw materials

should be purchased only after thorough study of price situations and a careful forecast of our manufacturing program. Finished goods inventories may be lowered by cleaning out old stock with the cooperation of the sales department. We should discontinue adding new people to the staff. It is hoped that we will not have to curtail production activities, but we shall definitely not increase the present rate of production.

The peak of the company's inventories of raw materials had been reached in August, 1937. The inventory of finished goods, however, was not reduced until after the close of the year 1937, because of the sharp decline in sales which began early in 1937 (as shown in Exhibit 1) and the inability of the company to curtail its volume of production quickly.

What were the motivating factors in this decision to cut down inventories? Should this decision have been reached earlier? At what time? On what basis?

F. WAGE POLICIES

9. Kent & Olway Laboratories, Inc.

DECISION WHETHER TO REDUCE WAGE RATES IN DEPRESSION

Kent & Olway Laboratories, Inc., had been established in New York City in 1925 for the production of precision scientific instruments for laboratory research work in physics, chemistry, engineering, and astronomy. Apparatus especially designed for individual research projects was sold to colleges and industrial concerns. In the first three years of the company's existence, approximately 90% of the total dollar sales were made to college laboratories; but by 1933, sales to private industrial firms had increased to such a degree that they represented 50% of the total. During this period, the company examined critically its wage-rate and pricing policies with a view to improving its profit showing and at the same time maintaining a satisfactory labor situation.

Because of the nature of the apparatus sold, mass production methods could not be employed. Only rarely was more than one instrument of the same kind made, and each order necessitated the drafting of new specifications and the making of new patterns for the production of castings. The instruments were very delicately constructed. Although it was possible to use some highly specialized

machinery for a few of the operations, particularly for the fashioning of unusual tools which might be necessary for an individual job, the work was done chiefly by hand. Kent & Olway Laboratories, Inc., employed 12 expert machinists and mechanics who had been particularly trained for this type of delicate work. The cost of making the instruments was relatively high, and the typical sale was approximately $2,000. Some instruments were sold for as little as $400 and others for as much as $7,000.

The company was not subject to competition on the part of other scientific-instrument makers. Each firm, in general, specialized in the production of instruments for a particular type of work, and it was the purpose of Kent & Olway to design and build apparatus which could not be bought elsewhere. In fact, Kent & Olway frequently supplied instruments to other instrument makers. The business required a certain amount of inventive genius, for customers often wanted an instrument which would do certain things but did not know whether such an instrument could be made. Both Mr. Kent and Mr. Olway spent a large proportion of their time in the designing of patterns to meet these unusual requirements. The company did not always obtain an order after completion of this preliminary work, however. Sometimes the customer did not wish to pay the high price necessary for the completion of the work and took the drawings obtained from Kent & Olway to another firm where the job could be completed more cheaply. In some instances, customers took the drawings and did the work themselves. The company received payment for its services only in those cases in which it completed the work.

Up to 1930, the prices of the instruments had not deterred customers from purchasing. So long as the products sold could do what they were supposed to do, customers did not object to the prices charged. Their interest was in the instruments only, and it was not necessary for Kent & Olway to quote a price in order to make a sale. In 1930, however, funds available to college laboratories were curtailed, and research workers in planning their work had to consider prices. The company at that time found it necessary to quote prices before undertaking any work. Prices were no different under this procedure, and the prices quoted were based on the same factors as those which had previously determined selling prices.

Selling prices were based on the total costs of all factors entering into the production of the instruments, and included also a profit on the operations. In the determination of selling prices, a charge

of $2.75 per hour was made for the time spent on the particular order by the drafting department and the workmen; the time spent by Mr. Kent and Mr. Olway in getting the work under way was not included. This figure of $2.75 had been set by Kent & Olway Laboratories, Inc., before it had started business as a rate which would be sufficient, assuming full-time operations, to cover all costs of doing business and allow a fair profit. The costs which this rate was intended to cover included the cost of labor; manufacturing expenses, comprising tools and supplies, drafting, rent, insurance, light, heat, power, depreciation, taxes, and other miscellaneous charges; and "operating expenses," comprising executive salaries, office salaries, traveling expenses, interest, and profit.

The rate of $2.75 was not changed during the period 1925 to 1934, although in the years 1932, 1933, and 1934 the company did not carry on full-time operations. The allowance for overhead expenses in this hourly charge was not sufficient in those years to cover the aggregate of such expenses, and the company lost money in all three years. In 1931, a year of profitable operation, the company's expenses, expressed as a percentage of sales, were as follows:

Labor	44%
Materials	2
Manufacturing expenses	18
Work done outside	4
Operating expenses	32

Orders for new instruments declined in 1932. This decrease was attributed to the severity of the business depression in that year and also to the fact that college laboratories lacked funds for the purchase of instruments. Both Mr. Kent and Mr. Olway realized that the prices of their products were high, but did not believe that a reduction in selling prices would increase sales materially. There might be an increase in sales to industrial users, but this would be slight. Selling prices could not be decreased by a corresponding decrease in quality of the instruments sold, for the reputation of the firm depended on the sale of high-quality products.

In November, 1932, Mr. Olway attended a meeting of businessmen at which an economist from a near-by university talked on the subject: "England Goes Off the Gold Standard." The speaker said that one of the reasons why England had gone off the gold standard was that the English wage level had proved to be too high and too rigid relative to commodity prices; and he predicted that the United States would experience serious trouble if the efforts

of politicians, businessmen, and labor leaders to maintain high money wage rates should continue. In the course of the discussion after the talk, Mr. Olway told the speaker that he had never considered reducing his hourly wage rates and asked whether the economist would recommend that he do so. He remarked that a reduction in wage rates would cut costs drastically and minimize losses, for labor expenses were one of the chief costs in his business. The economist replied that, in general, he recommended that wage rates be cut, but that he had no specific recommendation for Mr. Olway, inasmuch as each case had to be considered on its own merits, and questions of employee morale, loyalty, and efficiency had to be considered, as well as the effects on prices and business profits.[1]

Wage rates had not been changed since the business was founded. In order to get the best men possible for the work, the company paid wage rates of $1 an hour, which in 1925 were from 15 cents to 25 cents an hour higher than the going rates for machinists and mechanics. Mr. Kent had believed that the payment of this rate would hold the men in the organization and minimize any labor turnover. In 1932, all men hired in 1925 were still employed. The workers were loyal and had never been a source of trouble to the company.

A reduction in wage rates could have been made without danger of ensuing labor troubles. Hourly rates paid in most other machine shops always had been considerably below those paid by Kent & Olway and had fallen even lower during the depression. The management believed, however, that a reduction in wage rates might result in a lower quality of work on the part of its workmen. It decided to keep wage rates at $1 per hour and to share the volume of the work, a policy which did not result in any reduction of costs. Weekly wages, which had been $44 per week with a 44-hour week, were reduced, by the decrease in the number of hours worked, to $20–$30 per week; but the men felt that the company was doing all

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[1] John Maynard Keynes, in his *General Theory of Employment, Interest and Money* (published in 1936), denied the validity of the contention frequently advanced by businessmen that a reduction in money wages helps to increase employment. He said, "I am now of the opinion that the maintenance of a stable general level of money-wages is, on a balance of considerations, the most advisable policy for a closed system; whilst the same conclusion will hold good for an open system, provided that equilibrium with the rest of the world can be secured by means of fluctuating exchanges. There are advantages in some degree of flexibility in the wages of particular industries so as to expedite transfers from those which are relatively declining to those which are relatively expanding. But the money-wage level as a whole should be maintained as stable as possible, at any rate in the short period." (P. 270.)

it could to help them in a period of slack business. To keep its labor force busy, the company made many improvements in its equipment and also lent men to other machine shops for special work when there was an opportunity to do so. The signing in 1933 of the NRA Code for the Scientific Apparatus Industry limited the number of hours worked per week to 40, but the wage rates of Kent & Olway were not affected, inasmuch as the rates paid were well above the minimum prescribed by the code.

In the spring of 1935, the company considered a program which might result in a fairly constant level of operations. Production had always been subject to seasonal variation, because the colleges in general ordered apparatus only in January and February and August and September. Business depression had shown that operations were subject to cyclical variation. To counteract these irregularities in production, the company planned to do as much work as possible in its own shop. Previously some work had been done by outside firms when a lack of equipment or a rush order made it impossible for Kent & Olway to complete the work. The company proposed also to engage in the production of small precision tools to be sold at prices ranging from $10 to $20, such production to be carried on in periods of slack business. The company further determined to advertise its products in order to become better known in the research world. Both Mr. Kent and Mr. Olway, who were members of various scientific organizations, planned to devote more time to attending scientific meetings for the purpose of establishing further contacts with research men who might be interested in the company's instruments. By these methods, it was hoped that the company could provide full-time work for its workmen and a profit for itself on the instruments sold.

Should Kent & Olway have reduced wage rates in 1932?

How, if at all, should any changes in wage rates have been related to changes in selling prices?

10. Carnegie-Illinois Steel Corporation

Decision whether to increase wage rates

In September, 1936, the Carnegie-Illinois Steel Corporation, principal subsidiary of the United States Steel Corporation, in response to employees' requests for higher wage rates, issued a

formal statement to its employees giving the reasons why the company considered itself unable to grant further increases at that time.

The Carnegie-Illinois Steel Corporation had been formed in 1935 by the consolidation of the operating activities of two predecessor subsidiaries, the Carnegie Steel Company and the Illinois Steel Company. The new company at that time had an annual capacity of 20,460,900 tons of steel ingots or castings, equal to 74.83% of the total of 27,341,900 tons for the entire United States Steel Corporation, and equivalent to 29.72% of the entire industry's capacity of 68,849,717 tons. This capacity greatly exceeded the 9,360,000-ton capacity of the Bethlehem Steel Corporation, second largest producer, and the 6,129,000-ton capacity of the third largest, the Republic Steel Corporation. In 1936, the properties and activities of another United States Steel subsidiary, the American Sheet & Tin Plate Company, were merged with those of the Carnegie-Illinois Steel Corporation.

The merger of the Carnegie Steel Company and the Illinois Steel Company had been undertaken in order to acquire greater corporate simplicity and to eliminate some overlapping of sales organizations and duplication of production personnel. The new corporation had manufacturing and selling facilities for every important steel product from the lightest to the heaviest.

The labor policies of the United States Steel Corporation had been criticized for many years by labor leaders. After the passage in 1933 of the National Industrial Recovery Act, employee representation plans, sometimes referred to as "company unions," were established in most of the plants of the Corporation. These plans provided for the election, by employees, of representatives authorized under these arrangements to participate in joint committees with representatives of the management in the consideration of disputes.

The labor situation in the steel industry became the subject of further concern to the steel companies in the spring of 1936, when John L. Lewis, having broken with the American Federation of Labor, formed the Committee for Industrial Organization and announced his intention of organizing the steel industry for the first time in its history.

The hourly wage rate for basic common labor in the steel industry, including the United States Steel Corporation, had remained unchanged, at 44 cents an hour, from August, 1923, to October 1, 1931, when it was reduced 10% to 39.6 cents. In May, 1932, there was a cut of 15%, to 33.7 cents. The rate was increased by the Corporation to 40 cents in July, 1933, when the NRA code was

pending. In September, 1933, there was an adjustment which affected only 10-hour schedule basic common laborers, who were placed on an 8-hour daily schedule, with an advance in their hourly rate from 40 cents to 42.5 cents. On April 1, 1934, the hourly rate for basic common labor (in the yards) was advanced from 42.5 cents to 47 cents.[1]

In July, 1936, the American Iron and Steel Institute released a study of pay roll figures compiled by the U. S. Department of Labor. This survey indicated that in March, 1936, the 446,000 employees in the industry had earned an average of $26.38 a week, as compared with average weekly earnings of $22.25 for workers in all manufacturing industries. The average hourly wage rate in the steel industry was found to have been 66.2 cents, which was 16% above the average of 57.2 cents for all manufacturing industries and which, furthermore, slightly exceeded the 1927 average wage rate of 65.4 cents reported for the steel industry by the National Industrial Conference Board.

Prices and production in the steel industry had been improving for some time, as shown by the figures in Exhibits 1, 2, and 3.

EXHIBIT 1

STEEL PRICES AT MILL, ANNUAL AVERAGES, 1921–1935

Year	Composite Price* (Cents per pound)	Year	Composite Price* (Cents per pound)
1921	2.543	1929	2.297
1922	2.241	1930	2.111
1923	2.775	1931	2.016
1924	2.602	1932	1.957
1925	2.438	1933	1.943
1926	2.409	1934	2.103
1927	2.286	1935	2.126
1928	2.254		

* Includes steel bars, shapes, plates, plain wire, open-hearth rails, black pipe, black sheets, and hot-rolled strip.
Source: *Iron Age*, January 2, 1936, p. 117.

On September 5, 1936, the Carnegie-Illinois Steel Corporation announced an increase of $2 a ton on semifinished steel, hot-rolled bars, small shapes, and hot-rolled annealed sheets, effective October 1. Some observers attributed this increase to the rise of $4 a ton in the

[1] *Steel*, January 6, 1936, p. 249.

price of steel scrap that had occurred in the preceding six months. Others believed that it foreshadowed advances in wage rates.

EXHIBIT 2

STEEL INGOT PRODUCTION, 1927–1936

(Percentage of capacity)

Week Ending August 17, 1936, and Nearest Corresponding Week of Previous Years	Entire Industry	U. S. Steel Corporation	Independents
1927	65%	68½%	63%
1928	75	78	71
1929	90	95	86½
1930	54½	62	49
1931	33	35	31
1932	14½	13½	15
1933	51½	49	53
1934	22½	22	22½
1935	49	41	55
1936	70½	66½	74

Source: *Wall Street Journal*, August 19, 1936.

EXHIBIT 3

STEEL PRODUCTION IN THE UNITED STATES, 1921–1935, AND FIRST SEVEN MONTHS, 1935 AND 1936

(Millions of long tons)

Year	Production	Year	Production
1921	19.8	1930	40.7
1922	35.6	1931	25.9
1923	44.9	1932	13.7
1924	37.9	1933	23.2
1925	45.4	1934	26.0
1926	48.3	1935	34.1
1927	44.9	1935 (first 7 months)	21.2
1928	51.5	1936 (first 7 months)	29.4
1929	56.4		

Sources: Full-year figures, American Iron and Steel Institute, *Annual Statistical Report* (1935), p. 14.
First seven months of 1935 and 1936, *New York Times*, September 9, 1936.

Because of continued agitation among employees of the Carnegie-Illinois Steel Corporation for wage increases, B. F. Fairless,

president of the company, on September 12, 1936, sent to the employee representatives a statement of the company's position with respect to wages. He pointed out that the management of any business had a triple responsibility, to employees, to security holders (owners), and to customers; and that the management of the Carnegie-Illinois Steel Corporation could not at this time see how to grant an increase in wages without doing an injustice to the owners and without advancing prices. The wage rates of the Corporation were equal, he stated, to those paid by other companies in the steel industry; and they compared favorably with those of 1929. The base rate of 47 cents was the highest in the company's history. Weekly earnings, furthermore, would buy more goods in 1936 than in 1929 because the cost of living had dropped by approximately 15%. The Corporation had made a profit of $16,238,727 in the first half of 1936, but a 10% increase in the yearly pay roll of $130,000,000 would absorb nearly all this profit; and there was no assurance that the rate of profit would continue, especially since the backlog of orders had decreased. Mr. Fairless called attention to the fact that for 2½ years preferred stockholders had received annual dividends of only $2, whereas the stipulated rate was $7. He admitted that perhaps the prices of some products could be raised to furnish additional revenue, but contended that the trend toward business recovery was not strong enough to warrant a general price increase.

The employee representatives were not satisfied with this statement. Within a few days, steelworkers at the South Chicago and Mingo Junction, Ohio, plants of the Corporation demanded a 10% wage increase. Accepting Mr. Fairless' contention that a 10% pay raise would absorb all the $16,238,727 profit announced for the first half of 1936, the employee representatives in the South Chicago plant replied that if profits for the second six months were as good, the profits for the year would be a little over $32,500,000, which, they argued, would cover a 10% pay raise with $7,500,000 to spare. They conceded that the existing base wage of 47 cents an hour was the highest in the Corporation's history; but they pointed out that even working 48 hours a week, 52 weeks a year, an employee would have an annual income of only $1,173.12. Their statement was in part as follows:

We are of the opinion that the Bureau of Labor Statistics when engaged in computing for budget purposes the average size of a family in the United States assumes a family of four. It should be obvious that with a total income of the amount above stated, no family of four can inde-

pendently afford to subsist nor afford to avail itself of the reasonable advantages available to our civilization today. We are not aware that there is any budget in existence today that states that any typical American family can subsist, to say nothing about becoming possible purchasers of industry's mass production, on any figure less than something over $1,300 per year.[1]

At the same time, 36 employee representatives, from 12 sheet and tin plate plants of the Corporation, met for their annual convention in Pittsburgh. After four days of secret discussions, they demanded a minimum daily wage of $5 for unskilled labor. Among other things, the group also asked the Corporation to establish a pension plan and seniority rights, to grant vacations with pay, to abolish all incentive pay rates in the sheet and tin plate mills, and to designate every other Friday as pay day. (In the steel industry, laborers were commonly paid at intervals of 15 or 16 days.)

Financial data for the Carnegie-Illinois Steel Corporation were not available to the employees, since separate statements were not published for the subsidiaries of the United States Steel Corporation. Inasmuch, however, as Carnegie-Illinois represented more than half the United States Steel Corporation, figures for the latter corporation were used as a basis for discussion (see Exhibit 4).

During the autumn of 1936, employee representatives reiterated their contention that the company could afford to pay higher wages, and renewed their demands for increases. By the middle of October, the company recognized, for bargaining purposes, a committee of 18 employee representatives, known as the General Council of Employees' Representatives. This Council comprised two members from each of nine of the Corporation's eighteen plants.

The Council proposed that outside arbitrators be called in to determine the company's ability to pay higher wages. The company refused to submit the problem to outside arbitrators, on the grounds (1) that such procedure would give outsiders control in the dispute; (2) that the company's books might be thrown open to the public and competitors during the arbitration proceedings; and (3) that this step would wreck the objective of the employee representation plan, which was that the company and its employees should settle their own problems without outside advice.

On October 28, the company refused a request by employee representatives for an increase of $1.12 a day for all employees, but agreed to negotiate for a compromise.

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[1] *New York Herald Tribune*, September 20, 1936.

On November 8, the company offered a wage increase of 10% to mill workers, as from November 16, at the same time asking employees to sign a one-year agreement that wages should be subject to adjustment upward or downward in line with the cost of living as computed by the United States Department of Labor. Increases of 7% to 9% for the company's 9,000 office employees receiving $5,000 a year or less were announced simultaneously.

EXHIBIT 4

TOTAL NUMBER OF EMPLOYEES, TOTAL SALARIES AND WAGES, TOTAL ASSETS, NET INCOME, EQUITY PER COMMON SHARE, AND EARNINGS PER COMMON SHARE, OF THE UNITED STATES STEEL CORPORATION, 1926–1935

Year	Total Number of Employees	Total Salaries and Wages Paid	Total Assets	Net Income before Bond Interest Charges	Equity per Common Share	Earnings per Common Share
1926	253,199*	$467,409,444	$2,454,139,185	$143,124,242	$285.33	$17.99
1927	231,549*	430,727,095	2,433,583,169	113,409,482	205.14	8.81
1928	221,702*	413,699,720	2,442,030,233	133,748,996	208.87	12.50
1929	224,980*	420,072,851	2,286,183,655	202,564,769	204 16	21.19
1930	211,055*	391,271,366	2,394,544,611	110,061,668	206.30	9.12
1931	203,647†	266,871,413	2,279,802,813	18,507,764	199.08	1.39(d)
1932	158,032†	133,912,809	2,158,732,222	65,862,244(d)	187 06	11.08(d)
1933	172,577†	163,149,503	2,102,896,880	31,336,671(d)	178.39	7.09(d)
1934	189,881†	210,503,533	2,084,112,287	16,616,728(d)	173.22	5.39(d)
1935	194,820†	251,576,808	1,822,401,742	6,106,488	139.90	2.76(d)

(d) Deficit.
* Statistical number of full-time employees.
† Total number of employees on rolls.
Source: Moody's *Industrials.*

The text of the agreement read in part as follows:

The Management and the Employee Representatives further agree, should there be a marked increase in the cost of living during the year subsequent to November 16, 1936, that general wage levels shall be adjusted thereto on the following basis:

a. The change in the cost of living shall be determined by the Index of the cost of living as published by the Bureau of Labor Statistics of the United States Department of Labor and that index, as of July 15, 1936, shall be considered as the base on which subsequent changes shall be indicated.

b. The wage level now in effect shall be considered as the base from which subsequent adjustments shall be made, if, as, and when indicated by changes in the cost-of-living index.

c. The general wage adjustment effective November 16th, which will approximate an over-all increase in the total wage payroll of ten (10) per cent, shall be assumed to compensate, in advance, any subsequent rise in the cost of living up to ten (10) per cent from its July 15th base.

d. As a practical measure, the minimum change in the cost of living upon which wage adjustments shall be indicated shall be five (5) per cent. In other words, wage rates will not be further revised, after November 16, 1936, until the cost of living has changed a full five (5) per cent from the increase of ten (10) per cent over the July 15th base.

e. If, as, and when the cost of living rises or falls a full five (5) per cent after having increased ten (10) per cent over the July 15th base, a corresponding wage adjustment of five (5) per cent shall be made, either upward or downward, from the then existing wage level, provided, however, that if the cost of living should abruptly decline to a figure below that of July 15, 1936, no corresponding wage adjustment shall be made that would bring the general wage level below that now existing as of this date.

. . . . . .

The adjustment thus made [the 10% increase in wages] shall be in effect for a full year, provided wide swings beyond a ten (10) per cent increase in the cost of living, as prevailing on July 15, 1936, do not occur.

By November 16, representatives of 60,000 employees had signed the contract, and representatives of 40,000 employees had declined to do so. The plan was put into effect for all employees, the company posting the following notice on bulletin boards in its plants:

The proposed wage increase, coupled with the adjustment of occupational rates and based upon a cost of living formula, which employees and the management have been considering for some time, has received the hearty approval of a great majority of the plants and the employees of the company and will therefore be the policy of the company, effective November 16, for a period of one year.

(Signed) BENJAMIN F. FAIRLESS
President, Carnegie-Illinois Steel Corporation

On November 23, 1936, the Carnegie-Illinois Steel Corporation announced a price increase, effective December 1, ranging from $2 to $4 per ton on semifinished and finished steel. The principal advances were in rolling-quality steel, $2; bars, shapes, plate, and sheet piling, $3; and alloy billets, cold-finished steel bars, hot-roll strip, tin mill black plate, and all grades of sheets except vitreous enameling, $4.

During the remainder of 1936 and the first two months of 1937, the efforts of the steelworkers to obtain higher wages continued, and on March 2 the Carnegie-Illinois Steel Corporation signed an agreement with the Steel Workers Organizing Committee, the text of which was as follows:

This agreement, dated March 2, 1937, between Carnegie-Illinois Steel Corporation and the Steel Workers Organizing Committee on

behalf of the members of the Amalgamated Association of Iron, Steel and Tin Workers of North America employed by the corporation:

(1) The Corporation recognizes the Steel Workers Organizing Committee or its successors as the collective bargaining agent for those employes of the Corporation who are members of the Amalgamated Association of Iron, Steel and Tin Workers of North America, hereinafter referred to as the union. The Corporation recognizes and will not interfere with the right of its employes to become members of the union or its successors. There shall be no discrimination, interference, restraint, or coercion by the Corporation or any of its agents against any member because of membership in the union or its successors. The Steel Workers Organizing Committee or its successors agree not to intimidate or coerce employes into membership or to solicit membership on Corporation time or plant property.

(2) Effective March 16, 1937, there shall be an increase in wages of 10 cents an hour on all rates which are at present $4.20 a day, or a minimum for this classification of $5 per day of eight hours. Such classification now receiving less than $4.20 per day or less than 52½ cents per hour shall be increased 10 cents per hour. All other classifications shall be equitably adjusted in accordance with the provisions of Section 4 of this agreement.

(3) Effective March 16, 1937, there shall be established an eight-hour day, forty-hour week. Time and one-half shall be paid for all overtime in excess of eight hours in any one day and for all overtime in excess of forty hours in any one week.

(4) A joint committee representing the Carnegie-Illinois Steel Corporation and the Steel Workers Organizing Committee shall meet not later than March 10, 1937, for the purpose of effectuating a written legal agreement on working conditions, application of wage rates, hours, rules, and a method for adjudicating disputes arising under the terms of the agreement, and which agreement shall incorporate the terms of this agreement. The agreement effectuated pursuant to Section 4 hereof shall be in force until March 1, 1938.[1]

On March 4, 1937, the Carnegie-Illinois Steel Corporation announced an additional increase of $3 to $8 per ton, to become effective April 1. Rerolling billets were advanced $3; cold-finished bars, $7; plates and shapes, $4; and hot-rolled annealed sheets, $7. With reference to the change in price, William A. Irvin, president of the United States Steel Corporation, was quoted by the *New York Times*, March 5, 1937, as follows: "Although advances to labor in the matter of higher wages and shorter hours are a compelling factor, a price rise was inevitable, due to the fact that quotations on scrap iron, constituting 40% of the make-up of steel, have risen from $14.96 per ton to $19.88 since February 1, 1936."

Was the Carnegie-Illinois Steel Corporation justified in refusing wage increases in September, 1936?

[1] *New York Times*, March 3, 1937.

Were the demands of the Carnegie-Illinois employees for higher wages justified?

Was the company's subsequent policy of raising both wages and prices a sound one?

APPENDIX

AMERICAN LABOR POLICY[1]

For several years now we have had a national labor policy. Its elements are well-known. They are the encouragement of union organization and collective bargaining through trade unions and the regulation of wages and hours. An impressive succession of laws, from the National Industrial Recovery Act to the Labor Relations Act, has been enacted to bring labor relations and working conditions under a greater measure of control. In the past year many of the states, freed from the prohibition of unconstitutionality, have adopted similar legislation aimed at promoting trade unionism in business of a purely local character and fixing minimum rates of pay for labor. The Federal administration, meanwhile, has indicated its purpose to complete this edifice of labor law by sponsoring national legislation under whose authority agencies of the Federal government will fix minimum wages and maximum hours in industries beyond the jurisdiction of the states.

The purposes of this labor policy are manifold and explicit. They are intended to raise and stabilize the purchasing power of labor. Through the regulation of the hours of work they are directed toward minimizing the volume of unemployment. They contemplate the redistribution of wealth and income and the achievement of democracy in the conduct of economic affairs. And they have as their more ambitious goal the stabilization of business activity, employment, and labor income. For, as the preamble to the Wagner Labor Relations Act asserts, the existence of unorganized labor, weak in bargaining power, "tends to aggravate recurrent business depressions, by depressing wage rates and the purchasing power of wage earners in industry and by preventing the stabilization of competitive wage rates and working conditions within and between industries."

Elaborate as this body of labor law is, it has not languished on the Statute books, forgotten by both its authors and beneficiaries. It has had the benefit of vigorous and sympathetic enforcement. The new administrative agencies have on the whole been managed by men who have shown deep and abiding faith in the wisdom and efficacy of the policy they were chosen to interpret. Policy and legislation have received superb elucidation and strong endorsement. Transgressors and opponents have been held up to public odium. Special problems, such as the instability of the bituminous coal industry or the control of labor conditions in the filling of

[1] An address by Professor Leo Wolman of Columbia University before the 13th New England Conference, Boston, November 19, 1937. Reproduced by permission.

government contracts, have been made the subject of special legislation. Organized labor, the chief and most effective agent of enforcement, has profited from friendly legislation and administration and has added vastly to its economic and political power. Its enhanced power the union movement has used to further the aims of our national labor policy by demanding a shorter work week and higher rates of wages, and, perhaps most important of all, a voice in the determination of conditions of work.

Whatever the social and political implications of this labor policy may be, its economic implications are clear. Our current labor policy, in economic terms, is a policy of price regulation and price fixing. In this respect it is not to be distinguished from the price fixing activities of other economic groups, whether they be farmers or trade associations, middlemen or producers. There are, to be sure, vast differences in the social objectives to which various economic groups aspire, but the methods they employ are much the same. The restrictions and allocations of output practiced by business combinations in the name of price stability find their counterpart in the restrictive policies of trade unions and government aimed at achieving a high, uniform, and stable price for labor. The fact that the motives of government and organized labor are pure and that their policy has in view the common good make it all the more necessary to explore its economic consequences and to discover whether it is indeed headed toward its appointed destination.

This is a peculiarly appropriate time to begin to state the questions which our labor policy raises. Initiated under conditions of improving business, expanding employment and pay rolls, and widening margins of profit, the policy now faces substantial contraction in the volume of business activity, shrinking pay rolls and employment, and rapidly declining rates of business profit. Although the existence of this new business situation was only recently acknowledged and its gravity recognized, much is already being said of the possible need for adjustments in wages and labor cost. And in important official circles it is now being suggested that the price of some classes of labor is perhaps so high as to impede the anticipated processes of business recovery and to delay the reemployment of labor.

But in the view of some observers of these current trends in business, recovery from the present decline in employment and pay rolls depends on carrying still further the control of wages and hours, whether by new legislation or the increasing power of organized labor. Supporters of the Wages and Hours Bill apparently still hold that raising the wages and reducing the hours of one-third of the working population of the country, and thereby further lifting the general levels of wages and labor cost, is even at this time an urgent necessity and wise policy. A member[1] of the National Labor Relations Board, pursuing the same train of thought in an address delivered in Rochester, New York, last week, said: "Labor in the United States is steadily falling behind in the economic struggle. Increase in industrial wages continues to lag behind profits, while productive capacity and actual production per worker are forging ahead of the workers' standard of living. Most serious of all we have the numerous

[1] Edwin S. Smith, Release of the National Labor Relations Board, November 11, 1937.

army of the unemployed, which no one's wisdom seems to know how to demobilize."

At a time when the course of business itself has caused some people to question the validity of our wage and labor policy and has persuaded others that it is now more valid and efficacious than ever before, provided only that it is more extensively and vigorously applied, it will be useful to see how far in fact the wages and hours of American labor have been affected by the policy of these last years. This is no easy task, and it cannot be satisfactorily done in a necessarily brief review of the present situation and its antecedents. But it is possible by a reasonable delimitation of the field to devise representative and reliable measures and through them to discern the direction and size of dominant trends in American working conditions since the beginnings of the NRA.

For this purpose I have chosen the record of hours and wages in manufacturing industries. This group of industries affords a most representative cross-section of the work American labor does and of the conditions under which it is employed. At the present time factory labor amounts to some 10,000,000 persons, or roughly one-fifth of the total gainfully occupied population of the country. The scales of wages paid vary from the exceptionally high rates of pay in force in the newspaper printing, rubber tire, petroleum refining, and automobile industries to the relatively low scales of the silk, canning, lumber, and cotton industries. Of the total factory labor force, about one-fifth, or 2,000,000, are women. Among the employees are to be found the customary proportions of skilled and unskilled labor, craftsmen and machine tenders, manual labor and white-collar workers. The shops in which these men and women work are dispersed over the whole area of continental United States, from sparsely-settled rural localities to our most densely populated cities. Their employers are vast corporations with more than 100,000 employees on the pay roll and the dress contractor of New York City employing from 10 to 100 people.

The average normal work period of these 10,000,000 employees is now about 40 hours a week, or five 8-hour days. A maximum work week of 40 hours is the climax of a long and slow historical trend in the reduction of the hours of labor. Random and not wholly satisfactory data would appear to show that the hours of factory labor in this country had, in round numbers, declined from 60 in 1890, to 55 in 1914, to 50 in 1920, to 49 in 1929 and to 40 in 1937. For the years of the last depression, the record is confused and unreliable. But it is safe to assume that the pressure for lower costs was met not alone by reducing rates of wages but also by requiring more work for the same money, or adding to the length of the work-week. Certainly in several of the most depressed of our industries, there is good reason to believe that the hours of work, between 1929 and 1933, were advanced from 50 to 55 or 60 per week, if not more. Compared, then, to the most recent period in our business history, a normal week of 40 hours amounts to a reduction of from 10 to 15 hours a week. And of the decline of 20 hours during the last half century, more than a third, or 8 hours, was won in the brief space of time since June, 1933, and the coming into being of the National Recovery Administration.

The case of wages is more difficult. For there are many ways to describe wages and, hence, to measure them. Wages, as we all know,

may be considered in terms of the weekly or annual earnings per employed person, the total amount of wages paid out by industry, the share of the national income received by labor, and, finally, the rate of wages at which men are employed. It is with this last type of wages, or with the price of labor, that I shall be concerned in this discussion, since it is in general only the price of labor which is fixed by law or by collective contracts between employers and employees. Minimum wage laws, the codes of fair competition of the NRA, union agreements, and the contract made by a single employee with this employer specify the rates of pay per piece, per hour, or per day. They do not specify actual earnings by the week or by the year. Nor do they indicate the amount of wages industry may be expected to disburse. All agencies, private and public, charged with the task of fixing the price of labor plan, of course, to set the price at a point calculated to yield maximum earnings to a maximum work force. But it is precisely the relation between rates of pay and the aggregate income of labor that is the core of the problem of wage and labor policy.

The most convenient index of the price of factory labor is the rate of pay per hour. The average rate of pay in all manufacturing industry in August, 1937, as reported by the United States Department of Labor, was 66 cents an hour. In June, 1933, it was 42 cents. It is substantially higher now than in 1929, or even 1920. From June, 1933, to August, 1937, it has increased by 57%. And from September, 1936, to August, 1937, it has increased by 16%.

Many people believe that rates of pay have failed to keep pace with the advances in the cost of living and it is to this alleged lag in wages that they ascribe the persistence of the large volume of unemployment in this country. But this belief is not supported by the data. These rates of pay, corrected for changes in the cost of living, have increased considerably since the turn in business in 1933. The purchasing power of a factory laborer's hourly wage in August, 1937, was 29% greater than in June, 1933, 12% greater than in September, 1936; and it was 57% greater than in 1920 and 38% greater than in 1929.

Everyone must, I think, admit that these are surprising figures. It is strongly to be doubted that they agree with popular, or perhaps even official, impressions concerning the advances latterly made in the wages and hours of American labor. If a rising level of wage rates and declining schedules of hours are the key to the welfare of labor that they are so often assumed to be, the determined exploitation of these means of progress during these last several years should have yielded exceptional returns in the form of expanding and more stable employment and earnings. That large-scale unemployment should have continued while changes in hours and wages of such magnitude were taking place should throw some doubt on the validity of the economic doctrine on which the current wage policy of this country rests. At the least, this record should give pause to those who seek the cure for our latest difficulties in a still more generous dose of the same medicine.

The fact is that labor cost is one of the several most important costs of doing business. Excessive changes in wages and hours, which industry is at the time unable to absorb, reflect themselves promptly in cost and price and may and do result in a shrinkage in the volume of business and, therefore, of employment and earnings. This is from time to time readily

admitted to be the condition of particular industries and is now the commonly accepted explanation for the state of employment on the railroads and in the building construction industry. Aside from the effect which inactivity in these two basic industries is bound to have on the total business situation, there is good reason to believe that the range of industries similarly affected is considerable and increasing. I venture the opinion that a large part of the continuing unemployment in this country is attributable to errors in wage and labor policy.

A swift and steep rise in labor cost, as of other costs of doing business, may engender brief spells of speculative boom, which for the moment bear all the earmarks of prosperity and during which manufacturers, dealers, merchants, and consumers hasten to buy and lay in stocks in anticipation of a rising level of prices. One such speculative boom we had during the first months of the NRA, and it is not beyond the bounds of reason to hold that the course of business in the late winter of 1936 and early spring of 1937 was of the same character. In place, therefore, of moderate expansion of business, affording more jobs for longer periods and at lesser rates of pay, we have had spectacular advances in some industries, persistently depressed conditions in others, and the prospect for a total volume of unemployment larger than it need be.

These errors, if they be such, cannot be written off and charged to the past. They remain, unless corrected, impelling forces of the market. Fixed prices for labor, protected as they now are by law and the power of organization, will in the future possess greater capacity to resist forces of readjustment than ever before; and to the extent that present policy continues in the face of changing conditions of business, it may well act as an effective barrier to fuller employment and rising real earnings. How to deal with this condition is, in my judgment, the common problem today of both industry and labor in this country. And I can conclude this brief statement of mine in no better way than by repeating the comments[1] on this problem of a leading businessman and employer of labor.

"Much improvement in industrial relations," he said in 1936, "ought to result from the pressures of governmental policies and public opinion. . . . " But "in the long-time view the most serious aspect of the present trend toward collective bargaining—is that it is essentially price-fixing and price-fixing of only a part of the general price structure. . . . Today popular and governmental sentiment seems determined to place upon our economic system all kinds of involuntary fixed charges to be predetermined before any production has occurred. . . . From the standpoint of management, which today has the responsibility for the success or failure of our myriads of economic enterprises, the whole trend of industrial relations seems toward taking away from it the authority commensurate with its present responsibilities."

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[1] W. T. Holliday, President, Standard Oil Company of Ohio, in *Addresses on Industrial Relations* (Ann Arbor, University of Michigan Bureau of Industrial Relations, 1936).

G. INVESTMENT POLICIES

11. JOHNSON, HUBBARD AND COMPANY

CYCLICAL FLUCTUATIONS OF CONSUMER GOODS AND CAPITAL GOODS INDUSTRIES

In May, 1934, the investment committee of Johnson, Hubbard and Company, investment counselors, considered advising the firm's clients to increase the proportion of their holdings of capital goods stocks. The division of holdings which the company had been recommending was as follows.

	Ideal	Maximum
Railroads	0%	10%
Public utilities	0	10
Consumers' goods companies		
Containers	7	10
Food distributing	3	5
Food processing	6	7
Household products	2	3
Merchandising, general	7	7
Merchandising, variety	7	7
Tobacco	4	7
Miscellaneous (textiles, shoes, etc.)	3	7
Total	39%	
Capital goods—cyclical		
Agricultural implement	3%	7
Aviation	2	2
Business equipment	3	5
Construction	3	7
Electrical equipment	3	5
Industrial equipment	4	8
Railroad equipment	2	5
Steel and iron	0	5
Total	20%	
Other cyclical goods		
Automobiles and accessories (including tires)	5%	9
Banks and finance	3	7
Chemicals	10	15
Insurance	5	7
Miscellaneous	4	7
Total	27%	
Commodity stocks		
Nonferrous metals	7%	7
Petroleum	7	10
Sulphur	0	3
Total	14%	
Total equity risk	100%	

The committee were of the opinion that various factors in the general business and political situation might reopen the capital

markets and make possible a revival in the capital goods industries. They felt that the government was turning toward more conservative policies, with less danger of monetary manipulation. Furthermore, worldwide business recovery was continuing, slowly but steadily.

Before making definite recommendations to their clients as to changes in the proportion of capital goods stocks, the investment committee wished to have further information at hand. They therefore instructed the research department to prepare a memorandum on the recent fluctuations of consumers' goods and capital goods industries, with specific recommendations as to clients' holdings in the agricultural implement, construction, automobile, and iron and steel industries.

Acting on these instructions, the research department drew up the following memorandum:

MEMORANDUM ON CONSUMERS' GOODS AND CAPITAL GOODS INDUSTRIES

PART I. GENERAL BACKGROUND

A. Consumers' Goods. Consumers' goods are those bought by consumers at retail. The most important classes are food and clothing. Other important items are tobacco and articles made of paper, textiles, leather, and rubber. All these goods are relatively quite perishable in nature, but there are also durable consumers' goods, such as household furniture and automobiles.

Past fluctuations in the production of consumers' goods in the aggregate are shown in the following chart [Exhibit 1].[1] [Exhibit 2 presents similar data for capital goods, and Exhibits 3 and 4 compare differences in the movement of consumers' goods and capital goods between 1929 and 1932.]

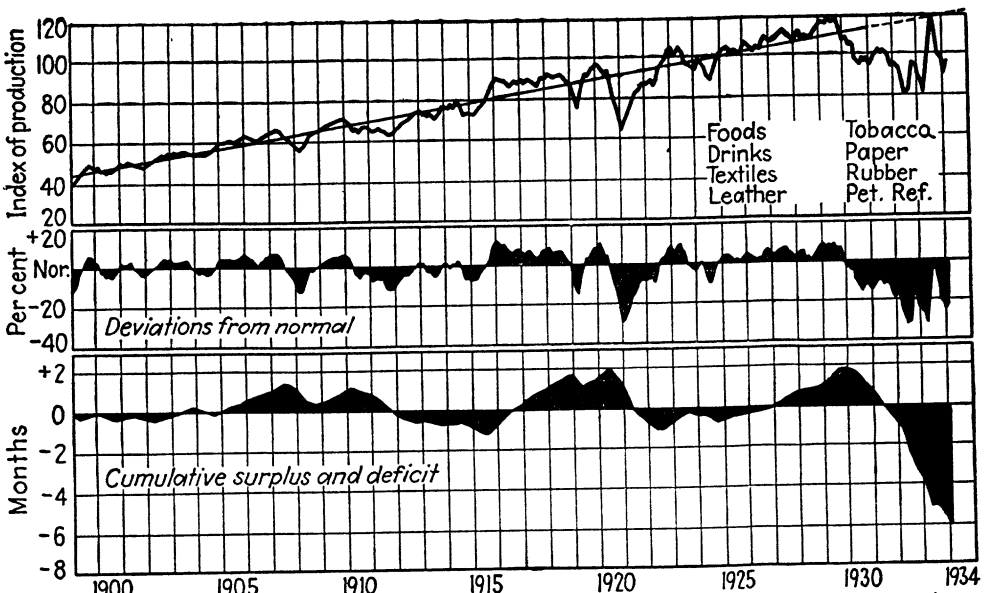
As the chart shows, there was no serious overproduction of consumers' goods in the prosperity period before the depression, and the shortages accumulated during the depression are not of large dimensions ". . . . At the end of prosperity the theoretical accumulated surplus of consumption goods was not more than that normally produced in two months, and . . . [the] present accumulated shortages do not exceed normal production of six months."[2]

During the depression the demands for consumers' goods have fluctuated in varying degrees. For certain types of goods there has been practically no decline at all. A recent study by Arthur R. Tebbutt has

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[1] In this chart, only nondurable consumer goods are shown. Passenger cars are included with durable goods in Exhibit 2.

[2] *Cleveland Trust Company Business Bulletin*, Vol. 15, No. 3, March 15, 1934, p. 4.



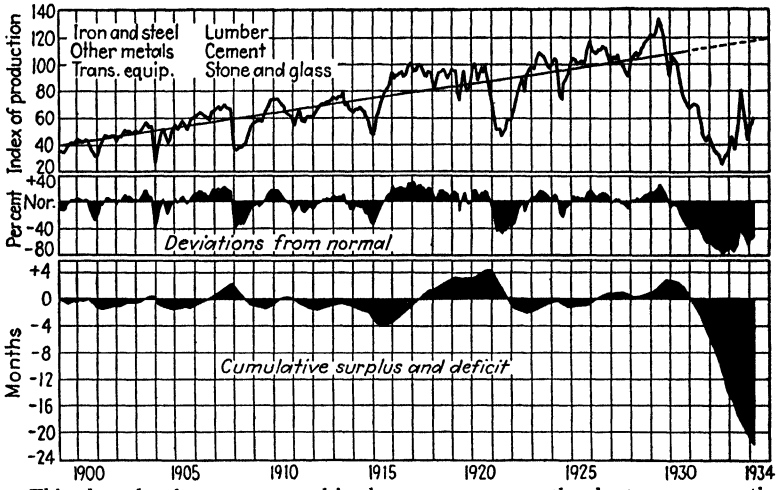
The chart shows the monthly changes in the physical volume, but not in the value, of the industrial production of consumption goods during the past 35 years. The top section is the index of production. It is based on the data, the weightings, and the methods used by the Census and the Federal Reserve Board in the construction of their indexes of production. It is believed that the totals for each year are relatively reliable throughout, but due to inadequacy of data the monthly changes prior to 1910 are only approximations.

A straight line computed by the method of least squares and based on the years from 1899 through 1930 inclusive has been drawn through the irregular index line to show the trend, and to serve as a computed normal from which to measure the plus deviations of the prosperity periods and minus deviations of the depressions. The black silhouette of the middle section shows the percentages by which production exceeded this computed normal or fell below it.

The lowest diagram was made by cumulating the data of the middle one. The percentages by which production exceeded normal were continuously added until a depression period was reached and then the percentages were cumulatively subtracted.

Source: *Cleveland Trust Company Business Bulletin*, Vol. 15, No. 3, March 15, 1934, p. 4.

EXHIBIT 1.—Volume of Industrial Production of Consumption Goods. (Average, 1923–1925 = 100.)



This chart has been constructed in the same manner as the chart on consumption goods [Exhibit 1]. It likewise is "based on the data, the weightings, and the methods used by the Census and the Federal Reserve Board in the construction of their indexes of production."

Source: *Cleveland Trust Company Business Bulletin*, Vol. 15, No. 4, April, 15, 1934, p. 4.

EXHIBIT 2.—Volume of Industrial Production of Durable Goods. (Average, 1923–1925 = 100.)

brought out this point clearly. We have therefore made the following excerpts from his study.[1]

"The very necessity of keeping alive demands that the individual consume food. That he may consume different kinds of food is readily admitted; but, depression or no depression, the consumption of food must remain at approximately the same level. Indeed it may be expected that with the slight increase in population that has taken place, the consumption of food would increase, but such a movement may be counteracted more or less by the decrease in waste which might be expected in a time of business depression. Hence, it is logical to suppose that food consumption as measured by the available statistics would remain the same or perhaps fall off slightly over the period 1928 to 1932, the decline depending particularly on the degree of increase in the economy of food usage.

. . . . . .

"It may be noted at once that in the much shorter depression of 1920–1921, consumption of wheat flour did not decline at all. In the present depression consumption advanced into 1930, fell about 6% from 1930 to 1931, and about 5% from 1931 to 1932. . . .

[1] ARTHUR R. TEBBUTT, *The Behavior of Consumption in Business Depression* (Harvard Business School, Division of Research, Business Research Studies, No. 3, August, 1933).

MONTHLY AVERAGE CONSUMPTION OF WHEAT FLOUR

(Million barrels)

Year	Consumption	Year	Consumption
1919	8.16	1926	9.63
1920	8.24	1927	9.30
1921	8.57	1928	9.46
1922	9.29	1929	9.48
1923	9.30	1930	9.56
1924	9.72	1931	8.94
1925	9.49	1932	8.51

Source: *Survey of Current Business.*

"The buying of meats shows very little change during business depression, although the movements vary from different types of meats. . . .

MONTHLY AVERAGE CONSUMPTION OF MEATS

(Million pounds)

Year	Total Meats	Beef and Veal	Pork (including Lard)	Lamb and Mutton
1919	854	432	384	39
1920	856	401	417	38
1921	853	375	435	43
1922	929	412	481	36
1923	1,053	427	588	38
1924	1,078	440	600	38
1925	1,024	461	525	39
1926	1,033	480	513	42
1927	1,047	447	559	42
1928	1,056	401	611	44
1929	1,058	404	608	46
1930	1,029	398	577	54
1931	1,043	398	588	57
1932	1,029	368	604	57

Source: *Survey of Current Business.*

. . . . . .

"Consumption of fish also does not seem to have changed in the period under consideration. Landings of fresh fish at principal ports show an increase over the number of pounds landed in 1928, while the shipments of canned salmon in 1932 were higher than shipments in 1928 and 1929.

"Turning to other products we find the same holding up of consumption in this prosperity-depression period.

LANDINGS OF FRESH FISH AT PRINCIPAL PORTS AND SHIPMENTS OF CANNED SALMON

Year	Fish, Monthly Average Landings (Million pounds)	Canned Salmon, Monthly Average Shipments (Thousand cases)
1919	17.7	
1920	16.2	
1921	14.2	
1922	14.9	467
1923	16.3	471
1924	17.0	542
1925	20.0	527
1926	22.1	525
1927	24.1	513
1928	24.7	474
1929	31.1	457
1930	32.2	512
1931	25.2	460
1932	25.2	481

Source: *Survey of Current Business.*

MONTHLY AVERAGE CONSUMPTION OF BUTTER

(Million pounds)

Year	Consumption	Year	Consumption
1919	126.8	1926	174.0
1920	129.5	1927	174.1
1921	143.8	1928	173.4
1922	149.7	1929	176.0
1923	156.4	1930	176.6
1924	164.7	1931	181.1
1925	166.4	1932	183.2

Source: *Survey of Current Business.*

"Apparently consumption of butter was higher in 1932 than at any other time on record, and has increased in every year since 1928 to a level considerably above that in the prosperity period. Consumption of cheese also was higher in 1932 than at the beginning of the period, despite a small decline from the 1931 level. Consumption of tea and cocoa as measured by imports shows about the same movement as the consumption of other food products during this period of 1928 to 1932.

. . . . . .

" . . . it is evident that the consumption of food on the whole has not decreased in this prosperity-depression period. Shifts in consumption

from one product to another have taken place to some extent, but the total consumption, so far as it can be measured, has remained at about the same level in depression as that attained in the preceding period of prosperity. The population of this or any other country must consume food in order to live, and it appears that in the United States the inhabitants have maintained even in this depression period the same standard of living as regards quantity of food that they had in the days of the previous prosperity."

On other types of consumers' goods included in his study, Mr. Tebbutt has written:

" . . . the consumption of women's clothing in the aggregate is certainly no lower, and in all probability is greater, in the depression period of 1932 than in the prosperity period of 1928; that of men may be somewhat lower, but not markedly so. Of course, those articles of clothing that are characteristic of the luxury class have declined, as would normally be expected. Furthermore, those groups of articles which admit of a prolonged postponement because of the possibility of repairing also show an expected decrease. Most significant is the fact that people in general at all times, both in prosperity and in depression, have only a minimum supply of clothing, which is replaced as it wears out.

INDICES OF PHYSICAL SALES OF DEPARTMENT STORES

(1928 = 100)

Department	1928	1929	1930	1931	1932
Furniture	100	102.9	89.0	90.1	80.7
Domestic floor coverings	100	103.9	86.8	79.3	67.3
Lamps and shades	100	102.5	96.7	100.0	77.4
China and glassware	100	103.8	93.0	83.2	69.8
Electrical household appliances	100	105.8	114.2	102.8	92.5
Miscellaneous house furnishings	100	96.4	92.5	90.9	84.0
Domestics, muslins, sheetings	100	104.0	102.5	102.5	104.3
Blankets and comfortables	100	109.0	103.5	120.1	105.7

. . . . . .

" . . . Consumption of furniture increased from 1928 to 1929, decreased into 1930, rose in 1931 to a level only about 10% below that existing in 1928, and declined in 1932. That sales of furniture should hold up so well until the abnormally depressed year of 1932 seems surprising. Consumption of floor coverings, china and glassware, and miscellaneous furnishings also shows marked decreases in 1932 as compared with 1928, but sales of electrical household appliances advanced substantially until 1931. Sales of sheetings and blankets were higher in 1932 than in 1928. Other series measuring value only would give about the same results.

. . . . . .

" . . . Consumption [of cigarettes] increased sharply from 1928 to 1929, rose again in 1930, and declined in the next two years to a level slightly below that of the year 1928."

MONTHLY AVERAGE CONSUMPTION OF CIGARETTES

(Million)

Year	Consumption	Year	Consumption
1919	4,427	1926	7,454
1920	3,718	1927	8,098
1921	4,239	1928	8,826
1922	4,464	1929	9,920
1923	5,371	1930	9,969
1924	5,917	1931	9,454
1925	6,663	1932	8,632

Source: *Survey of Current Business.*

B. Capital Goods. Capital goods are goods which do not go directly into consumption but which are purchased to produce or assist in producing other goods. They include machinery and equipment, iron and steel and other metals, transportation equipment, ships, lumber, cement, stone, clay, and glass.

It is usually possible to postpone the purchase of capital goods for an extended period by repairing existing installations. It is, in fact, a normal result of depression that business concerns which in better times are continually purchasing the most modern machinery and equipment refrain from doing so until they again see an increase in demand for their products. The production of capital goods is financed normally by long-term credits. Thus, "new highways and ships, public buildings and bridges, factories and industrial equipment are usually paid for by funds raised through bond issues. Locomotives and railroad cars are purchased through the sale of equipment trusts. Most residences and many other buildings are constructed with the help of money secured through mortgages."[1]

It is apparent from the accompanying chart [Exhibit 2] also published by the Cleveland Trust Company, that there was no serious overproduction of durable and capital goods just before the depression, but that serious shortages have developed during the depression. "The accumulated shortage of capital goods was four months in 1915 and nearly 22 months in February, 1934."[2] This compares with an accumulated shortage for consumers' goods of "one month just before the war, almost one month in the following depression, and six months in January, 1934."[3]

To supplement the data already presented, we append some statistics compiled by the National City Bank of New York on the movement of consumers' goods and capital goods in 1932 as compared with 1929 [Exhibits 3 and 4].

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[1] *Cleveland Trust Company Business Bulletin*, Vol. 14, No. 12, December 15, 1933, p. 3.

[2] *Ibid.*, Vol. 15, No. 4, April 15, 1934, p. 4.

[3] *Ibid.*, Vol. 15, No. 3, March 15, 1934, p. 4.

EXHIBIT 3

MOVEMENT OF CONSUMPTION GOODS IN 1932, AS COMPARED WITH 1929

Consumption Goods	% Change from 1929
Sheep and lambs slaughtered	+17.3%
Cheese, consumption	+15.5
Tea, U. S. imports	+ 6.0
Coffee, U. S. imports	+ 1.2
Milk, fluid, receipts, N. Y.	0.0
Gasoline, consumption	− 0.2
Cocoa, U. S. imports	− 5.4
Poultry, receipts 5 markets	− 6.1
Tobacco, smoking, etc., withdrawals	− 6.5
Flour, wheat, consumption	− 7.8
Rice, shipments to mills	− 8.0
Butter, consumption	− 8.8
Silk, raw, deliveries	−10.6
Eggs, receipts 5 markets	−12.3
Cattle and calves, slaughtered	−12.3
Cigarettes, withdrawals	−13.0
Shoes, production	−13.2
Hogs, slaughtered	−14.7
Citrus fruit, carload shipments	−15.5
Fish, landings, principal ports	−19.2
Apples, carload shipments	−20.8
Potatoes, white, carload shipments	−22.5
Sugar, raw, meltings 8 ports	−23.0
Onions, carload shipments	−24.6
Newsprint paper, consumption	−25.7
Cotton, raw, consumption	−28.8
Cigars, withdrawals	−32.2
Wool, raw, consumption	−34.2
Coal, anthracite, shipments	−34.7
Candy, manufacturers' sales, $	−39.9
Tires, casings, shipments	−40.5
Household furniture, shipments	−64.0
Vacuum cleaners, shipments	−64.3
Automobiles, passenger, production	−75.2

Source: National City Bank of New York, *Letter on Economic Conditions, Governmental Finance and United States Securities*, October, 1933, p. 147.

PART II. SPECIFIC RECOMMENDATIONS

On the basis of the background we have sketched, it is clear that at the present time there is a considerably greater stored-up demand for capital goods than for consumers' goods and that, if the United States is to recover from the present depression, stocks of carefully selected capital goods companies have more chance of appreciation than those of consumers' goods companies. We should draw a distinction, however,

EXHIBIT 4

MOVEMENT OF CAPITAL GOODS IN 1932, AS COMPARED WITH 1929

Capital Goods	% Change from 1929
Ships built, merchant	+ 2.5%
Oil wells, drilled	−32.8
Roofing, prepared, shipments	−42.3
Public works construction, $	−45.0
Cement, shipments	−52.6
Paint and varnish sales, $	−53.0
Sulphuric acid, production	−57.9
Lead, refined, shipments	−59.5
Lumber, Southern hardwood, shipments	−61.7
Plate glass, production	−62.2
Plumbing fixtures, china, shipments	−64.5
Radiators, heating, shipments	−64.5
Lumber, Douglas fir, shipments	−65.8
Auto trucks, production	−69.5
Pumps, power, shipments, $	−72.8
Structural steel, shipments	−73.8
Steel bars, cold, shipments	−74.4
Welding sets, orders	−75.9
Electric motors, shipments, $	−76.0
Boilers, steel, orders	−80.7
Residential building, area	−81.0
Iron ore, consumption	−83.9
Brick, sand-lime, production	−85.0
Steel rails, production	−85.2
Public utility construction, $	−85.6
Machine tools, shipments	−86.7
Commercial building, construction, $	−86.8
Steel castings, production	−87.0
Electric furnaces, orders	−87.1
Factory construction, $	−92.1
Locomotive, steam, built	−95.4
Electric cranes, shipments, $	−95.9
Freight cars, built	−99.3

Source: National City Bank of New York, *Letter on Economic Conditions, Governmental Finance and United States Securities*, October, 1933, p. 147.

between perishable consumers' necessities, for which there is very little stored-up demand, and durable consumers' goods such as automobiles, for which replacements have been postponed for a considerable period. We should also draw a distinction between the lighter and the heavier types of capital goods. Demand for lighter capital equipment, such as agricultural implements, is in our opinion more likely to pick up in the near future than demand for heavier capital goods. We do not think that the group of industries producing heavy capital equipment will

recover appreciably in the near future, because confidence in the long-term monetary outlook has not been sufficiently restored, and the Securities Act still interferes with the financing of heavy equipment purchases. We are inclined to take the position, therefore, that any increase in the proportion of cyclical stocks should be confined essentially to durable consumers' goods and light capital equipment.

Since we were asked by the Investment Committee to apply our conclusions specifically to the agricultural implement, construction, automobile, and steel and iron industries, we have directed the remainder of this report to these industries.

Agricultural Implements. The agricultural implement industry is one for which we do not have a good measure of current activity. The nearest approach is the monthly record of employment and pay rolls in the industry. From May, 1933, the low point, to March, 1934, (the latest data available) the numbers employed in the industry almost doubled, and there was nearly a threefold increase in the amounts paid out in wages. Nevertheless, the pay rolls at present represent only about 50% of the amount paid out during 1926. On the basis of such figures the agricultural implement industry is hardly back to prosperity, but there has been a very substantial improvement during the past year.

Studies made by the Department of Agriculture have demonstrated a close relationship between income from crops and the sales of agricultural implements 11 months later. The substantial increase in income from crops in 1933 over 1932, therefore, improves greatly the prospects for sales of agricultural implements in 1934. Not only have the farmers received more income in dollars, but the income will go further in purchasing commodities. Prices paid by farmers for things they buy have not risen so much as prices received by farmers for their produce. Furthermore, the large sum of $900,000,000 is yet to be disbursed by the government to the farmers during 1934.

Construction Industry. This industry is an important consumer not only of steel but also of cement, brick, lumber, glass, paint, plumbing, and the like. In spite of the very sharp decline in construction during the depression, we are not convinced that there is a great shortage. An examination of the growth in construction over the last 30-odd years, not merely over the postwar period, suggests that the high level of the 1920's may have built up an appreciable surplus. Another point, which does not appear on the surface, bears on the prospects for urban building. Over 2,000,000 people have gone back to the farms during the depression. Then, too, generally speaking, rents have not yet begun to increase. Rent is the price of space, and, as such, throws light on the supply of and demand for space. Since rents have not begun to rise, the supply of construction seems to be at least adequate to meet the demand. Moreover, the substantial amount of idle plant and the vacant office buildings, apartments, and so on, seriously weaken the contention that a large shortage of construction exists. Finally, as indicated in a recent issue of the *Cleveland Trust Company Business Bulletin*, the costs of building have not come down so much as rents. From the point of view of the builder, the *price* of what he is selling has come down much faster than the *cost* of what he is selling. So long as this situation persists it will be a deterring influence on increased activity in the industry.

Automobiles. The automobile industry is perhaps in the most favored position among the durable consumers' industries. The low output of the last two or three years in itself suggests a large stored-up demand. Production declined from 5,600,000 cars in 1929 to a depression low of 1,400,000 cars in 1932. Production in 1933 recovered to just over 2,000,000. In each of the three years ending 1933 there was an actual decline of cars in use. That is to say, new production was not so large as scrappage. In a growing country this must mean a substantial stored-up demand during the years of depression. If cars should be scrapped in 1934 at the same ages as was the custom before the depression, we should estimate the replacement demand for 1934 at 3,880,000 cars. However, it is probable that people are not yet ready to trade in old cars at the same ages as before the depression; so we must reduce this figure somewhat.

To approach the question of probable demand from another angle, production for the first quarter of this year amounted to 760,000 cars. On the average, production in the first quarter of the year represents about one-fourth of the year's production. On this basis the 1934 production would be just over 3,000,000. This assumes no cyclical improvement in business during 1934. If we are to have a general improvement in business throughout the balance of 1934, we would expect the output of automobiles to be something over 3,000,000 cars. Three million cars is more than the production in any year since 1930, when it was 3,500,000.

Costs of production in the automobile industry have been reduced during the depression. As evidence of this, 12 automobile companies made net profits in 1933 of almost exactly the same amount as in 1931, even though the production of automobiles in 1933 was almost 20% less than the production in 1931. We feel, therefore, that more profits can be made in 1934 than were made in earlier years with the same volume of production.

Steel. Steel activity rose very sharply between March and July, 1933, then declined considerably and has since recovered a good part of that loss. However, activity is still well below what might be thought of as normal. Price fluctuations have not been so severe as might have been expected. The advance during the past year has not been as sharp as in other industries.

Bearing on the future activity of the steel industry, we have several different approaches which have been used with some success. One of the most trustworthy is the anticipatory movement of iron and steel scrap prices. The price of scrap has been declining for the last 10 or 12 weeks, and steel activity has turned down during the last 2 weeks.

The probable demand for steel by the large steel-consuming industries does not appear particularly favorable. As to the railroads, the very sharp drop in steel consumption from the years before the depression to 1933 suggests a substantial need for steel. The number of cars ordered by the railroads has been amazingly small. In 1930, by no means a prosperous year, 46,000 freight cars were ordered; 1931, 11,000; 1932, just a little under 2,000; 1933, practically the same number as 1932. In 1929, 111,000 were ordered and in 1924, 143,000. Locomotives ordered fell even more sharply. In 1932 only 12 were ordered; in 1930, 440; in 1929, 1,200; in 1933, 34. The production of rails by the steel industry has also been at a very much lower rate than in the pre-depression period.

While it is apparent that there is a great deal of *potential* buying of steel by the railroads, we do not believe that very much of this will be released in the near future, for two reasons: (1) the difficulty of raising capital in the regular capital markets and (2) the impending refunding requirements of the railroads.

An examination of the situation in other large steel-consuming industries, also, makes a substantial increase in demand for steel improbable in the near future.

1. We have already noted that the outlook for the construction industry is not very favorable.

2. In the oil and gas industry, while there has been some increase in drilling programs, there is still relatively little demand for large diameter pipe.

3. Tin plate mills are operating at about 75% of capacity, but canners and container makers are relatively well stocked, and a curtailment of production is likely in the near future.

4. Automobiles present the most favorable outlet for steel production at the present time.

We recommend therefore that the agricultural implement section be increased to 7% ideal and 12% maximum (see Exhibit 1); that construction be left at 3% ideal and 7% maximum; that automobiles and accessories be increased to 8% ideal and 12% maximum; and that steel and iron be left at zero, ideal, and 5% maximum.

Why are fluctuations in the capital goods industries wider than those in the consumers' goods industries? Are there any exceptions to this general relationship?

What conditions are necessary for a rise in the production of capital goods?

Was this report a sound basis for the recommended changes in the investment program?

12. Alaska Juneau Gold Mining Company

Gold in Relation to Business Cycles

I

In April, 1936, the management of Scott and Bohn, an investment trust in New York City, was considering selling at the current price of $15 a share its holdings of securities of the Alaska Juneau Gold Mining Company. The stock had been purchased in April, 1933, after the United States had abandoned the gold standard and when there was a great deal of uncertainty as to the future monetary policy of the government. As a hedge against inflation, the stocks

of gold mining companies had been purchased rather than gold, both because the purchase of foreign exchange was strictly limited at the time and because gold holdings would not have yielded any return and would have been subject to carrying charges. Following 1933, Scott and Bohn had gradually reduced its commitments in gold stocks; and in April, 1936, Alaska Juneau was its only remaining holding in this group, representing 2% of the total fund. The management had favored Alaska Juneau over other gold stocks because of the large known reserves of this company and its low costs of operation.

II

The measures taken by the United States Government affecting the value of gold over the period 1933–1935 had been as follows:

By the Bank Conservation Act of 1933, which was signed by the President on March 9, the Secretary of the Treasury was empowered to require delivery to him, by their holders, of gold coin, bullion, or certificates; in return for such gold, an equivalent amount of lawful coin or currency was to be paid. Accordingly, the President, by proclamation on April 5, 1933, called in from its holders all gold not subject to the exemption of $100 per person, delivery to be made to the Treasury by May 1. Licenses for the use of gold in "proper transactions"—i.e., not involving hoarding—were provided for. On April 19, applications for licensing the export of gold were refused by the Treasury Department, and a day later, by executive order, a definite embargo was placed on the export of gold.

The next legislation regarding gold was embodied in the so-called Thomas Amendment to the Farm Relief Act of May 12, 1933. Among the inflationary means put at the disposal of the President at this time was the power to fix the gold weight of the dollar, under the limitation that the reduction from the then standard weight should be by not more than 50%. A further important step in regard to the use of gold as currency was the voiding of the gold clause—i.e., the provision that the holders of certain obligations could call for payment in gold—in government bonds, corporation bonds, and all other contracts carrying this provision.

Executive orders of August 28 and August 29, 1933, set down the terms under which gold could be held. An important provision of these executive orders related to gold recovered from natural deposits in the United States or territories subject to its jurisdiction. The Secretary of the Treasury was authorized to receive such gold on consignment for sale at a price equal to the best price obtainable

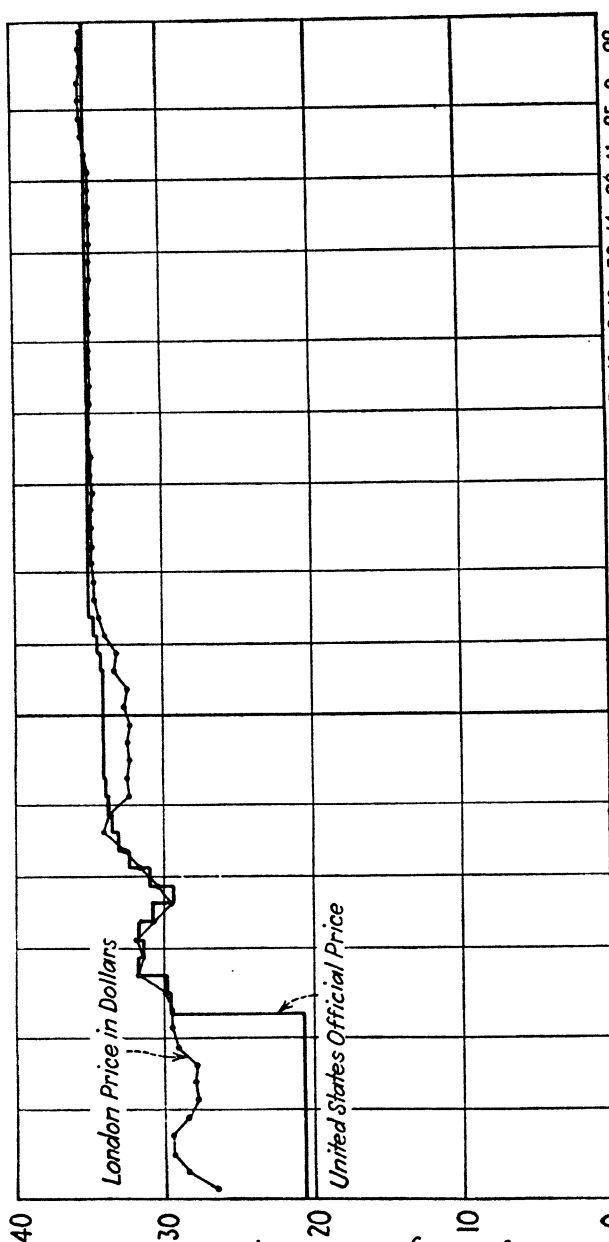


EXHIBIT 1.—Price of Gold. (London: Converted into Dollars on Exchange Rate Basis. United States: Official Price.)

in the free gold markets of the world, taking into consideration any incidental expenses, such as shipping costs and insurance. The first gold price announced by the Treasury Department under this power was $29.62 per ounce (September 8, 1933), an advance of $8.95 over the statutory price at the mints.[1] The purpose in the establishment of this differential was stated to be the promotion of gold mining and the prevention of the smuggling of domestic gold to Canada, which then yielded a profit of approximately $9 over the mint price.

That a major change would be made in the regulations relating to the purchase and sale of gold was announced in the President's radio broadcast of October 22, 1933, in accordance with which the executive order of October 25 was issued. This order placed the purchase and sale of gold in the hands of the Reconstruction Finance Corporation. Delivery of gold was to be made on consignment to the United States mints and assay offices, which were to receive it for sale by the Reconstruction Finance Corporation, provided the former was satisfied that the gold had been recovered from natural deposits of the United States or territories subject to its jurisdiction. The price of gold was set from day to day and announced by the Reconstruction Finance Corporation. (The prices paid by the Treasury and later by the Reconstruction Finance Corporation are shown in Exhibit 1.) The purpose of this arrangement was to raise the price of gold in terms of dollars more rapidly than it was being raised under the conditions created by the embargo of gold exports from the United States. The constant rise in the official price of gold is shown clearly on the chart; with it is likewise shown the London open market price in terms of dollars at current exchange rates.

The plan of raising the price of gold was commonly referred to as the Warren Plan, since it was sponsored by George F. Warren of Cornell University. His theory was that economic rehabilitation would be best accomplished by raising the commodity price level, and that this in turn could be brought about by reducing the weight of gold in the dollar—i.e., raising the price of an ounce of gold in terms of dollars. Regarding the desirability of higher prices, or the "reflation" of commodity prices, Professor Warren commented:[2]

[1] The mint price remained $20.67 until January 31, 1934. During this period, however, it was merely a nominal price, for two reasons: first, it was not a selling price, since out-payments of gold were illegal; and second, it was so far below the world price as to be ineffective as a buying price.

[2] GEORGE F. WARREN, "Is Our Gold Standard Too Rigid?" Reprinted from *Forum and Century*, April, 1933, pp. 194–201, in *Current Economic Policies*, by Joseph B. Hubbard et al. (New York, Holt, 1934), pp. 77–89.

. . . If for any reason the price level is restored, it does not mean that all prices will rise equally. Many prices have not declined, or have declined little. Restoring the price level would relieve them of the necessity of declining. The major ones are debts and taxes. If commodity prices were raised, buying would begin because rising prices cause buying. Jobs would be available. Houses would be in demand. The debts and taxes on the houses and farms could be paid, and the debts would not have to be cut by bankruptcy.

. . . . . .

Costs of distribution would rise very little. Therefore, prices paid to farmers and other producers would rise much more than retail prices. . . .

As to the method of raising the price level, Professor Warren made the following statement:

By reducing the weight of gold in the dollar, any desired price level can be established. The future course of prices would depend on the future supply of gold and future demand for gold. Revaluation is a simple emergency measure. It does not make provision for future stability. The question may well be raised as to whether the time has not come for the adoption of a more stable measure of value.

EXHIBIT 2

U. S. BUREAU OF LABOR STATISTICS INDEX OF WHOLESALE COMMODITY PRICES, MONTHLY, JANUARY, 1929, TO MARCH, 1936

(1926 = 100)

	1929	1930	1931	1932	1933	1934	1935	1936
January	95.9	92.5	78.2	67.3	61.0	72.2	78.8	80.6
February	95.4	91.4	76.8	66.3	59.8	73.6	79.5	80.6
March	96.1	90.2	76.0	66.0	60.2	73.7	79.4	79.6
April	95.5	90.0	74.8	65.5	60.4	73.3	80.1	
May	94.7	88.8	73.2	64.4	62.7	73.7	80.2	
June	95.2	86.8	72.1	63.9	65.0	74.6	79.8	
July	96.5	84.4	72.0	64.5	68.9	74.8	79.4	
August	96.3	84.3	72.1	65.2	69.5	76.4	80.5	
September	96.1	84.4	71.2	65.3	70.8	77.6	80.7	
October	95.1	83.0	70.3	64.4	71.2	76.5	80.5	
November	93.5	81.3	70.2	63.9	71.1	76.5	80.6	
December	93.3	79.6	68.6	62.6	70.8	76.9	80.9	
Monthly average	95.3	86.4	73.0	64.8	65.9	74.9	80.0	

Source: *Survey of Current Business.*

In an address at the annual meeting of the American Statistical Association in December, 1933, Professor Warren cited statistics in an effort to show that the gold buying policy had been successful in raising commodity prices. At that same meeting, Professor

Kemmerer insisted that commodity prices had continued downward except for a period between April and October, 1933. He declared that a chart of commodity prices, as represented by the wholesale price index of the U. S. Bureau of Labor Statistics, showed that during this period prices actually had not advanced by the same percentage as gold prices. (Monthly changes in commodity prices from January, 1929, to March, 1936, are shown in Exhibit 2.)

On December 28, 1933, the Secretary of the Treasury ordered that all gold coin, bullion, or certificates then held without license should be delivered to the Treasurer of the United States, via the Federal Reserve Banks or the member banks of the system; bullion was to be paid for at the rate of $20.67 per ounce, and coin or certificates exchanged for currency at face value. The minimum holding of $100 per person was eliminated, but an exception was made for the collectors of rare gold coins.

Comprehensive legislation affecting gold was urged upon Congress in the President's message of January 15, 1934. The result was the Gold Reserve Act of 1934, which was approved by the President on January 31. In substance this law provided for ownership by the Federal Government of all gold in the United States; the Reserve banks, as well as other banking institutions, were required to turn over their gold to the Treasury. The Secretary of the Treasury was empowered to buy or sell gold at home or abroad and to undertake dealings in foreign exchange. From the contemplated "profits" of possible devaluation, a stabilization fund of $2,000,000,000 was to be set up under the control of the Secretary of the Treasury for such purchases and sales of gold, foreign exchange, and government securities, as the regulation of the currency, the maintenance of the credit of the government, and the general welfare of the United States might require.

The Gold Reserve Act of 1934 provided that, if the President devalued the dollar under the terms of the Agricultural Adjustment Act, this devaluation was to be not more than 60% of the former value. The President's proclamation devaluing the dollar followed on January 31, 1934. The weight of the gold dollar was fixed at 59.06% of the former weight of $25\frac{8}{10}$ grains, $\frac{9}{10}$ fine. This was equivalent to a price of $35 per ounce as against the former price of $20.67.

Under the new arrangement, the purchase of gold again reverted from the Reconstruction Finance Corporation to the Secretary of the Treasury. A statement was made by the Secretary of the Treasury to the effect that the sale of gold for export to foreign

banks would be made whenever gold rates with gold standard countries should reach the gold export point. Such sales were made in 1934 through the Federal Reserve Bank of New York as fiscal agent of the United States Government. These sales were made at $35 per fine ounce plus a handling charge of 0.25%. Provision was made for the changing of this price by the Secretary of the Treasury without other notice than announcement to the mints.

III

In April, 1936, the partners of Scott and Bohn believed that radical monetary legislation was not likely to be enacted in the near future, although there was still a possibility that budget deficits would continue at very high levels and eventually get out of control. They did not believe that taxation of gold mining companies would increase any more than taxation of other companies in the United States. There had been no move to levy special taxes on gold production, and the government was thought to be anxious not to retard the growth of the industry.

Although the partners of Scott and Bohn thought that gold stocks were perhaps not so desirable an investment as they had been, they did not consider that there was any real danger in continuing to hold Alaska Juneau. A lower price for gold was not likely to be established except in an attempt to counteract a runaway rise in the general price level. Nor did there appear to be any danger that gold would be demonetized. It was true, of course, that if the principal holders of gold, France and the United States, should abandon the gold base entirely and adopt some other standard of currency, the earnings of gold mining companies might be drastically curtailed, more than one-half the annual production of gold being absorbed for monetary purposes.

Increased production of gold could come from new discoveries or new technical advances. It was, of course, impossible to state that new discoveries would not be made. As for technical advances, the cyanide process generally in use resulted in a 95% recovery of the gold content of the ore, and no new technical development could be so revolutionary as to exert a substantial influence on output. Nevertheless world gold production had increased approximately 50% between 1930 and 1935.[1] In the case of Russia, which had become one of the leading gold producers of the world, the increase in production was attributable primarily to governmental policy.

[1] Editors' Note: The annual output of gold increased from 22,000,000 ounces in 1932 to 35,000,000 ounces in 1939.

The securities of gold mining companies had been desirable investments during the depression. Gold producers benefited from the decline in commodity prices, but this temporary operating advantage was being gradually eliminated. The partners of Scott and Bohn were convinced that business would continue to improve over the next year or so.

On the other hand, if monetary uncertainty developed again, Alaska Juneau might prove a profitable holding. There was always the possibility, for instance, that the European gold bloc would break down. If this occurred, there might ensue a revaluation of all leading currencies preparatory to a final stabilization of exchange rates. The securities of companies with prospects of growth were already selling at a price which discounted a substantial improvement in profits, and Alaska Juneau, earning $1.04 in 1935 before depletion and paying $1.20 a share, yielded a higher return than many other securities. Scott and Bohn had been furnished an estimate by a well-known firm of mining engineers that the reserves of all the properties of Alaska Juneau totaled at least 96,000,000 tons. Inasmuch as only 3,729,660 tons had been trammed in 1935, it appeared that the mine properties would last many more years and that a relatively small deduction would have to be made from earnings for depletion.

EXHIBIT 3

ALASKA JUNEAU GOLD MINING COMPANY

Operating Costs per Ton Trammed, 1929–1934

	1929	1930	1931	1932	1933	1934
Mining	$0.2795	$0.2869	$0.2808	$0.2624	$0.2603	$0.3056
Milling	0.2319	0.2271	0.2160	0.2120	0.2014	0.1932
Other Juneau operating and marketing costs	0.0610	0.0627	0.0669	0.0512	0.0563	0.0509
Total Juneau operating and marketing costs	$0.5724	$0.5767	$0.5637	$0.5256	$0.5180	$0.5497
Other costs and interest	0.0434	0.0502	0.0445	0.0129	0.0169	0.0150
Total operating costs and expenses	$0.6158	$0.6269	$0.6082	$0.5385	$0.5349	$0.5647

Source: Company reports.

Labor relations ordinarily were satisfactory. The company had provided for safety measures, and had insisted that wages for laborers employed through contractors be in accordance with the company's scale. The company had found an available supply of

labor sufficient for its needs, and in the depression years the supply had far exceeded requirements. The sharp rise in the number of laborers employed in 1934 and the cost per laborer was ascribed to the introduction of the six-day week and the undertaking of increased construction and developmental work.

Prior to 1933, operating cost per ton trammed had been constantly reduced. The low point had been reached in 1933, when the figure was $0.5349 per ton, which was said to be less than that of any other lode-ore gold mine. This meant that with gold at $35 an ounce a yield of 1/65 ounce per ton of ore mined would cover working costs. Exhibit 3 summarizes operating costs from 1929 through 1934. The increase shown for 1934 was in large part the result of an increase in payments to labor.

Data on milling cost classified into power, labor, and supplies (Exhibit 4) show the importance of labor costs. The decline in the cost of power in 1934 was the result of the acquisition of additional hydroelectric power plants.

EXHIBIT 4

ALASKA JUNEAU GOLD MINING COMPANY

Power, Labor, and Supplies per Ton Trammed, 1928–1935

	1928	1929	1930	1931	1932	1933	1934	1935
Power	$0.0272	$0.0269	$0.0297	$0.0248	$0.0375	$0.0349	$0.0175	$0.0187
Labor	0.1085	0.1088	0.1068	0.1002	0.1003	0.0998	0.1041	0.1184
Supplies	0.0928	0.0962	0.0906	0.0910	0.0742	0.0667	0.0716	0.0789
Total	$0.2285	$0.2319	$0.2271	$0.2160	$0.2120	$0.2014	$0.1932	$0.2160

Source: Company reports.

It was apparent from the figures shown in Exhibit 4 that costs had been slow to increase. In fact they had declined steadily from 1929 to 1934, but had increased again in 1935 to the 1931 level. The increase was attributed in part to the mining of lower-grade ores. Scott and Bohn had been told by its engineers that the treatment of lower-grade ores made possible by the higher price of gold was part of the company's policy and did not indicate that the higher-grade reserves were being exhausted. Almost all the gold mining companies, it was pointed out, had adopted a similar policy from 1933 to 1935.

Balance sheets of the Alaska Juneau Gold Mining Company as of December 31, 1929, 1932, and 1935, had been as shown in Exhibit 5.

Summary operating figures for the years 1929–1935, the earnings and dividends record for 1930–1935, and the range of prices for the

EXHIBIT 5

ALASKA JUNEAU GOLD MINING COMPANY

Balance Sheets as of December 31, 1929, 1932, 1935

	1929	1932	1935
Assets			
Property	$ 9,730,854.06	$ 9,730,436.68	$10,574,466.98
Mine Development	2,317,389.21	2,549,637.47	2,317,389.21
Construction and Equipment (main plant)	4,168,661.64	4,207,033.06	5,293,318.31
Portable and Underground Equipment	53,412.84		
Outside Mining Ventures	72,512.40	31,559.53	41,237.55
Current Assets	477,569.50	1,589,638.73	1,480,838.24
Ebner Ore Development	136,612.59		
Preparatory Mining	516,839.22	487,096.24	1,034,825.05
Advanced Expenses	.....	.....	16,785.75
Unexpired Insurance and Sundry	11,298.73	7,964.33	7,863.31
Total	$17,485,150.19	$18,603,366.04	$20,766,724.40
Liabilities			
Capital Stock—1,500,000 at $10 Par Value (less unissued or held in Treasury)	$14,460,000.00	$14,400,000.00	$15,000,000.00
Funded Debt—7% 10-Year Gold Bonds of March 15, 1929 (authorized $3,500,000.00) at Par	893,400.00		
Income Taxes Accrued	31,290.43	59,048.90	149,400.43
Pay Roll and Accounts Payable and Other Liabilities	151,097.19	172,238.90	194,516.22
Depreciation Reserve			
On Portable and Underground Equipment	51,704.01	} 2,086,504.00	2,528,587.45
On Main Plant and Equipment	1,461,369.53		
Surplus	436,289.03	1,764,547.94	2,632,648.80
Capital Surplus	.....	121,026.30	261,571.50
Total	$17,485,150.19	$18,603,366.04	$20,766,724.40

Source: Company Reports.

common stock of the Alaska Juneau Gold Mining Company for the years 1929–1935 had been as given in Exhibit 6.

Reasoning from the standpoint of the general business and monetary situation, should Scott and Bohn have retained its holdings of Alaska Juneau? How would this conclusion be affected by such

EXHIBIT 6

ALASKA JUNEAU GOLD MINING COMPANY

Summary of Profit and Loss Statements, 1929–1935

Year	Tons Trammed	Gross Values Recovered	Operating and Marketing Costs	Gross Operating Profit	Nonoperating Expense and Revenue, Net	Depreciation and Federal Taxes	Net Profit (before depletion)	Dividends Paid
1929	3,836,440	$3,627,247.31	$2,233,071.71	$1,394,175.60	$129,243.66	$239,723.51	$1,025,208.43	
1930	3,924,460	3,551,950.03	2,289,356.14	1,262,593.89	170,860.61	260,647.46	831,085.82	
1931	4,162,350	3,879,839.30	2,394,948.19	1,484,891.11	85,346.21	329,153.93	1,070,390.97	$ 584,950.00
1932	4,001,630	3,236,183.06	2,154,730.72	1,081,452.34	6,595.46*	267,676.93	820,370.87	720,000.00
1933	4,085,960	3,960,165.46	2,179,547.34	1,780,618.12	65,487.63*	348,852.71	1,497,253.04	1,101,750.00
1934	4,302,600	4,582,558.97	2,409,046.61	2,173,512.36	47,803.12*	298,549.55	1,922,765.93	1,760,549.10
1935	3,729,660	4,281,110.26	2,443,544.42	1,837,565.84	11,072.65*	284,840.58	1,563,797.91	1,800,000.00

* Net Revenue.
Source: Company Reports.

Earnings and Dividends per Share, 1930–1935

Year	Earnings per Share (before depletion)	Dividends per Share
1930	$0.57	$0.00
1931	0.74	0.40
1932	0.57	0.50
1933	1.00	0.60
1934	1.28	1.20
1935	1.04	1.20

Source: Moody's *Industrials*.

Range of Common Stock Prices

(Par $10)

Year	High	Low	Year	High	Low
1929	10¼	4¼	1933	33	11⅛
1930	9⅛	4½	1934	23⅞	16⅝
1931	20⅛	7	1935	20⅛	13¼
1932	16⅝	7¾			

Sources: *Bond and Quotation Record* (1929–35); *Boston Evening Transcript* (1936).

possible developments as (*a*) further devaluation of the dollar, (*b*) general abandonment of the gold standard throughout Europe, (*c*) resumption of the international gold standard on a new set of fixed parities?

How do costs, income, and profits in gold mining fluctuate with reference to indexes of industrial production during business cycles?

Are the contributions of current gold production to monetary supply of any significance in accounting for cyclical fluctuations in business?

Appendix

A simplified statement of the theory of the rigid international gold standard as it was generally expected to operate in the period before the war of 1914–1918 is as follows:

For any one country, the price level is influenced directly by changes in its gold supply. Under an international gold standard, gold movements from one country to another are accompanied by relative changes in price levels, an increase in price level appearing in the country receiving the gold, and a decrease occurring in the country that lost the gold. Changes in price levels ordinarily lead to changes in the volume of foreign trade, which in turn lead to further gold movements and further changes in prices, but this time in the direction of restoration of the earlier situation. To illustrate the theoretical functioning of the international gold standard, the following hypothetical example is introduced. Country *A* loses gold to country *B*. Prices in country *A* decline, in country *B* advance. Because of the low prices in country *A* and the high prices in country *B*, inhabitants of *B* import goods from *A*; because of the high prices in *B*, inhabitants of *A* do not import any more goods than are necessary from *B*. As a consequence of these changes in trade relations between *A* and *B*, *B* owes a debt on balance to *A*; and since, because of its high prices, *B* cannot send goods to *A* in payment of its debt, *B* will send gold. The decline in the gold stock of *B* will result in a fall in commodity prices, and in country *A*, which receives the gold, a rise in commodity prices. While this example is oversimplified for purposes of illustration, it is readily seen that the gold standard automatically places restraints on overexpansion in any country which wants to go farther than its neighbors. It is through the action of gold on prices that all countries are kept in step with one another, and credit booms and subsequent crises and depressions are alleviated.

During the war of 1914–1918 the international gold standard was subjected to critical strains, and most countries either abandoned the gold standard or imposed restrictions on the free flow of gold exports.

By 1927, however, most countries were back on the gold standard. In the great depression after 1929, the gold standard again broke down, for a variety of reasons. After the war, the burden of international debts and reparations, the change in the status of the United States from a debtor to a creditor nation, growing nationalistic tendencies, efforts to preserve standards of living in the face of deflationary developments elsewhere—all had led to numerous endeavors to "manage" currencies within the framework of the gold standard. Consequently, a close relationship between the quantity of money and credit and the gold supply no longer prevailed in many countries. Some observers believe that these attempts at currency management, together with the accompanying unwillingness to make the readjustments required by a rigid international gold standard, were themselves a major cause of the virtual breakdown of the gold standard in the period 1930–1933. These observers sum it up by saying that the world was unwilling to play the gold-standard game according to the rules. Others contend that the disordered state of world economics and politics imposed such handicaps on the gold standard that a rigid international gold standard could not in any event have survived; in fact, they consider that the efforts of some countries to stay on the gold standard only served to spread the dire epidemic of deflation more rapidly.

Whatever may be the relative merits of these opposing views, more and more countries during the 1930's severed or at least loosened the bonds which tied their currencies to gold. The governments in many of these countries took gold out of circulation and no longer permitted the privilege of convertibility. Gold continued to be used for the settlement of international balances; but as the United States for various reasons steadily continued to accumulate gold from other parts of the world (in 1940 its stock of more than $19,000,000,000 represented roughly three-fourths of the world's monetary gold), there was an increase in the frequency of barter arrangements in international trade.

VI. SOME CURRENT PROBLEMS OF PUBLIC POLICY

SOME NOTES ON CURRENT PROBLEMS OF PUBLIC POLICY

This section of cases differs from the other sections in this book. These cases are not related to any particular segment of economic thought. They do not require the understanding of any parts of economic doctrine or the mastery of any apparatus of approach that have not already been encountered. In earlier sections of the book, a great majority of the cases call for the application of economic modes of analysis to the problems of individual business concerns; but in this section questions of public policy rather than problems of particular businesses are presented for economic analysis. In this connection, it is worth remembering that the techniques of the professional economist have been developed primarily for the purpose of dealing with issues of public policy.

The businessman has a twofold interest in questions of public policy. He has an especial and immediate interest in those policies which affect his own business in any way, and he has the citizen's interest in policies which contribute to national welfare and national vigor. Obviously the cases gathered under this caption of public policy constitute only a fragmentary sample of current economic problems. Because of the kind of economic difficulties which have been uppermost in the public consciousness during recent years, this section of cases is closely related to the preceding section, Business Cycles and Business Policies; and for the same reason the principal connecting thread which runs through these cases is the issue of government intervention in economic affairs.

Throughout the nineteenth century, the attitude of most economists in English-speaking countries on the question of government intervention in times of business stress was one which was emphatically expressed by Harriet Martineau in her description of the post-Napoleonic depression in England:

> To the more disengaged mind of the guiltless observer, the whole crisis must have been a significant text, from which he could preach eloquently the great truth, how little governments can do for the welfare of nations, in the absence or abeyance of individual virtue and intelligence; how neces-

sary it is that men should rule their own spirits, before they can enjoy that social welfare which a wise government may help to secure, but can never confer.[1]

The doctrine voiced in this comment remained the orthodox one until well into the twentieth century. But following the war of 1914–1918 and especially following the collapse of the secondary postwar inflation of 1929, the peoples of many countries, for reasons that lie more in the province of the sociologist than of the economist, became impatient with such a hard doctrine. There was a great wave of demand that "the government should do something." Professional economists rather generally turned away from laissez faire, and most of them became advocates of some form of governmental intervention.

In the United States, "doing something" on the economic front took primarily the form of inflationary government spending to cure unemployment. In Australia, a more nearly balanced program of government intervention, with both inflationary and deflationary aspects, was successful in aiding the economy to combat the onset of the depression. Australia, however, obviously was not the United States; and in the latter country the dispute between the adherents of budget balancing and the advocates of deficit spending was still running strong in 1940, when it was swallowed up in the larger economic perplexities of rearmament. These problems on government spending in depression form the theme of the initial cases in the section. The next group is concerned with the relations of government and business in periods of wartime emergency.

Other aspects of government intervention in economic affairs embrace taxation, price controls, and control of investments; and instances of problems in each of these categories are included in this section of cases.

Finally, the issues implicit in the inquiry of the Temporary National Economic Committee in 1939–1940 are brought forward as indicative of the problems encountered by governmental efforts to make the competitive system more fully competitive.

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[1] HARRIET MARTINEAU, *The History of England during the Thirty Years' Peace: 1816–1846* (London, Charles Knight, 1849), Vol. I, p. 366.

A. GOVERNMENT INTERVENTION IN PERIODS OF DEPRESSION

1. Saving or Spending

THE CONSUMER PURCHASING POWER CONTROVERSY

The following communications from leading English economists were published in *The Times* (London) during October, 1932.

"To the Editor of *The Times* (London)
"Sir:

"On October 10 you gave prominence in your columns to a letter inviting the opinion of economists on the problem of private spending. There are a large number of economists in this country, and nobody can claim to speak for all of them. The signatories of this letter have, however, in various capacities, devoted many years to the consideration of economic problems. We do not think that many of our colleagues would disagree with what we are about to say.

"In the period of the War [of 1914–1918] it was a patriotic duty for private citizens to cut their expenditure on the purchase of consumable goods and services to the limit of their power. Some sorts of private economy were, indeed, more in the national interest than others. But, in some degree, all sorts of economy set free resources—man-power, machine-power, shipping-power—for use by the Government directly or indirectly in the conduct of the War. Private economy implied the handing over of these resources for a vital national purpose. At the present time, the conditions are entirely different. If a person with an income of £1,000, the whole of which he would normally spend, decides instead to save £500 of it, the labour and capital that he sets free are not passed over to an insatiable war machine. Nor is there any assurance that they will find their way into investment in new capital construction by public or private concerns. In certain cases, of course, they will do this. A landowner who spends £500 less than usual in festivities and devotes the £500 to building a barn or a cottage, or a business man who stints himself of luxuries so that he can put new machinery into his mill, is simply transferring productive resources from one use to another. But, when a man economizes in consumption, and lets the fruit of his economy pile up in bank balances or even in the purchase of existing securities, the released real resources do not find a new home waiting for them. In present conditions their entry into investment is blocked by lack of confidence. Moreover, private economy intensifies the block. For it further discourages all those forms of investment—factories, machinery, and so on—whose ultimate purpose is to make consumption goods. Consequently, in present conditions, private economy does not transfer from consumption to investment part of an unchanged national real income. On the contrary, it cuts down the national income by nearly as much as it cuts down consumption. Instead of enabling labour-power, machine-power and shipping-power to be turned to a different and more important use, it throws them into idleness.

"Conduct in the matter of economy, as of most other things, is governed by a complex of motives. Some people, no doubt, are stinting

their consumption because their incomes have diminished and they cannot spend so much as usual; others because their incomes are expected to diminish and they dare not do so. What it is in any individual's private interest to do and what weight he ought to assign to that private interest as against the public interest, when the two conflict, it is not for us to judge. But one thing is, in our opinion, clear. The public interest in present conditions does not point towards private economy; to spend less money than we should like to do is not patriotic.

"Moreover, what is true of individuals acting singly is equally true of groups of individuals acting through local authorities. If the citizens of a town wish to build a swimming-bath, or a library, or a museum, they will not, by refraining from doing this, promote a wider national interest. They will be "martyrs by mistake," and, in their martyrdom, will be injuring others as well as themselves. Through their misdirected goodwill the mounting wave of unemployment will be lifted still higher.

"We are your obedient servants,

D. H. MacGregor (Professor of Political Economy in the University of Oxford).
A. C. Pigou (Professor of Political Economy in the University of Cambridge).
J. M. Keynes.
Walter Layton.
Arthur Salter.
J. C. Stamp."

"To the Editor of *The Times* (London)
"Sir:

"The question whether to save or whether to spend, which has been raised in your columns, is not unambiguous. It involves three separate issues: (1) Whether to use money or whether to hoard it; (2) whether to spend money or whether to invest it; (3) whether Government investment is on all fours with investment by private individuals. While we do not wish to overstress the nature of our differences with those of our professional colleagues who have already written to you on these subjects, yet on certain points that difference is sufficiently great to make the expression of an alternative view desirable.

"(1) On the first issue—whether to use one's money or whether to hoard it—there is no important difference between us. It is agreed that hoarding money, whether in cash or in idle balances, is deflationary in its effects. No one thinks that deflation is in itself desirable.

"(2) On the question whether to spend or whether to invest our position is different from that of the signatories of the letter which appeared in your columns on Monday. They appear to hold that it is a matter of indifference as regards the prospects of revival whether money is spent on consumption or on real investment. We, on the contrary, believe that one of the main difficulties of the world today is a deficiency of investment—a depression of the industries making for capital extension, etc., rather than of the industries making directly for consumption. Hence we regard a revival of investment as peculiarly desirable. The signatories of the

letter referred to, however, appear to deprecate the purchase of existing securities on the ground that there is no guarantee that the money will find its way into real investment. We cannot endorse this view. Under modern conditions the security markets are an indispensable part of the mechanism of investment. A rise in the value of old securities is an indispensable preliminary to the flotation of new issues. The existence of a lag between the revival in old securities and revival elsewhere is not questioned. But we should regard it as little short of a disaster if the public should infer from what has been said that the purchase of existing securities and the placing of deposits in building societies, etc., were at the present time contrary to public interest or that the sale of securities or the withdrawal of such deposits would assist the coming of recovery. It is perilous in the extreme to say anything which may still further weaken the habit of private saving.

"But it is perhaps on the third question—the question whether this is an appropriate time for State and municipal authorities to extend their expenditure—that our difference with the signatories of the letter is most acute. On this point we find ourselves in agreement with your leading article on Monday. We are of the opinion that many of the troubles of the world at the present time are due to imprudent borrowing and spending on the part of the public authorities. We do not desire to see a renewal of such practices. At best they mortgage the Budgets of the future, and they tend to drive up the rate of interest—a process which is surely particularly undesirable at this juncture, when the revival of the supply of capital to private industry is an admittedly urgent necessity. The depression has abundantly shown that the existence of public debt on a large scale imposes frictions and obstacles to readjustment very much greater than the frictions and obstacles imposed by the existence of private debt. Hence we cannot agree with the signatories of the letter that this is a time for new municipal swimming-baths, etc., merely because people 'feel they want' such amenities.

"If the Government wish to help revival, the right way for them to proceed is, not to revert to their old habits of lavish expenditure, but to abolish those restrictions on trade and the free movement of capital (including restrictions on new issues) which are at present impeding even the beginning of recovery.

"We are, Sir, your obedient servants,

T. E. GREGORY, Cassel Professor of Economics.
F. A. VON HAYEK, Tooke Professor of Economic Science and Statistics.
ARNOLD PLANT, Cassel Professor of Commerce.
LIONEL ROBBINS, Professor of Economics."

J. Philip Wernette, an American economist who was then in London, after reading this correspondence, wrote the following letter:

SIR:

If a visiting economist may speak on the subject of saving and spending, which is of course quite as important a problem in the United States as in England, I would venture these comments.

It has been suggested that Mr. *A*, having a given money income, may do several things with it (or with any surplus part thereof).

(1) He may do nothing with it. Such hoarding is clearly undesirable.

(2) He may purchase existing securities. This is somewhat better. If the seller, Mr. *B*, does nothing with the money, the situation is neither better nor worse than if *A* had hoarded, and there is the possibility that *B* may spend the money on consumption or new investment. Also, *A*'s purchase will tend to check a declining securities market or to encourage a rising one—an action which is likely to destroy gloom and to encourage confidence.

(3) He may spend on current consumption.

(4) He may spend on new investment.

Either of these acts is good. Choice between them must depend upon the possibilities of *A*'s money being respent by the recipient. If the dealers' stocks of consumers' goods are lower than those of capital goods, or if for any other reason the dealers in consumers' goods are more likely to increase their spending than are the producers of capital goods, then *A* should spend on current consumption; if the converse is true, it were better that he spend on new investment. In either case, the hope would be that the recipient of *A*'s money would follow course (3) or course (4) rather than (1) or (2).

The problem of governmental spending on swimming-baths, libraries, museums, and the like, seems to be somewhat more complex. If the alternatives are supporting unemployed laborers on a dole or hiring them to erect such structures, the choice might well be the latter for the public would be getting something for its money. In either case the monetary results would be the same. The effects of either program upon general trade conditions depend upon the change (if any) in private expenditure accompanying the increase in governmental expenditure. If, for example, the funds to be spent by the government (national or local) are obtained by increased taxation, private expenditure by the taxpayers might decrease by an equal amount—in which case there would be no net gain. If the funds are raised by borrowing, without a corresponding decrease in private spending (on consumption and new investment) there is a net gain.

Inasmuch as borrowing is usually expected to provide the funds, we may leave the monetary aspects and turn to the budgetary problem. I submit that such loans are advisable only if they can be repaid completely and easily before the next depression occurs.

I turn to the contention that such loans " . . . tend to drive up the rate of interest—a process which is particularly undesirable at this juncture, when the revival of the supply of capital to private industry is an admittedly urgent necessity." First, the statement is confused: a higher interest rate might check the private *demand* for capital; it could scarcely decrease the *supply*. Second, a public loan does not drive up the interest rate any more than does a private loan; to inveigh against public loans on this ground is to inveigh equally against private loans, an increase of which is "an urgent necessity."

Under what circumstances does saving produce a deflationary effect on prices?

Is a revival of private business enterprise more likely to come about through a policy of government spending or a policy of government economy? Which policy can more effectively cope with the problem of unemployment?

2. Deficit Spending

Theory of the deliberately unbalanced budget[1]

For five years, through the fiscal year ending June 30, 1939, the United States Federal Government, following the theory of "deficit spending" (frequently designated also as "compensatory spending" or "pump priming"), had deliberately operated with an unbalanced budget. Approval of this policy had been far from unanimous among businessmen, economists, and the public in general. Thus, when the President, on January 5, 1939, in his budget message estimated a deficit of $3,300,000,000 for the fiscal year 1940, opponents of the policy once again began to question, "When and where will it end?"

The arguments commonly advanced by the advocates of government spending were as summarized below:

When national income declines rapidly and unemployment begins to develop on a large scale, the government has to try to arrest the deflationary forces. To this end the government, through its borrowing power, must take over and put into use otherwise idle funds. When, as in 1929, there is a vast shrinkage in the volume of bank money, the government must create new money by the sale of its securities to the banking system and put the money thus created to productive use. Government deficit spending in depression periods is a needed supplement and stimulant to private spending.

Arguments which cite the past experience of the country and its recovery from depression without government spending are invalid because the American economy has changed. Throughout the nineteenth century and the early twentieth century, North America and a large part of the rest of the world were being industrialized. Especially in the United States, mines were opened, railways built, and cities developed with the assistance of foreign capital and immigrants. If men were thrown out of work by a depression, they could move on to the frontier and make a new start in life. Today, however, the territorial frontier has disappeared.

In the nineteenth century, the growth of population was as important as the territorial frontier in stimulating business expansion. Between 1850 and 1937, the number of people in the United States increased from

[1] For a further analysis of the arguments on both sides of this issue, see J. K. Galbraith, "Fiscal Policy and the Employment-Investment Controversy," and Dan Throop Smith, "Is Deficit Spending Practical?" *Harvard Business Review*, Vol. XVIII, No. 1, Autumn, 1939.

23,000,000 to 129,000,000, providing a constantly growing market. The rate of increase is now diminishing, and statisticians calculate that by 1970 our population will have reached its maximum.

Had it not been for the war of 1914–1918, the closing of the frontier and the decline in the rate of increase in the population would have exerted an adverse effect on the American economy much earlier than was actually the case. Traffic in munitions and war supplies raised business to a new level of activity during the war. Then, in the postwar period, business was again stimulated by our foreign loans. These loans led to the exportation, not of money, but of goods, and new factories were needed to produce the goods. The construction of the factories utilized savings, gave employment, and helped bring prosperity to the United States. Throughout the postwar period, however, the tariff schedules of the United States were so designed as to prevent the importation of foreign goods and services with which to repay the loans. As a result, the maintenance of the high volume of foreign trade depended upon the continual extension of new loans. Thus, when the collapse of 1929 put an end to United States lending abroad, foreign trade declined sharply.

Now, with the geographical frontiers completely developed, with the end of the rapid increase in the population, and with the stagnation of the foreign market, America has entered a new economic era. Previously both men and capital had been able to find vast opportunities for employment. This is no longer true. Men are unemployed. There is no demand for capital with which to build new equipment. Consequently the American economic system is faced with an excess of savings and an excess of men. The avenues of expansion are closed. Under the new circumstances, large government expenditures are the simplest and best means of maintaining an equilibrium between savings and purchasing power.

Government deficit spending contributes to the maintenance of equilibrium between saving and purchasing power in two ways:

1. It distributes purchasing power to individuals who otherwise would have none. The direct stimulus to the production of consumers' goods that occurs when this purchasing power is used serves indirectly to increase activity in industrial goods industries.

2. It expands debt; and under the present economic system we cannot have prosperity without an expanding debt. As debts expand, business activity rises in relatively greater volume; and vice versa. For instance, from 1929 to 1933 total debts, both public and private, contracted by 14%, but national income fell by more than 50%. Since, in periods of decline, private capitalists are unwilling to invest their money in debts, it becomes the duty of the government to create debt. In other words, government debt may be expanded to offset the contraction of private debt.

In answer to those who object to government stimulation of business, let it be pointed out that American business has always, directly or indirectly, been the recipient of government subsidies. In the nineteenth and early twentieth centuries the subsidies were in the form of tariffs, franchises, and patents. But now, because of the extravagant exploitation of American natural resources and the stagnation of foreign trade, new forms of subsidy must be employed.

Experience since 1933 shows the effectiveness of the policy of deficit spending. The rise from the depths of the depression coincided with the rise in government deficit spending. Conversely, when in 1937 the current income and expenditures of the government were nearly equal, a new depression appeared. The revival from the 1937 slump came when a new government spending program was put into effect. An attempt to balance the budget now would bring another economic collapse. If unemployment still exists, it is because the government has not spent enough.

Nor has the spending policy led to an excessive government debt. The interest on the Federal debt is only a little more than 1% of the national income. For the most part, the debt is held by Americans; and the interest is paid to them, not to citizens of foreign countries. Furthermore, the total debt, public and private, is no larger now than it was in 1929. Public debt has been expanded to compensate for the decline in private debt. This very expansion of the public debt has saved the nation from ruin, has increased production, and has kept unemployed citizens from starvation.

That the government's credit has not been impaired is shown by the fact that, in 1932, 3% government bonds sold at a price as low as 83, while in December, 1938, when the debt was twice as large as in 1932, 2½% bonds were selling at 102.

Government deficit spending will not lead to inflation while there is unemployment. The classical economists have based their theories on the assumption of full employment and have concluded, logically enough, given this assumption, that increased government spending will lead to inflation. But so long as there remain unemployed persons, deficit spending will work to increase production rather than prices. This may be inflation, but it is what is sometimes referred to as a production inflation and is desirable. A price inflation will not follow until unemployment has been eliminated. Since government spending increases the national income more than the amount expended, it has within itself the means of controlling an inflation, because, as national income increases, tax receipts will increase and the budget will be balanced.

Apparently some people think deficit spending is wasteful. More properly, however, it should be referred to as an investment; an investment in roads, slum clearances, schoolhouses, hospitals, and so forth, using manpower and productive facilities that would otherwise be idle. The program of those who advocate a balanced budget is a defeatist one. The plan they favor did not work from 1929 to 1933; it offers no outlet for the excess savings of the American people; and while the budget is being balanced, the plan would allow Americans to be deprived of their economic rights of a job, a decent place to live, security in old age, and protection against temporary unemployment.

Opponents of government spending replied as follows:

The theory that American business cannot exist without government subsidy is unfounded. Tariffs, land grants, and subsidies in the past may have stimulated business; but the long-time effect of these measures, just like the effect of government spending, has been bad.

It is true that the country's geographical frontiers have disappeared and that the rate of growth of its population has diminished. But there have developed other frontiers even more important. The very reduction in the rate of increase of population should bring about a transfer of emphasis from the bare necessities of life to such things as better housing and luxury goods in general. The wants of the American people are unlimited. Future investment may go less into heavy capital goods, such as railroads and steel mills, and more into industries making tools and equipment for the production of consumer goods. Such industries can furnish an investment outlet for any quantity of savings and thus serve to establish a higher standard of living.

A higher standard of living may also afford another source of investment. As workmen demand shorter working hours, it becomes necessary to equip them with more and more tools and machinery to enable them to produce sufficient goods to supply the nation. The total amount of capital and the investment per worker therefore must continue to increase.

Government spending, instead of helping the economic system to meet the new conditions, actually retards its progress. From 1933 to 1939, the Federal debt increased roughly from $22,000,000,000 to $40,000,000,000 as a result of an increase in annual Federal expenditures from approximately $5,000,000,000 in 1933 to approximately $9,000,000,000 in 1939. So long as this unhealthy fiscal situation exists, businessmen and investors are inevitably apprehensive of the future. They may profit temporarily from government spending, but they are afraid to expand, afraid to look forward to the day when government spending will stop and the props will be pulled out. Many businessmen fear that the spending program has got or will get out of control and will lead to repudiation or wild inflation.

The fact remains that after five years of government spending, the unemployment problem is still unsolved. The unemployed in December, 1938, numbered over 10,500,000, or 3,000,000 more than in December, 1937, and not appreciably fewer than when the spending program was initiated. On the basis of experience during recovery from past depressions, it appears that the program has had sufficient time to prove itself. The argument that the difficulty lies in the failure of the government to spend enough is a feeble effort to evade the issue and overlooks the fundamental fallacies of the program.

It is also unsound to urge the substitution of government debt for private debt on the theory that an expanding debt makes for prosperity. Advocates of the spending program tell us that the total private and government debt was about equal in 1929 and in 1938. If the theory is valid, then why is the national income of 1938 so much lower than that of 1929? There is, furthermore, a great difference between private and public debt. Private debtors enter into a promise to pay, voluntarily. Public debt is created by the government, and those who must pay are compelled to do so whether they agree or not. Private debt is created to bring about the production of goods; public debt is not. Finally, it is not the debt but the production of goods that is important. Debt, whether public or private, may be for unproductive purposes; if so, it is bad. The creation of debt merely for the sake of debt or to provide an "investment" is unsound. The financing of government spending by

bank borrowing is essentially inflation and, apart from the spending program, cannot furnish investment. The spending program theoretically could, but actually does not, aid investment so much as would a sound fiscal policy that would induce private businessmen and capitalists to expand production.

Government spending may be a stimulant to business. But succeeding doses are less and less effective; and the stimulant, if continued long enough, may become habitual, with the result that the patient cannot get along without it. Recent experience has shown the difficulty of curtailing spending, even slightly: the President has on several occasions suggested that the opponents of government spending point out an item of governmental expenditure that could be eliminated. Whatever is named, some group protests. Spending cannot go on indefinitely, and yet we seem powerless to stop it. It is this feeling of helplessness with respect to the government's fiscal policy that has done more than anything else to retard expansion of private business.

England's recovery from the depression has been steadier than that of the United States. Over the period, as a whole, from 1933 to 1938, England has operated with a balanced budget. If the theory of deficit spending is sound, why has England succeeded so well while disregarding it?

The government credit may not be immediately threatened; but if the government spending program is continued indefinitely, the day will come when government credit will either fall or have to be artificially sustained. Although the fact that government bonds are now selling above par may be attributable to the paucity of alternative purchases, in some measure also it may reflect artificial control.

The expenses of carrying the debt should also be examined. In the first place, the interest on all government debt in the United States, federal, state, and municipal, is about 2% of the national income. Secondly, much of the debt is in short-term bonds which soon will have to be refunded, possibly at a time when interest rates are not so favorable as at the present.

Finally, the appeal which the advocates of government spending make to human needs and rights is a smoke screen. No one wants human suffering; it is only with respect to methods that differences of opinion appear. Government spending has many immediate palliative effects to recommend it to the popular fancy, but it is definitely injurious in the long run.

An intermediate point of view was held by some, who admitted the stimulating effects of government spending but believed that the budget should be balanced before the next depression set in. Individuals in this group, in effect, did not challenge the validity of the arguments of those who favored government deficit spending as a means of stopping a downward spiral of deflation; but they believed that substantial debt reduction should be made in the years during which the recovery was taking place in order that the spending process might be repeated in the next depression without continuously increasing the Federal debt. Others suggested that the

government could achieve a similar result by balancing its budget over a period longer than one year. For example, in a depression the government might incur a deficit for two or three years and then show a surplus for a similar period; thus it would operate with a balanced budget over a five-year or six-year period and yet obtain the benefits of the stimulus to spending in the years of depression.

Opponents of this program argued that whenever a democracy undertook a spending program it was unable to stop. They insisted that, notwithstanding the apparent validity of the theory, the actual effects were worse than those of a deflation unchecked by deficit spending. Of the two evils—uncontrolled spending or deflation—the latter was held to be less undesirable.

In 1939, the Federal Advisory Council to the Board of Governors of the Federal Reserve System expressed apprehension to the Board in regard to some of the other aspects of the government's fiscal policy. The recommendations of the Council were reported as follows:

June 9, 1939

Topic: Easy Money Policy

Recommendation: At the meeting of the Federal Advisory Council with the Board of Governors of the Federal Reserve System held on February 14, 1939, the Council submitted a resolution expressing the opinion that many of the fundamental effects of the continuing "cheap money" policy have not been fully appreciated and recommending that the Board conduct a study of the long range consequences of this policy upon the accumulation and investment of the savings of the people, and upon the financial structure of the country, with especial reference to its effects upon the maintenance of a sound banking system.

At that meeting some members of the Board informally expressed regret that the Council had not made its recommendation more concrete. Other members expressed doubts whether any such special study as recommended would add to the knowledge already possessed and constantly being acquired through the medium of current studies now being made not only by the Board but by other official bodies. In a letter from the Assistant Secretary of the Board to the Secretary of the Council dated March 31, 1939, the latter view was formally expressed and the Council interprets this letter as meaning that the special study recommended is not to be undertaken.

In this situation, and in view of what the Council believes to be the dangerous condition toward which the country appears to be moving, the Council conceives it to be its duty to place formally upon the record its general opinion concerning the results of the "easy money" policy to date and some of the probable results of its further continuance.

The so-called "easy money" policy has been followed since 1929 upon the theory, as the Council understands it, that "easy money" would act as a stimulant to business and that it would cause business to borrow and impel banks to lend. It has done neither; but it has done and is doing

undeniable economic injury to the whole savings class of the American people.

The Council believes that the "easy money" policy, through its failure to bring to the banks normal rates on their loans and investments, is tending to weaken the capital position of banks and is encouraging an essentially unhealthy position of the bond portfolios of the banking system through its inducement toward lengthened maturities at progressively lower rates.

In addition the Council believes that the operation of the "easy money" policy, by lessening the current cost of Government financing, has made the people, and even Congress itself, indifferent to the steadily mounting Government debt and is tending to create illusions as to the eventual burden of carrying a constantly increasing debt.

It has become evident during the past two or three years that the cumulative effect of the policy in question is profoundly and adversely affecting that large group of industrious and thrifty persons who are, by virtue of their character and habits, the backbone of the country's social and economic structure. Steadily they have seen the returns on their accumulated savings decrease as savings institutions, faced with constantly diminishing earnings, have been forced, step by step, to decrease the rate of interest paid on savings deposits. Steadily, year by year, they are meeting increased discouragement in their attempts, through the purchase of life insurance, to provide for their own old age and for the protection of their families, as the cost of insurance slowly mounts and as the dividends payable on policies steadily diminish. Schools, colleges, churches, hospitals, and educational and charitable institutions of all sorts see the returns on their accumulated endowments constantly lessening, the salaries of their staff members reduced and their promotions delayed, services to students, patients, and dependents curtailed, and more and more of the functions which are normally and most efficiently performed by private or semi-private agencies necessarily taken over by public boards at the expense of the taxpayers unless essential social needs are to be neglected.

So far as the banking system is concerned, the Council recognizes that it is only a part, but an essential part, of the economic structure taken as a whole. It believes, nevertheless, that the time has come to face squarely the fact that the entire banking system is confronted with a distinct menace to the soundness of its capital structure through the continuation of an abnormally "easy money" policy. A prolongation of this situation threatens the existence of private banking and with it the whole system of private enterprise.

The Council is not unmindful that the long continued "easy money" policy has created a condition the correction of which can only be gradually attained. But it is now a serious problem portending critical consequences. The Council, therefore, urges upon the Board as one of the greatest single services which it can render to the country as a whole, the modification of the policy of extreme "easy money."[1]

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[1] *Twenty Sixth Annual Report of the Board of Governors of the Federal Reserve System, covering Operations for the Year 1939*, pp. 77–78.

Appendix A

Exhibits 1 and 2 present an analysis of Federal government expenditures by fiscal years from 1926 through 1938. The "general" category of expenditures shown at the bottom of Exhibit 1 is broken down in more detail in Exhibit 2. The captions for the several

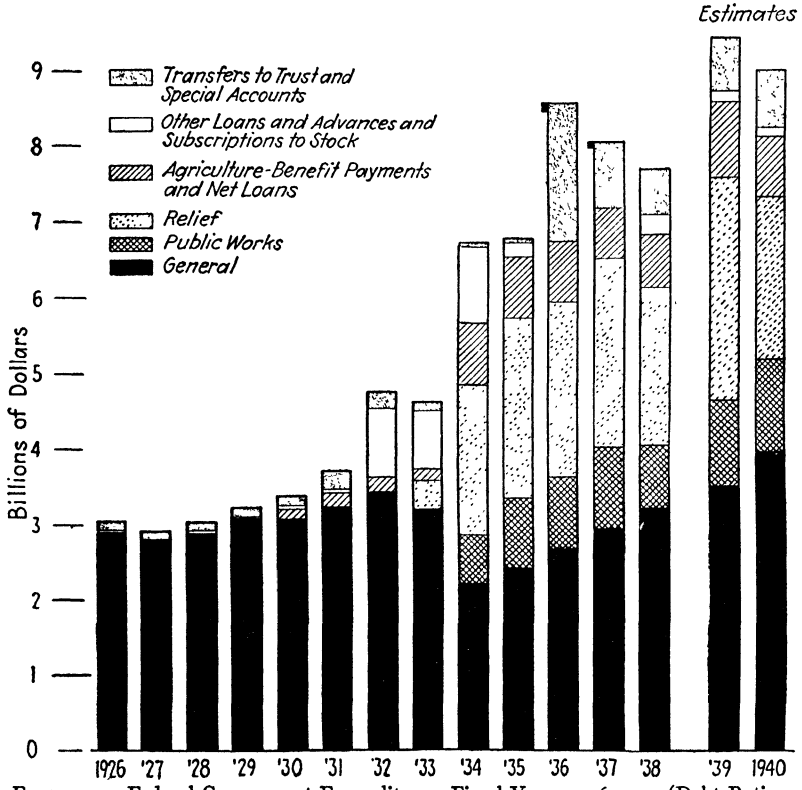


Exhibit 1.—Federal Government Expenditures, Fiscal Years 1926–1940 (Debt Retirement Omitted).

categories are, for the most part, self-explanatory, with the exception, perhaps, of "Transfers to Trust and Special Accounts." This category represents such items as veterans' bonus and social security transactions.

Exhibit 3 classifies the sources of Federal revenue for the years 1927 through 1938.[1]

[1] Exhibits 1, 2, and 3 are reproduced from an unpublished study by W. L. Crum of the Department of Economics of Harvard University.

Exhibit 4 shows a calculation of the net contribution of the Federal government to the national buying power for the period

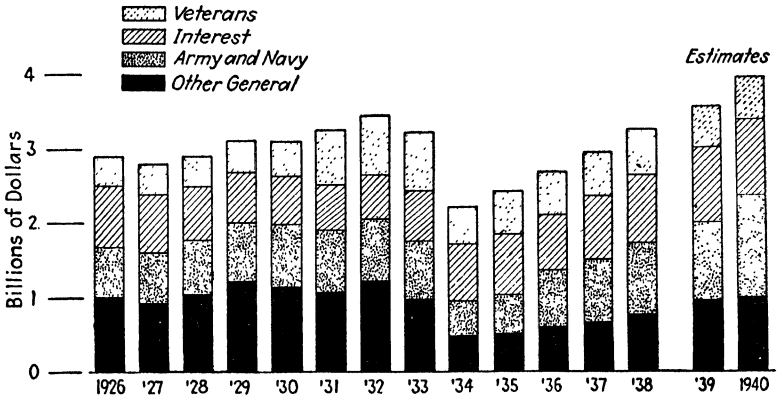


EXHIBIT 2.—Analysis of General Expenditures of the Federal Government, Fiscal Years 1926–1940.

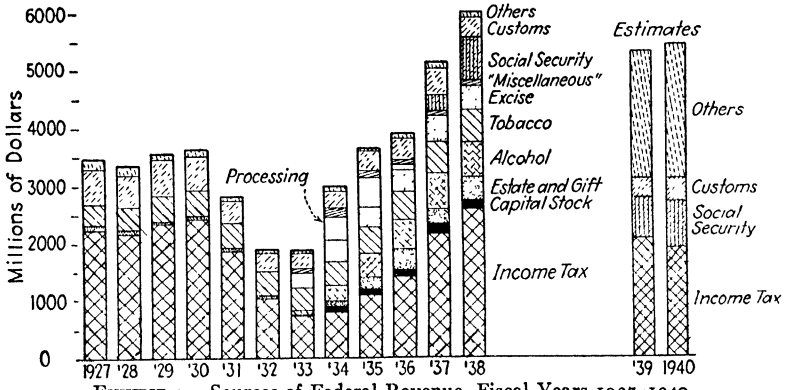


EXHIBIT 3.—Sources of Federal Revenue, Fiscal Years 1927–1940.

January, 1932, through January, 1939 (as computed privately for the Board of Governors of the Federal Reserve System).

EXHIBIT 4

NET CONTRIBUTION OF THE FEDERAL GOVERNMENT TO NATIONAL BUYING POWER

(Millions of dollars)

Year and Month	Adjusted Outlays	Adjusted Receipts	Net Contribution
1932			
January	$ 279	$ 173	$ 106
February	289	143	146
March	335	146	189
April	323	138	185
May	315	127	188
June	320	136	184
July	289	135	154
August	327	150	177
September	270	162	108
October	290	167	123
November	305	156	149
December	322	151	171
Calendar year	3,664	1,784	1,880
1933			
January	319	158	161
February	305	153	152
March	357	160	197
April	367	163	204
May	379	201	178
June	410	190	220
Fiscal year	3,940	1,946	1,994
July	305	208	97
August	306	227	79
September	329	219	110
October	347	228	119
November	381	225	156
December	496	241	255
Calendar year	4,301	2,373	1,928
1934			
January	638	249	389
February	534	256	278
March	526	259	267
April	504	252	252
May	530	287	243
June	553	282	271
Fiscal year	5,449	2,933	2,516

EXHIBIT 4 (*Continued*)

NET CONTRIBUTION OF THE FEDERAL GOVERNMENT TO NATIONAL BUYING POWER

(Millons of dollars)

Year and Month	Adjusted Outlays	Adjusted Receipts	Net Contribution
1934			
July	$ 511	$ 276	$ 235
August	542	271	271
September	544	275	269
October	606	291	315
November	595	288	307
December	606	275	331
Calendar year	6,689	3,261	3,428
1935			
January	585	262	323
February	584	299	285
March	579	326	253
April	630	322	308
May	599	315	284
June	668	304	364
Fiscal year	7,049	3,504	3,545
July	652	315	337
August	634	301	333
September	592	273	319
October	604	288	316
November	557	309	248
December	627	267	360
Calendar year	7,311	3,581	3,730
1936			
January	620	312	308
February	567	360	207
March	651	357	294
April	695	361	334
May	690	353	337
June	982	359	623
Fiscal year	7,871	3,855	4,016
July	853	374	479
August	776	355	421
September	667	347	320
October	715	358	357
November	659	334	325
December	693	361	332
Calendar year	8,568	4,231	4,337

EXHIBIT 4 (*Continued*)

NET CONTRIBUTION OF THE FEDERAL GOVERNMENT TO NATIONAL BUYING POWER

(Millions of dollars)

Year and Month	Adjusted Outlays	Adjusted Receipts	Net Contribution
1937			
January	$ 612	$ 456	$ 156
February	637	575	62
March	720	604	116
April	700	587	113
May	620	557	63
June	663	558	105
Fiscal year	8,315	5,466	2,849
July	672	579	93
August	605	517	88
September	578	532	46
October	569	524	45
November	588	506	82
December	633	510	123
Calendar year	7,597	6,505	1,092
1938			
January	573	517	56
February	601	567	34
March	718	587	131
April	718	574	144
May	728	517	211
June	720	539	181
Fiscal year	7,703	6,469	1,234
July	767	549	218
August	816	527	289
September	770	521	249
October	824	530	294
November	777	524	253
December	831	513	318
Calendar year	8,843	6,465	2,378
1939			
January	818(p)	512(p)	306(p)

(p) Preliminary.
Source: An unpublished study privately prepared for the Board of Governors of the Federal Reserve System.

Appendix B

Throughout the arguments of those favoring and those opposing the government's attempt to check business depressions by spending, there is a lack of clarity with respect to the exact meaning of "government spending." Some persons argue that the only important thing is the government's "net income-producing expenditures," or "net contribution," as reported in Exhibit 4, that is, the excess of current purchasing power distributed by the government to the people over the purchasing power taken away by taxation. Consequently, the size of the cash deficit roughly measures the amount of effective spending by the government.

Others appear to believe that a large volume of spending by the government is necessary regardless of the deficit. These individuals usually admit that the deficit is necessary, but they deny that the desired effects would be produced by a deficit arising from lowered taxes and not from increased expenditures.

Dan T. Smith, in a paper in the *Review of Economic Statistics*, presents an argument that takes issue with both the above interpretations. It is his point that the whole process of measuring the effect of government fiscal policies upon the economic system is so complicated that a net figure, however derived, cannot be relied upon to give an accurate picture. The same net figure in two periods may be the result of widely different component items of receipts and expenditures. In order that the effect of component parts may be examined separately, he offers an analysis of the receipts and expenditures of the government. The following quotation, with respect to income taxes, illustrates the type of analysis which he suggests must necessarily be made of all the items hidden in a net figure.

> For example, though in the long run income tax payments divert income flows from private to public use, in short-run analyses, covering different phases of the business cycle, various qualifications to the general proposition must be introduced. During a depression, some income receivers have current savings which are held idle. Taxation which absorbed funds of this type clearly would not necessarily reduce other spending by the amount in which it provided funds for government spending. Proposals have been made for a fiscal policy designed to secure a net increase in total spending, private and public, without creating a Treasury deficit. This would be possible if the government secured by taxation otherwise idle funds and injected them into the income stream. An attempt to do this, however, may so change the willingness to use the funds remaining in private hands that the net effect of the entire procedure would be a decrease rather than an increase in total spending. A general problem in the analysis of a fiscal system is raised in this connection.

It seems important to note at all times both the use of specific sums taken by the government and their alternative uses if left in private hands, and also the effects of the specific tax or expenditure upon the use of other funds remaining in private hands and not affected directly by the government's program. It seems probable, for instance, that an income tax on middle and upper income brackets designed to absorb idle savings may adversely influence the use of remaining funds. The structure of the tax is important. It may be designed in such a way that, perhaps inadvertently, it discriminates against risky investments. High taxes on capital gains, denial of loss carryover, and the very degree of progression in the rate schedule, all tend to absorb part of the gross differential return between risky and gilt-edge investments. As the net differential to the investor is thus reduced, the willingness to make the risky commitment is decreased, and a readjustment in market differentials is required. Thus a tax program may act to make more difficult the very type of investment needed to induce a sustained high level of business activity.[1]

Professor Smith further contends that the short-run effect of any particular item of receipts and expenditures will vary from time to time, and place to place, depending upon existing economic and political conditions.

3. The Premiers' Plan in Australia

An Experiment in Economic Adjustment

The experience of Australia in the depression beginning in 1930 and the efforts of the government to combat the adverse economic forces were described as follows by Douglas Copland, one of the principal economic advisers to the Commonwealth Government:[2]

Owing to the early fall in wool, wheat, and metal prices and the sudden cessation of overseas borrowing, Australia experienced the first effects of economic depression at the beginning of 1930. There was a sudden fall in income from overseas, a contraction of expenditure on public works, a heavy reduction in farmers' spending power with a consequent increase in unemployment in secondary industries, a decline in the value of stock exchange securities, and a rapidly growing budget deficit. These developments became quite familiar in all countries in later stages of the world depression, and they were then accepted as a matter of course. But in Australia they were frequently looked upon as the inevitable outcome of

[1] Dan T. Smith, "An Analysis of Changes in Federal Finances, July, 1930–June, 1938," *Review of Economic Statistics*, Vol. XX, No. 4, November, 1938, p. 157. Quoted by permission.

[2] Address delivered by Professor Copland at Chatham House on December 5, 1933, Sir Hugo Hirst in the Chair. Reprinted from *International Affairs*, Vol. XIII, No. 1, January–February, 1934, by permission of the Royal Institute of International Affairs.

unsound financial and economic policy, and this view was strengthened by criticism from abroad. Perhaps this was in the best interests of Australia, though at first the situation was very disturbing. Throughout 1930 the forces of deflation the world over gathered strength, and the task of adjusting the economy of Australia to a rapidly deteriorating world situation became more and more severe. There was a conflict of opinion in Australia as to the policy that should be pursued. On the one hand were the strong political forces that favoured inflation and strenuously combatted proposals for retrenchment. On the other hand, the more conservatively inclined urged upon governments and wage-fixing authorities the traditional policy of reducing what may be called adjustable expenditure, that is, salaries, wages, and all costs other than fixed charges. In the circumstances, neither school of thought had a satisfactory solution of the grave difficulties that beset the nation.

There was a deep-rooted conviction in many quarters in Australia that real costs were too high, and that government expenditure was on too extravagant a scale. To have attempted to reduce these costs by inflation in a world that was deflating would have quickly sapped confidence in the currency and the financial structure. Thus the inflationists would have been defeated even if their solution were theoretically sound. Though more familiar, the proposals of the deflationists were quite inadequate. The adjustment was too great for the partial action vaguely recommended by this school. Both political and economic obstacles were fatal to their views. An all-round reduction of costs on a grand scale required the correct political setting, while any action that left fixed costs a greater relative burden than ever was clearly inappropriate.

It was in this situation that economists urged the middle course that was embodied later in banking policy, in the so-called "Premiers' Plan," and in currency and exchange management. There were differences in views among the economists, largely differences of emphasis, but in discussions that took place among them during the whole of 1930 these differences were reconciled. When economists were called on to give advice, as they were finally in April, 1931, in company with the under-treasurers of five of the States, they were able quickly to produce a plan that commanded general public support. At that time, however, the Commonwealth Government's inflationary proposals had been the subject of a short political campaign by the Treasurer, and the electorate was unsympathetic. The Commonwealth Bank had also given notice to the Chairman of the Loan Council that it would not continue to finance governments beyond commitments agreed to on April 2nd, 1931. Faced with the prospect of a stoppage of payments, the Commonwealth Government had shortly to make a vital decision on budget policy. The public was nervous and was ready to accept a policy that offered some hope of promoting recovery, even though it was in some respects an unorthodox policy.

The economic problem in brief was to adjust the economy of the country to a loss of national income that had fallen with special severity on some sections of the people, and was gradually causing distress to all. Primary producers were most severely affected because their incomes were exposed to the full blast of the fall in export prices. By the beginning

of 1931 the fall had reached 50% on the 1928 level, and it was even more severe in the great pastoral industry. The sudden cessation of long-term borrowing abroad had caused a great contraction of public works with increasing unemployment. From both these causes of direct loss of national income, indirect losses to secondary production were mounting up with consequent increase in unemployment. At the same time the profits of industry as a whole were languishing. Thus three types of income had suffered: income from export production, income from public works employment, and income from profits. To this was being added a fourth class; income from industrial production that was suffering from the reduced demand of primary producers and governments in respect of their loan expenditure. Meanwhile the Commonwealth Government in its zeal to reduce imports had greatly increased the tariff and was using up the gold and overseas exchange reserves of the banks to meet national obligations. The exchange rate, though moving more and more away from parity with sterling, was throughout 1930 pegged below the level of the "black" market. Hence the farmer was denied the relief that would have come from higher local prices in a more depreciated currency, while the goods and services that made up his costs were protected by higher tariffs, a somewhat rigid wage structure and fixed interest and rent charges.

The economists argued that the loss of income should be shared by all classes as far as this was practicable, that the fall in prices of exports was so severe that some exchange depreciation was necessary, that fixed charges had to be adjusted, and that a fall in the standard of living as a whole was inevitable. They hoped to reduce the magnitude of the monetary adjustment required. They urged that a depreciation of the currency in terms of sterling would ease the process of adjustment, because it would be a quick and effective method of distributing some of the disproportionate loss of income that had fallen on the primary producers. There was much controversy on this issue, but owing to the declining value of exports, the impossibility of getting more long or short term loans abroad, and the flight of capital arising from the political uncertainties of the time, the exchange problem solved itself for the time being. During January, 1931, the Australian pound moved rapidly from the carded rate of 9½% premium on sterling to 30% premium. Later, when sterling left gold, there was further relief from the worst evils of the world deflation of 1932. With slight oscillations in 1931 and 1932 the export price index in Australian currency remained approximately stable at about 55% of the 1928 level. At the end of 1932 the severe reverse in the United States caused a further downward move, but up to that time the depreciation of the currency had staved off some of the most serious effects of the world fall in prices of foodstuffs and raw materials. It is noteworthy in this connection that the chart of Australian export prices shows much the most pronounced fall in both gold and sterling prices during 1929 and 1930. There was no serious depreciation of Australian currency until the beginning of 1931; yet by that time the fall had been 50% in sterling. The less rapid fall that followed the depreciation of the currency was merely a continuation of this movement in the outside world, and not a reaction from the depreciation of the currency.

Though this depreciation of the currency is not formally a part of the Premiers' Plan it must be counted as an integral part of what may be called the Australian plan. Up to the present it has been a vital part of Australian banking policy, and the rate of exchange is now controlled by the Commonwealth Bank, which buys and sells London funds from the trading banks at rates fixed by the bank. This arrangement came into force early in December, 1931, when the bank fixed the rate at 20% depreciation on sterling. There has been no alteration in the sterling rate since that time. Thus we have had a stable relation with sterling which itself has been fluctuating. There can be little doubt that the depreciation of the currency has had beneficial effects in transferring some of the losses of income from export producers to the community as a whole. Its effect on the general price level will be discussed later.

Shortly after the fall of the Australian pound the Commonwealth Arbitration Court in January, 1931, gave its decision in the basic wage case. It had conducted an inquiry into the economic changes caused by the crisis. Evidence was called from both parties to industry and from economists. The Court was greatly influenced by the unmistakable signs of the fall in national income, and it ordered a reduction of 10% in the real wage. Under the system of wage adjustments that had been built up after the war, the basic wage fixed by the Court was subject to quarterly adjustments according to changes in the cost of living as measured by the Commonwealth statistician. During 1930 the wage had been falling steadily, but the special reduction ordered by the Court was a cut in the real wage. By the first quarter of 1931 the basic wage was down 20% on the 1928 standard, and at the end of 1932 the reduction was nearly 30%. Except for the Industrial Court in South Australia, where the depression had been very severe, the courts in the other States—namely, New South Wales, Queensland and Western Australia—were slow to follow the Commonwealth example. In 1932, however, a change of government in New South Wales brought about a speedy reduction of the basic wage, and at the end of 1932 it was 26% below the 1928 standard. For Victoria and Tasmania there are wages boards that tend to follow the Commonwealth Court.

From this brief statement of wage policy during the crisis it will be observed that the wage structure of Australia was elastic. Indeed, it was the Commonwealth Court of Conciliation and Arbitration that first drew official attention to the gravity of the crisis. The Commonwealth Government of the day sought to delay the decision of the Court. This is of more than passing interest. The Government had been returned to power on an express mandate to maintain the Court, and many had interpreted this mandate as affording protection to the ruling rate of wages and standard of living. But the Court knew no politics, and its example in reducing wages in February, 1931, had important consequences beyond the effects upon wages generally and the costs of industry.

While these adjustments in exchange and wages were in progress the budget situation was getting steadily more serious. The governments were divided on policy. The Commonwealth Government and New South Wales were rigidly opposed to deflation and heavy retrenchment in expenditure, involving cuts in salaries and social services. The Loan

Council became the centre of the picture because loans from the banks to finance deficits and loan works could not be obtained without the sanction of the Council. I should add that the Council was established under a financial agreement made among the seven governments in 1927. Frequent discussions between the Council and the Commonwealth Bank had not brought any prospects of a settlement. Though agreeing to balance budgets at the time of Sir Otto Niemeyer's visit in August, 1930, the governments had made little progress in this direction up to April, 1931. In partial extenuation of this unsatisfactory position, I should explain that the progressive fall in prices and income had brought unexpectedly heavy declines in revenues. Each time the Treasury officers estimated the deficits they had to increase the figures. The Commonwealth Bank had up to April 2nd, 1931, extended to governments no less than £51.5 million for meeting deficits and financing loan programmes. So serious did the position appear to the Bank that, as already mentioned, the Chairman, Sir Robert Gibson, wrote on April 2nd, 1931, to the Chairman of the Loan Council intimating that no further extensions of credit could be made available to governments. It was in this situation that the Loan Council once more decided to appoint a subcommittee of its members to report on the budget position. The committee had power to call to its assistance economists and undertreasurers. It did so, and a Committee of four economists and five undertreasurers met early in May. It was this Committee that enunciated the plan that afterwards became known as the Premiers' Plan.

The Committee found prospective deficits amounting to £39 million for the year 1931–1932. It rejected inflation as a method of meeting the position, and settled down to a consideration of the methods available for reducing the deficits to a "manageable" amount. At the time of its meeting the Commonwealth basic wage had fallen 20% on the 1928 level. It took this figure as the basis of its proposed economies. Hence the decision of the Arbitration Court became the standard by which governmental expenditure was to be judged. It was an acceptable standard because it had already been applied over a large field of incomes. But there was a difficulty in its application. It could be applied only to "adjustable expenditure," which the Committee defined as being all expenditure other than interest, exchange on overseas interest, and expenditure on unemployment. Without going into fine details I may state the position roughly as follows: For 1929 interest and sinking fund on the national debt amounted to £63 million and all adjustable expenditure to approximately £120 million. Savings of £11 million had been made in the latter, leaving additional savings of £13 million towards a budget deficit of £39 million. But the standard of 20% was to be applied especially to wages, salaries, and pensions. Where additional reductions, such as retrenchment in departments, were possible, further economies should be made. The Committee then explored the possibilities of increased taxation and found that £10 million could be obtained from what it considered reasonable increases. This left a deficit of £16 million, which was regarded as too high.[1]

[1] Editors' Note: The total government expenditures for 1929–1930 were reported as £194 million; £63 million of this amount was for interest and sinking fund payments and

Attention was then turned to the burden of fixed interest, and a conversion of the internal debt reducing interest by 15% was suggested. At that time there was a tax of 7½% on income from property imposed by the Commonwealth Government as a means of securing a contribution from fixed incomes. In these circumstances, a further reduction of 15% was considered sufficient. The Committee was at pains to explain why it suggested this unorthodox plan. The debt was not convertible at the option of the Government, and technically the proposed plan was a breach of contract. The Committee urged that this was preferable to inflation or a stoppage of payments. The recommendation was consistent with the economists' view that the loss of income should be spread, and that fixed charges were a barrier to recovery. It caused some controversy, but when the Committee's report had been studied there was general agreement that some heroic measure was necessary in the circumstances. Though outside the budget problem proper, private interest and rents were suggested by the Committee as costs that should be similarly treated.

For the remaining deficit of £13 million the Committee recommended finance from borrowing. The report was adopted as a basis of a plan by the Loan Council and remitted to a Premiers' Conference which finally agreed upon the Premiers' Plan. Briefly this Plan embraced a conversion of the internal debt of £556 million from 5¼% to less than 4%, a reduction in expenditure on the lines suggested by the Committee, an increase in taxation but not to the extent urged by the Committee, and a reduction of 22½% in private interest and rent. The legislation was passed by the Commonwealth and State Governments, and by the end of August the conversion loan had been successfully floated. Only 3% remained unconverted, and this was for the most part compulsorily converted later. The other measures were passed largely according to plan, though there were differences in details. The results on the budgets were on the whole satisfactory, though not up to the improved figures mentioned by the Committee. The year ended with combined deficits of £18 million instead of £13 million as originally desired. In part this result was caused by the further fall in export prices, and the general depressing effects of the world crisis. At a subsequent conference in July, 1932, further steps were taken to reduce deficits, with the result that in 1932–1933 they were brought down to less than £9 million for the States against sinking fund payments of more than £7 million. But the Commonwealth Government had a surplus of £3.5 million. I should add that this surplus

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£131 million for adjustable expenditures. Adjustable expenditures had already been reduced by £11 million when the prospective deficit of £39 million was budgeted for 1931–1932. The 20% reduction referred to in Professor Copland's speech therefore applied to only a part of the £120 million of adjustable expenditures in the budget. The savings were made as follows:

20% reduction in public service salaries and wages	£ 8.9 million
20% reduction in pensions	4.2
	£13.1 million

This amount, when applied to the deficit of £39 million, left £26 million, which was reduced to £16 million by the new taxes.

was obtained after a reduction of taxation and a special increase in expenditure amounting in all to £3.25 million.

In face of growing difficulties in other countries this must be regarded as no mean achievement. Internally the economic situation responded favourably to the operation of the Plan. Government bonds rose steadily, and within 18 months after the Plan was put into operation the 4% stocks were at par. Today they give a return of less than 3¾%, and a loan of £5 million placed on the local market at 3¾% in May last (1933) attracted subscriptions of £8.3 million. Later in November a second public loan of £10 million at 3½% was issued at a price of 99. It was oversubscribed in two days. Stock exchange securities rapidly rose in value, going up from about 55 to 85 in 12 months (base 1925 = 100). Unemployment though still high commenced to fall early in 1932, Australian bonds in London recovered, and in November, 1932, a satisfactory conversion operation was carried out. Finally, export production was increased, partly as a result of good seasons and partly as a result of the working of the Plan.

Whilst the Premiers' Plan, narrowly interpreted, is confined to the proposals for balancing the budget and to the reductions in public and private interest and rents, the wider interpretation of the Plan would take account of the setting in which the budget reforms were suggested. As already indicated, the suggestions made by the Australian economists were designed to minimize the monetary adjustment required, and to make the adjustment as quickly as possible by spreading the loss of national income. It is easy in pure theory to justify both points of view. Deflation has no merits if the necessary economic adjustments can be made with a relatively stable price level. The economists therefore argued that internal stability of the price level at the risk of external depreciation of the currency was the desired goal of monetary policy. With regard to the spread of the loss of income, this would achieve the double purpose of rectifying some of the disequilibrium in the price structure, and of restoring income and demand to the sections of the community most severely hit by the first impact of the crisis. The higher exchange rate, the reduction in wages, the cutting of interest and rents, and economies in public expenditure were all designed to achieve this objective. But apart from currency depreciation, all the measures suggested had at first a deflationary influence. This was certainly not in keeping with the arguments advanced by the economists; consequently we must consider another phase of the general plan.

Up to May, 1931, the banks had furnished large credits to the governments for deficits and loan works. The Plan recognized that this method of finance should continue on a gradually declining scale. At first it was the growth of the credits for external obligations that caused most concern. At one time these external credits, including British treasury bills, amounted to £38 million. With the use of Australian gold and foreign exchange reserves, the external floating debt, now £32 million, is in the hands of the Commonwealth Bank, except for less than £4 million held by a British joint stock bank. The existence of such a large amount of Australian Government securities maturing abroad has to some extent frozen the assets of the Commonwealth Bank; but as the external position

of Australia improves, these credits will become more liquid. Internally the floating debt expanded rapidly from £20 million at June 30th, 1931, to its maximum of £51 million at September 30th, 1932.[1] This rapid growth of the internal floating debt caused some misgivings among bankers, but it is really in strict keeping with the general plan of recovery. Much of this debt was made possible by the expansion of central bank credit through the Commonwealth Bank, and it had beneficial effects in counteracting deflationary influences embodied in other aspects of the Plan. The increase in the floating debt caused an expansion of private bank deposits, an increase in the funds on the money market, and a reduction in rates of interest. To have borrowed in the open market for deposits or loan works would have hardened rates of interest, as was proved by the premature loan of November, 1932. Interest rates, however, fell rapidly after the middle of 1930, as already indicated; and the treasury bills offered an avenue of investment for the banks at a time when the demand for advances was low. The bills now bear interest at 2½%, while the rate on bank deposits has been reduced to 2% for three-months deposits and 3% for two-year deposits. Now that these low rates of interest have been established, it is possible for the necessary funds for loan works to be raised on the open market. Budget deficits, in so far as they occur, will still be financed from treasury bills; and if the market has a surplus of funds they will be used to fund part of the floating debt. Thus half the proceeds of the recent £10 million loan is to be used for funding.

The growth of the floating debt must therefore be looked upon as one of the aids to recovery, and not as a menace to sound finance. Indeed, one might say that this was merely another of the unorthodox elements in the general plan put into operation by Australia. There were those who argued that the existence of a budget deficit financed by treasury bills would result in inflation. This was not the case, for two reasons: first, the deficits were under control; and secondly, the reductions in prices and incomes were deflationary in their effects and had to be counteracted by expansion of credit. The banking policy of Australia was sound in the crisis mainly because it was less orthodox than that which so-called sound financiers would readily pursue. Indeed, it is not unreasonable to say that the success of the Australian plan lay in its neat balance of orthodox and unorthodox measures. The deflationary elements created confidence in the capacity of the governments to make the necessary adjustments. The inflationary elements prevented these deflationary forces from causing further slackening of enterprise, and laid the foundations for financial recovery, which always precedes economic recovery. Between these two sets of forces, the Australian monetary unit, for a period of 18 months, maintained relative stability of internal purchasing power at a time when most other currencies were rapidly appreciating. It was not until November, 1932, that wholesale prices moved down from the stable level of the preceding 18 months. This decline was a reflection of the gathering storm in the United States, which caused an all-round world-wide fall in prices. It could have been checked by a slight further depreciation of the Australian pound in terms of sterling. Actually prices declined by roughly 7% in a period of six months. Even with this decline, however,

[1] It fluctuated round that level to March, 1933, but has fallen since to £48 million.

the Australian monetary unit preserved a more stable internal spending power than the monetary units of most countries. Since March wholesale prices have recovered to the level of September, 1932. It is worth while noticing that the fall in wholesale prices, which took place in 1929 and 1930, was accompanied by an even greater fall in retail prices. This is further evidence of the flexibility of the economic structure. I do not propose to enter into an explanation of the reasons for this flexibility—I merely remind you that it was a most important source of strength to Australia in making an adjustment to a rapidly declining national income. Perhaps it is fair to add that few people in Australia expected the structure to be so flexible. Critics abroad, who feared inflexibility, were therefore not alone in their fears.

Efforts to restore internal balance in an economic structure must have beneficial effects upon the external position. Often it is argued that attention should be focussed upon the external situation, and that every effort should be made to adjust the balance of payments so that external debt payments can be met. One might say that this is a creditor's point of view. He looks with disfavour upon currency depreciation and upon internal measures that smack of inflation; and there were, of course, many critics abroad who regarded the depreciation of the Australian pound as an unhealthy sign. I believe this to be a profound mistake, and that creditor countries generally could assist their debtors by a more sympathetic view of such internal measures. Australia's main mistake was that she did not depreciate her currency sooner and tackle her budget problem earlier. It must be remembered, however, that she came into the crisis early, and her record of direct cost adjustment compares very favourably with that of most other countries, even creditor countries. In the light of experience it must also be considered that her internal measures had a beneficial effect upon her external position, despite the continued decline of external prices for a time after her internal adjustments were made. Export production was expanded by more than 25% in the year 1931–1932 and 30% in 1932–1933 compared with the three precrisis years. Good seasons played their part in this expansion, but so did internal effort and internal policy. Despite the expansion of volume, the sterling value of exports in 1932–1933 was only £83.3 million, compared with £140 million before the depression. This is a realistic illustration of the devastating effects on Australia of the fall in export prices. Imports were reduced from over £140 million to £44 million in the year 1931–1932 and £56.6 million in 1932–1933. Import prices have fallen, but not to the extent of the fall in export prices. The result of these adjustments in the external position was to give to Australia in the year 1931–1932 a surplus of approximately £8 million sterling, after meeting all external obligations.

Since May there has been a recovery in export prices, especially in wool prices, and the balance of payments is now even more favourable. The reactions of higher export prices on the internal economy will be favourable to budgets and to the volume of employment. But the Commonwealth budget yielded a substantial surplus in 1932–1933 before any benefits had accrued from the rise in export prices. The Commonwealth Treasurer therefore appears to be on solid ground in his recent budget,

which remits taxation of £7.5 million and restores expenditure to the extent of £1.7 million. Estimated State budget deficits according to the arrangements made by the Loan Council in June will be £8.5 million for 1933–1934. But sinking fund payments now amount to £8 million, and the State budgets will benefit from the moderate recovery of economic activity now in progress. They will also obtain relief from the conversion operations of external sterling loans that are now "callable." Already savings of £1.3 million sterling have been made by these conversions, and 5% and 5½% loans amounting to £39 million are still available for conversion. The improvement in Australian credit is a reflection of the solid advance the country has made towards recovery. It can be confidently claimed that the basis of this recovery was laid in the Premiers' Plan, and in the monetary policy pursued by Australia since early in 1931.

What particular features of the Premiers' Plan were most important in bringing about recovery in Australia?

What particular circumstances in Australia were favorable to the successful application of such a plan?

What important parallels and contrasts are there between the Australian recovery program and the policies followed by the Roosevelt Administration in the United States in 1933 and subsequent years?

B. RELATIONS OF GOVERNMENT AND BUSINESS IN PERIODS OF NATIONAL EMERGENCY

4. Control of Prices in Wartime

Possible procedures for curbing inflation

During and following the war of 1914–1918, inflation carried commodity price levels in the United States to unusual heights and set in motion forces which exerted violent repercussions on the United States economy for many years. In the 1930's, mindful of these consequences, many economists and statesmen began giving consideration to possible plans for preventing severe inflation in the event of another war.

Bernard Baruch, Chairman of the War Industries Board in 1918, made a long statement before the War Policies Commission in early 1931. Excerpts from this statement follow:

The following sequence has attended every major conflict in history:

1. Shortages of services and things develop rapidly.

2. Competitive bidding among the procurement agencies of Government and, in the last war at least, other procurement agencies, and for the civil population, send all prices into a rapidly ascending spiral.

3. Expenses of government multiply. The abnormal need for money requires vast issues of certificates of governmental indebtedness. The inherent threat of destruction of government impairs national credit. The combination of all these things rapidly debases the exchange value of money, thereby still further increasing the prices of things. The consequent destruction of buying power in the markets of the world begins almost immediately to impair the economic strength of the nation in the conflict. This sapping of economic strength will, in future wars, be the determining cause of defeat. As Ludendorf has so bitterly complained, his military front remained impregnable long after what he called "the home front" had crumbled. Destruction of civil morale defeated Germany.

This process intensifies as time elapses, with the following inevitable results:

1. Destruction of domestic morale through a just and bitter resentment by soldiers, their families (and indeed by all persons of fixed income) at the spectacle of grotesquely exaggerated profits and income to those engaged in trade or in services for sale in competitive markets and the constantly increasing burden of bare existence to all those who are not so engaged. This is the greatest source of complaint of "unequal burdens." The present demands for "equalizing burdens" and "taking the profit out of war" both go back to this single phenomenon of war inflation. There is no more important problem to solve—whether we consider it purely as a means to maintain the solidarity and morale of our people, or as the basis of our economic strength for war purposes, or to avoid war's aftermath of economic prostration, or on the broader grounds of humanity and even-handed justice.

2. The inflationary process affords opportunity to individuals and corporations to reap profits so large as to raise the suggestion of complacency if not of actual hospitality toward the idea of war. That any human being could be persuaded, by prospect of personal gain, however magnificent, to invoke the horrors of modern war is almost unthinkable; nevertheless the certainty that war could never result in the enrichment of any man would give us all security and comfort.

3. Inflation enormously increases the cost of war and multiplies burdens on the backs of generations yet to come. The war debt of the nation is necessarily incurred in terms of debased dollar values. In the inevitable postwar deflation the debt, of course, remains at the inflated figure. Thus the bonds that our Government sold in the World War for 50-cent dollars must be paid through the years by taxes levied in 100-cent dollars. For example, our total war expenditure was $39,000,000,000 incurred in terms of 1917, 1918, 1919, and 1920 dollars. In terms of the purchasing power of 1913 dollars it would have been only $13,000,000,000, or in terms of 1930 dollars probably not more than $15,000,000,000. Such a grotesque result would be almost unbelievable were the figures not living facts. If anything can be done to avoid this practical doubling of the economic burden of war, certainly we should spare no effort to accomplish it.

When we entered the World War, the frantic demands and uncoordinated counterbidding of our future associates in war had already distorted

our own price structure out of any semblance of its normal scheme. In other words, there was a robust inflation here before we ever entered the war. Furthermore, nearly 12 months elapsed after our declaration before we had evolved controls and organization capable of coordinating our own and our associates' procurement activities and of controlling price. Notwithstanding this delay and the dimness with which controlling principles were at first perceived, we did, in 1918, arrive at a method which checked the process of inflation in America and kept it in check until all controls were released in November, 1918. It is to this experience that I refer when I say that we have proved in practice a method to control inflation. That proof convinces me that it would also prevent inflation if applied at once upon the advent of war and before the inflationary process begins.

To measure inflation of price and profit we must have some norm. The obvious norm is the whole price structure as it existed on some antecedent date, near to the declaration of war, on which the normal operation of the natural law of supply and demand can be said to have controlled price. That determined, we need a method of freezing the whole price structure at that level. The obvious way to do this is simple—by proclamation to decree that every price in the whole national pattern as of that determined date shall be the maximum that may thenceforth be charged for anything—rents, wages, interest rates, commissions, fees—in short, the price for every item and service in commerce.

In these few words reside the basic principle of war control of national industry and of the present suggestion for elimination of war inflation in America. The superficial objection is, "You propose to repeal the law of supply and demand." We may as well take this bull by the horns. In modern war administrative control must replace the law of supply and demand.

In the national pattern of peace, all economic forces are operating under the work-a-day influences of that natural law. Prices, production, and finance all are factors of competition—in other words, of that law. But in peace the various parts of what will eventually be the economic engine for war are neither coordinated nor subject to any single guiding control. Indeed, to prevent such combination and control is the basic effort of peace-time administration. "Competition is the life of trade."

Suddenly war appears. The whole tempo, volume, and quality of the force of demand becomes distorted. Things that yesterday were of no great importance (e.g., toluol, picric acid, and sodium nitrate) suddenly become the aim of all endeavors. As to these, as well as to all other fundamental commodities, there is an almost instantaneous shortage. Now, in peace-time shortage, the highest bidder takes all. That is the law of supply and demand. In war—at least in major modern war—we can not permit this. The Government must assume control of the whole supply and ration and apportion it—not to the longest purse but to the most necessitous use. Furthermore, the distinguishing characteristic of peace-time economic operation is competition, and basic prices are largely determined thereby. Also it is literally the object of one great competitor to secure as great a proportion of all business as possible. Under war conditions the entire process is reversed. There is more business than all

the facilities of the country can handle. Competitors must become cooperators in order to meet the very minimum demand for shortage items. Control of this cooperation rests in government. Thus both because governmental determination (and not price) controls demand, and because only complete cooperation (and not competition) can produce supply in sufficient quantity, the law of supply and demand adjourns itself.

These principles apply to shortage items. The crystallized price structure is a schedule of maxima. Items in ample supply are left free to fall below the fixed price level.

. . . . . .

Yet, after all these things are done there will remain unavoidable necessity for adjusting the crystallized price structure upward in individual cases. We always have low-cost producers and high-cost producers. War requires all producers. This presents the most difficult aspect of the problem:

If we raise the price sufficiently high to pay a reasonable profit to the high-cost producer we will thereby create inordinately high profits to the low-cost producer.

There are only two alternatives—create a system of bonuses to the latter class or limit, by an excess-profit tax, the return on invested capital to the former class. After exhaustive study during the war, the former method was considered impracticable and the latter was adopted. The most cogent objection to it is the great variety of accounting systems and the consequent confusion and opportunity to conceal profit. Due to the income tax and the increasing ownership by the public of the securities of great corporations, accounting is now much simpler. Some of the difficulty still remains, but it is a hindrance—not an insuperable obstacle.

Besides the necessity of revising some prices upward there will also be a variety of occasions for revising others downward. A method must be devised to adjust the initial frozen-price pattern to the changing situation.

We did this during the war by a price fixing commission, which reported directly to the President, who passed final judgment and announced the price. There was nothing in the experience of that commission to suggest that a similar system would not be entirely effective in the future.

The frozen pattern of price will also have to be protected against the situation in export trade. If, as is almost certain, the inflationary process is in operation in the rest of the world, means will have to be applied to prevent extravagant foreign prices from upsetting our domestic schedule. Government, in its world economic strategy, must have almost plenary control over foreign trade. We shall see the agency for such control purchasing for export at the controlled domestic price, selling in export at world price and using the profit to buy necessitous imports at inflated world prices and sell to domestic needs at the controlled schedule.[1]

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[1] *Hearings before the War Policies Commission*, Seventy-first Congress, Second Session, H.J. Res. 251 (Washington, Government Printing Office, 1935), pp. 32–36.

Later in the same hearings, other testimony and discussion with respect to wartime price control was in part as follows:

Newton D. Baker, former Secretary of War: " . . . I am not economist enough to comment on Mr. Baruch's suggestion that there ought to be an instantaneous freezing of prices, but I am willing to be foolhardy about it and venture a disagreement. I am inclined to believe that would be unwise. Mr. Baruch's suggestion is that prices should be frozen by proclamation, as I understand it, but there should immediately be set up an agency which could unfreeze them and adjust them either up or down, as the case might be. He would accomplish that by having an agency to unfix the prices. But in preceding it by a sudden freezing all over the country, I try to think how that would work. The minute you freeze prices you find that there are a great many things about which the raw-material supplies are uncertain. Some are necessary to be gotten from abroad. For tires, for instance, which would be vital in the next war, the rubber supplies come from abroad. If the prices are fixed as of a certain day, the manufacturers do not know whether they are going to be able to get rubber at the old price or not. The character of the war would have something to do with that, as to whether the importation of rubber was affected by speculation or other inhibitions. The tire manufacturers could not go on here and manufacture tires with the certainty that their price was fixed at a particular point, while the raw-material supplies would be at varying prices. The consequence would be they would stop manufacturing tires until they came down and consulted the agency that could unfreeze their prices. In the meantime tire factories would stop and there would be a shortage of tires for a while. It seems to me that would work badly, and because it does seem so and because it is a fixed thing rather than a responsive thing that would have to be provided in advance, my judgment would be to modify Mr. Baruch's suggestion on that point."[1]

. . . . . .

Former Commander John M. Hancock: "Following some of the queries this morning as to the matter of the date for the basic price being fixed, it seems to me it is a more simple administrative operation to pick out those cases that need attention than to try to handle all cases. . . . And the price structure is a fluid structure in this country. . . . I am frankly afraid of the difficulties you are going to have and the tremendous snarls you are going to have by freezing the price situation. . . . I say that with great hesitation, because I have great respect for Mr. Baruch's judgment. If his plan is weak at all, as I can see it, that is where it is likely to be weak. With the purpose of the plan I am in accord."

Senator Robinson: " . . . You recognize clearly . . . the necessity of some form of price fixing?"

Commander Hancock: "I do; clearly. I would take exceptional cases that need attention and not try to blanket the whole situation. . . . For the start, the basic commodities, the wholesale prices at basic points. I would not attempt to touch retail prices. . . . It would be necessary

[1] *Ibid.*, pp. 125–126.

during the war [fixation of retail prices], but I would not try to do it at the start."[1]

. . . . . .

Colonel Leonard P. Ayres: "Price freezing, I think, should be undertaken forthwith after the beginning of the war or at the beginning of the war in those commodities which clearly are going to be purchased and utilized in such large amounts that the new, added demand threatens to lift the quotations unreasonably high. I think price fixing of that sort is a valuable and even essential step in the process of making the diversion from normal and civilian needs and uses to the special and different uses of the Government. Those products include, clearly, iron and steel at the beginning; they include copper; they probably include several different types of textiles; and one might go on making a list of that sort, of which, perhaps, there might be, let us say, 20 commodities."

Senator Robinson: "Well, would you include all foods or food products?"

Colonel Ayres: "I should think not, to begin with; no, sir; I should very much doubt that. I think the objective here is to prevent the kind of profiteering that may take place in a relatively controlled market dealing in a rather definite kind of output. Food is not in the main secured from any few sources that can control a market; steel is; copper is."

Senator Robinson: "Assuming, as you say, it would be necessary and desirable to fix prices from the beginning or about the beginning with respect to certain commodities, what is the best method of doing that, in your judgment?"

Colonel Ayres: "I think the method is substantially the one that has been advanced here specifically by Mr. Baruch, the bringing in of the leaders in the industry under discussion, talking the matter over with them, having them realize, as they all did realize, that in the last analysis the Government can fix that price, and then, on the basis of the facts and the arguments which they present and those which have already been gathered on the part of the Government by such an agency as the Federal Trade Commission, to decide on a price for the basic elements of that product at basing points."

Senator Robinson: "Such a plan would contemplate hearings and decision with respect to each of the commodities to be regulated?"

Colonel Ayres: "It does; yes."

Senator Robinson: "And would not rest on an arbitrary or definite proposal to fix prices as of a given date?"

Colonel Ayres: "Quite so."

. . . . . .

Mr. Collins: "I take it, then, you figure that a general price freezing would not be of as much benefit to the country as generally has been assumed."

Colonel Ayres: "No, sir. I think, on the contrary, that it would, on the one hand, bring very great administrative difficulties and, on the other, that it would insure a good deal of profiteering."[2]

[1] *Ibid.*, pp. 155–157.
[2] *Ibid.*, pp. 165 and 168.

5. Limitation of Profits in Wartime

Feasibility of "Taking the Profit Out of War"

In 1934 and 1935, as war clouds began again to gather in Europe, a committee of the U. S. Senate made an investigation, extending over nine months, of the munitions business. A newspaper report of the program developed by this committee was as follows:

A plan to put war on a pay-as-you-go basis and to eliminate heavy war-time profits was laid before President Roosevelt today by the Senate Munitions Committee.

The proposal would conscript war-time individual incomes in excess of $10,000 a year and take by taxation all over 3 per cent in net earnings of corporations, largely to avoid government borrowing and to avert inflation. The plan, read to the committee by John T. Flynn, one of its economic advisers, shortly before members journeyed to the White House to explain it to the President, is the outgrowth of a nine-month investigation of munitions makers, their methods, and their relation to the promotion of war.

After half an hour at the White House Senator Gerald P. Nye (R) of North Dakota, chairman, said the committee assured the President they would be ready by April 1 to offer legislation to Congress to take the profits out of war.

"We explained that as to the larger subject of the control of the munitions inquiry in peace time, we could not complete our studies in time for legislation at this session," he added.

Describing plans to freeze prices at the outbreak of a war as a "guarantee of vast [*sic*] prices rather than a means of stemming them," Mr. Flynn declared, "the only way to take profits out of war is to strike at inflation. We must do away with borrowing and pay for war as we go along."

The plan was outlined briefly as follows:

1. To take 50 per cent of the first 6 per cent profits of corporations, and 100 per cent on all over that in excess profits.
2. To limit all individual incomes to $10,000 and to take all over that in income taxes.
3. To impose taxes on everybody from $1,000 (or less) up in sufficient amount to cover war expenses.
4. To assess and collect income taxes quarterly out of income as it is made.
5. To check numerous known methods of defeating income tax levies.
6. Publicity of all salaries immediately upon declaration of war.
7. Industrial management draft—all general officers of corporations to be registered in a draft of management and, when deemed necessary, inducted into military forces of the United States.
8. Close all commodity exchanges, forbid speculation in commodities, fix commodity prices at proper parities, and allocate to essential processors.
9. Regulate all new private financing through a war finance agency.

10. A war finance corporation to assist in financing essential war industries.

11. Commandeering of essential industries and services.

12. Licensing industries, establishment of priorities in purchasing and when essential, price-fixing.

The 12 suggestions are expected to be submitted to the Senate on April 1 in the form of a preliminary report from the committee. Later the committee plans to develop a program for dealing with profits in war supplies during peace-time. This effort to prevent war, the committee believes to be even more important than merely taking the profits out of it after it has started.

In order to get sufficient taxes to finance a war, the plan proposes a 100 per cent tax on all incomes over $10,000. The tax would be so drawn to draw from every income.

"No man or woman in the emergency of war," the report says, "can have a reasonable right to complain that he or she is forced to get along upon the income which is paid to the commanding general in the field.

"When we draft the profits of a corporation it should be not merely those flowing from the war but as much of all the profits as may be necessary to pay for the war."

Pointing out that $23,000,000,000 of fresh income was pumped into the economic system during two and a half years of the last war and flowed over into peace-time industry, the report declared, "no government ordinance, the regulation of no bureau, can defeat the powerful forces set in motion by this immense inflationary energy.

"The profits in war, the spiraling of prices, the uncivilized scramble for the shameful fruits of a national disaster can be prevented [in] only one way, and that is to prevent the inflation at the beginning.

"The inflation can be prevented in only one way and that is by checking the force which creates, and that force is the huge borrowings of the Government. The central idea, therefore, in the plan recommended to the committee, is that in the next war we pay as we fight. This means that the war will be paid for out of taxation as far as that is possible.

"In 1917 and 1918 we had our war and sent the bills to our children and grandchildren. In the next war we must resolve, as intelligent as well as civilized beings, that while one portion of the population—the army—fights in the field, the other portion at home will pay the bills.

"We cannot, as we did in the last war, send our young men to fight our battles and then help them by lending them the money for the fight."

Since war would be financed by current taxes, the report recommended that income taxes be paid quarterly and not until a year later or after the war is over.

"To the taxpayer this will be somewhat more troublesome, but not more troublesome than going over the top or living in the mud and muck of a rat-and-louse infested trench," it was said.

Special provision would be made in the law to attempt to frustrate evasions. The "pink slip" law making tax returns public would be restored immediately for all incomes during the emergency, and salary reports be opened to the Government for inspection.

Under power to conscript necessary industries, the president and any officers of a company designated by the President of the United States

would be inducted into the military establishment of the United States at a rank not higher than that of colonel and paid usual army pay.

He might be permitted to remain in his managerial capacity or might be withdrawn for active duty. For attempts to defeat the laws he could be courtmartialed.

A war commodities commission would be established to govern prices, to purchase products from producers and allocate them to processors. The President, it is pointed out, is already empowered to close securities exchanges during war.

Another agency would regulate new financing during war time, with power to refuse financing to industries not essential to the carrying out of the war. No persons connected with any houses of issue or corporations interested in such operations would be permitted to hold any position in connection with such an agency.

The President would be given power to commandeer any industry, system of transportation or power, public services of every sort, upon payment of proper compensation, where this is considered essential to the success of the war.

. . . . . .

In conclusion, the report, pointing out that post-war inflation "may be as full of peril for the Republic as the war itself," recommends that emergency powers continue after the war unended by Congress.

If necessary, an amendment to the Constitution should be adopted immediately to permit Congress to act in war time free from the limitations of the Fifth Amendment concerning the taking of property without due process of law, the committee proposed.[1]

A few days later the *Wall Street Journal* commented editorially on the so-called Flynn Plan as follows:

So long as the Senate committee on munitions followed the trail of commercial promotion of war scares to make markets for arms it was performing a useful public service. Governmental control of that business and means of effecting it is a real issue.

But if Congress devotes itself to framing detailed regulations for the conduct of the next war on the economic front it will be wasting its time. Any nation makes its war effort as it can, by whatever means appear to its government most effective under the circumstances of the time. A set of laws prepared in advance will be scrapped as soon after hostilities begin as it appears to impede the nation's effectiveness in the field, or threatens to do so. It would be a miracle of legislation if we should now enact a meticulous schedule of wartime profit limitations upon capital and salaries for production executives and then find, ten or forty years hence, that we had done just the right thing to win that war. Our experience in the World War taught us not how to win the next one but how each war makes its own law.

We can expect to establish the general principle that in time of war capital is as much subject to the draft as men. As a matter of fact, we discovered in 1917 that that principle lives in our Constitution. If we

[1] *Christian Science Monitor*, March 19, 1935.

failed to apply it universally and evenly it was because we supposed that high prices and large profits would not only enlarge production more promptly than seizure and compulsion but would likewise finance the war through correspondingly swollen tax revenues. That plan worked, but only after a fashion. In all probability it will not be used in our next war.

Neither is any plan legislated in 1935 likely to be. The choice of means to prosecute a war will always be made after it has begun.[1]

Bernard Baruch, in the War Policies Commission hearings, said in regard to proposals to draft wealth in wartime:

I think I was the very first advocate of the plan to take the profit out of war and to make every man, dollar, and thing bear an even proportion of the burdens of war. I hold no brief for special protection of wealth in war, but my experience tells me that the draft of dollars is quite as absurd and impossible as the draft of labor. For reasons elsewhere considered, such wholesale impressment is both impossible and unnecessary, but in the considerations under this heading it is crazy. The fiscal strength of a nation lies not in what government owns but in what its people own. The sinews of war are not dollars—they are efforts. In order to produce things, money is necessary, but it is not necessary that government own the money by taking it away from the people who do. Monetary wealth is potential productive capacity just exactly as a factory is; and, exactly as the factory capacity of the country must be administered, rationed, and controlled for war purposes in order that the vastly increased demands of war may be met and at the same time that the normal requirements of the civil population be not denied, so must wealth be similarly administered, rationed, and controlled. The method of doing this has been fully discussed. There is no more reason to confiscate wealth in order to make it work for government than there is reason to confiscate factories for the same purpose. Simply put it to work where it will best serve the public good.

Confiscation of facilities as a means for insuring production: The "draft everything" proponents seem to think that confiscation of productive facilities promises a more effective use of them in the interests of government and for the purposes of war. During the World War, Government had power to commandeer factories and to operate them under bureaucratic direction. I do not recall a single important industrial enterprise that was thus taken over. This does not mean that the use of the power was never advocated. On the contrary, it was seriously urged in respect of a great industrial plant which was thought by some not to be giving full cooperation to its Government. The proposal split on the rock of this argument:

"Who will run it? Do you know another manufacturer fit to take over its administration? Would you replace a proved expert manager by a problematical mediocrity? After you had taken it over and installed your Government employee as manager, what greater control would you have then than now? Now, you can choke it to death, deprive it of transportation, fuel, and power, divert its business, strengthen its rivals.

[1] *Wall Street Journal*, March 22, 1935.

Could any disciplinary means be more effective? If you take it over, you can only give orders to an employee backed by threat of dismissal, and with far less effect than you can give them now. Let the management run the plant and you run the management."

Nobody with any familiarity with industry could seriously urge a wholesale assumption by any Federal bureau of the responsibility for management of any or all of the vast congeries of manufacturing establishments upon which we must rely for extraordinary effort in event of war. Even if such bureau management could prove adequate to the task (which it could never do) the mere process of change would destroy efficiency at the outset.

The industrial pattern of the United States is a delicate mesh of interrelated strands. It has been evolved in response to the needs of the Nation and under natural economic law but dimly understood. It is a sensitive living organism, and the injection of arbitrary and artificial interference could be attempted only at the risk of starting a sequence of upheavals, the ends of which no man can foresee. To approach it, on the advent of war, bearing in one hand demands for a vast stepping up of output and a heavy draft on its man power, and in the other a broadaxe of governmental confiscation with which to wreck its vitals—is no way to win a war.[1]

Later in the same hearings, Major Wilkes discussed the terms of wartime contracts for supplies.

The War Department plans are based on the determination for the time and place of purchase of a fair price for each commercial article purchased. The method of this determination will be the same as that which is normally used by business men; namely, free negotiation between the buyer and seller. It is essential that the Army purchasing agent should show similar zeal and efficiency in representing the United States in these purchases as he would if his own money were at stake. In order to have suitable purchasing agents to protect the interests of the United States, we carefully select them in time of peace and commission them in the Reserve Corps and train them for the work they will be expected to accomplish in war. The ordinary peacetime form of contract, with slight modification, will be used in war whenever possible. This will be possible when the article which is procured is commercial in character or when the contract is of short duration.

During the World War it was found that the contractor frequently refused to carry the risk incident to the production of non-commercial items or construction projects extending over long periods of time. To relieve them of these risks a cost-plus contract was often made use of. This contract provided for paying the contractor in full for the cost of the work and gave him a fee figured as a percentage of the cost. The failure of this contract as administered during the war was due to two principal causes. First, the elements entering into the cost frequently were not agreed upon definitely at the initiation of the contract; second, since the

[1] *Hearings before the War Policies Commission*, Seventy-first Congress, Second Session, H.J. Res. 251 (Washington, Government Printing Office, 1935), pp. 53–54.

fee was based on the cost, the contractor was offered no inducement to economy. In fact, the contractor's fee increased with cost. In order to secure the advantages of the cost-plus contract with none of its disadvantages, the War Department has prepared a form known as the adjusted-compensation contract which will be used for the particular purposes indicated in any future war. . . . The adjusted-compensation contract assumes that as the contractor refuses to accept the risk he can not expect to receive speculative profits from the contract. However, as it was thought that the contractor should be offered some inducement to economy and efficiency, provision was made for it in the contract, as follows:

"A contractor is required to submit for approval a detailed estimate of the cost of the proposed work analyzed into its primary elements and supported by a schedule of the unit prices which he expects to pay for materials and services. The United States undertakes to pay promptly the actual costs of the work as they accrue, including a reasonable overhead and salaries for the personal services of the contractor and his agents. At the termination of the contract the United States agrees to pay the contractor a fee figured as a rental for the plant belonging to him actually employed on the work and an operating fee for the plant furnished by the United States. This fee is then increased or decreased by a percentage of the amount that the actual cost is found less or greater than the estimate. The rental fee for the contractor's plant is stated as 6 per cent per annum of its appraised replacement value. The rental of the plant is, of course, a part of the cost of doing the work, but is set apart as the fee from which is deducted the penalty for failure to meet the estimate, if such should accrue. The contract is so worked [*sic*] as to definitely limit both the possible amount to be added or to be subtracted from the basic fee. Paragraphs providing for the termination of the contract prior to completion for adjustment due to changes in unit prices and to provide for taking the work out of the contractor's hands in case of his failure or imminent failure will also be included in this form."[1]

Subsequently the War Department adopted for wartime use Contract Order No. B, the significant provisions of which were as follows:

1. *a.* As it is impracticable now to determine fair and just compensation for the material or products herein specified, the fixing of the price will be subject to later determination by the Secretary of War. Pending this determination, you agree to a provisional price of $—— per unit, which, by agreement with you, may hereafter be varied as circumstances may warrant, with the understanding that such provisional price will not be considered as having any bearing upon the price to be subsequently fixed. Acceptance of price subsequently fixed will be considered as constituting a release of all claims arising under this contract order, except as otherwise provided herein. In the event the price subsequently fixed is not acceptable to you, your account will be adjusted to provide a payment of —— per cent only of the designated amount, and you may thereafter

[1] *Ibid.*, pp. 386–387.

institute suit against the United States for such additional amount as you may believe you are entitled to receive as the remaining portion of a fair and just compensation.

b. As it is impracticable now to determine fair and just compensation by a unit price, you hereby agree that payment for the first —— units and services required under the terms of this contract order, or such number as you and the representative of the Government executing this order may hereafter agree to be necessary for the purpose of determining a just compensation by a unit price, shall be the actual cost of production and

a unit fee of $————.
(or)
a fee of —— per cent on cost.

(Fee clause not used will be deleted and initialed by officer issuing the order.)

The actual cost of production to be paid by the Government and the costs upon which the fee is to be computed when on a per cent of cost basis are set forth in paragraph 7 on the reverse side hereof. Costs shall be subject to Government approval by the representative of the Government executing this order, prior to payment thereof. Appeals from his decision may be made in writing within 30 days thereafter to the Chief of Branch concerned or his designated representative. After production of the required number of units on a cost basis, a fair and just unit price based upon this production cost shall then be determined by the Secretary of War for the remaining production and services required under this order. If acceptable to you, payment will be made accordingly and acceptance of this price will be considered as constituting a release of all claims arising under this contract order, except as otherwise provided herein. If the unit price determined as above is not acceptable, you will be paid —— per cent only of the designated amount and you may thereafter institute suit against the United States for such additional amount as you may believe you are entitled to receive as the remaining portion of a fair and just compensation for the production required.

Paragraph 7 on the reverse of the order form read as follows:

7. The following costs will be allowed in determining the actual cost of production and, unless otherwise specified herein, will be included in the cost upon which the fee is to be computed when on a per cent of cost basis.

a. Cost of all direct labor and all direct and indirect materials definitely ascertainable as necessary for and devoted exclusively to the items required by this contract order. The Government shall have the option of furnishing any or all of the materials aforesaid and when this option is exercised the cost of such materials will be included as part of the cost for the purpose of computing the fee. The cost of materials shall be the net cost to the manufacturer, i.e., invoice cost less cash, trade and quantity discounts, plus duty, import expense, freight and drayage paid by the manufacturer. Scrap resulting from this order shall belong to the Government or by agreement a proper amount representing the value thereof shall be credited to the costs chargeable to the Government under this contract order as may be provided by law.

b. A proper proportion of overhead expenses. By the term "overhead expenses" is meant the indirect labor and other expenses incidental to

manufacture and the general and administrative expense pertaining thereto, including the moving and rearrangement of existing equipment and the installation of new equipment and appliances purchased by the Government or acquired by the manufacturer under the provisions of this contract order. Premiums on such bonds, including performance and payment bonds and such insurance policies as may be required for the protection of the Government or required by statute, and premiums on such public liability, employers' liability, workman's compensation, fidelity, fire, theft, burglary, and other insurance as may be reasonably necessary for the protection of the manufacturer will be included in overhead if approved in advance. The following items may be included in overhead but shall not be included in the cost for the purpose of computing the fee: payments under the Social Security Act; federal, state and local taxes or charges applicable directly to the items ordered; depreciation at fair rates on such property and equipment as is owned by the manufacturer and is being used in the performance of this contract order; and, if approved in advance, royalties on patents used including those owned by the manufacturer, and rental charges paid by the manufacturer for productive utilities used in connection with this order. Overhead shall not include contributions to charity and other gratuities; bonus payments based on profits earned by the manufacturer; inapplicable research; appropriations to reserves for bad debts; excessive salaries; extraordinary repairs to buildings or other items properly chargeable to capital accounts; credit losses not satisfactorily accounted for; expenses incurred in connection with issue of new stocks or bonds; and income and profit taxes.

c. The foregoing allowances shall apply to all labor, direct or indirect, and to all materials involved in the manufacture and services agreed to in this contract order whether items produced be accepted or rejected by the Government, or subsequently reworked after rejection, if so ordered, provided that in the judgment of the approving officer, the manufacturer, his employees and subcontractors and their employees have taken due precaution to prevent and have not been guilty of carelessness, inferior workmanship or unnecessary damage to material. Cost of reworking items rejected through failure of the manufacturer, his employees or subcontractors or their employees, to exercise due precautions shall be subject to special adjudication between the Government and the manufacturer. On such manufacturing work as the manufacturer may by specific authority procure by subcontracts, the fee allowed will be one-half of the stated fee if based on a per cent of cost; if based on a unit fee, the fee allowed will be reduced by an amount equal to ——% of the invoice cost of such subcontract work.

d. If payment therefor is approved in advance the Government will pay the cost of necessary machinery, equipment and appliances, and temporary structures required in the performance of this order, but such costs shall not be included in the cost for the purpose of computing the fee. Title to all such property shall vest in the Government.

e. Higher rates of pay for labor than those usually and currently paid for similar work in the same locality shall not be allowed under this order. Materials, machinery, equipment and appliances, paid for by the Government, shall be purchased at the lowest possible prices and subject to inspection and acceptance by the Government. Payments

shall be made on a basis of actual expenditures after submittal of bills, payrolls, or statements of expenses involved, certified and submitted in such form as shall be directed by the Chief of Branch concerned. Fees and depreciation shall be paid monthly as they accrue, provided however that, pending the final determination as to the depreciation to be allowed, provisional monthly payments may be made. Accounts and records of the dealer and manufacturer shall be open at all times to inspection by the Government, and no change shall be required in the present methods and principles of keeping costs provided they are found adequate for the convenient and accurate determination of proper charges against the Government.

The foregoing contract was for use in wartime. In peacetime, contracts for the construction of merchant marine and naval vessels and army and navy aircraft were governed in part by the Vinson Act of 1934,[1] the Maritime Act of 1936,[2] and the National Defense Act of 1939.[3] The theory of these laws was that a profit on such construction contracts above a certain percentage of the contract price was excessive and unreasonable and therefore should be repaid to the Federal government. In general, these Acts required that no contracts for construction of naval aircraft or merchant marine vessels or equipment authorized under these laws in amount over $10,000 (with certain exceptions) should be awarded unless the contractor agreed to pay into the U. S. Treasury all profit in excess of 10% (12% in the case of aircraft) of the sum of the total contract price of those contracts which were completed within the income-tax year, to make full reports of all costs, to make all records available to inspection, not to make any subcontracts in the amount of more than $10,000 unless the subcontractor agreed to the same provisions, and not to make any subdivision of any contract or any subcontract for the purpose of evading the law.[4]

Under these laws, the principal problem was the determination of costs. Treasury Decisions had defined cost in a general way (T.D. 4723, p. 7):

> The cost of performing a contract . . . shall be the sum of (1) the direct costs, including therein expenditures for materials, direct labor, and direct expenses incurred . . . and (2) the proper proportion of any indirect costs (including a reasonable proportion of management expenses) incident to and *necessary for* the performance of the contract or subcontract.

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[1] 34 U. S. Code 459–496 (amended in 1936).
[2] 46 U. S. Code 1155, 1176.
[3] Public No. 18 (Seventy-sixth Congress, April 3, 1939).
[4] In a new Vinson Act passed at the end of June, 1940, the maximum profit percentages were changed to 6%, 7%, and 8%, depending on the circumstances of negotiation and award.

In regard to the allocation of indirect elements of cost, the position of the Treasury was as follows (T.D. 4861, p. 4):

> No general rule applicable to all cases may be stated for ascertaining the proper proportion of indirect costs to be allocated to the cost of performing a particular contract or subcontract. Such proper proportion depends upon all the facts and circumstances relating to the performance . . . subject to the requirement that all items which have no relation to the performance . . . shall be eliminated.

6. Meeting the Cost of War Expenditures

Forms of Taxation, Proposal for Forced Loans

The experience of the United States with wartime taxation during the war of 1914–1918 may be summarized briefly as follows:

The act of September 8, 1916, increased the income tax, making the normal rate 2% and establishing a sharper scale of progression. Excise taxes were advanced, and two new taxes were imposed: namely, an estate tax, graduated from 1% to 10%, and a special tax, over and above the income tax, of 12½% upon the net profits of munitions manufacturers. The act of March 3, 1917, established an excess-profits tax of 8% of the amount by which the net income of any corporation or partnership exceeded the sum of (*a*) $5,000 and (*b*) 8% of the actual capital invested. In this act, the rates of the estate tax were also moved upward.

The act of October 3, 1917, provided for a variety of new or increased taxes on beverages, tobacco, automobiles, other luxuries, admissions and dues, and so on. It imposed taxes on the facilities furnished by public utilities, it provided for stamp taxes on various types of documents, it increased postal rates, and it established an additional war estate tax. The principal changes, however, were made with respect to income taxes and excess-profits taxes. The normal income tax was increased, the exemptions were lowered, and the scale of progression was advanced to a maximum rate of 67%. The earlier excess-profits tax was repealed; and the tax on profits of munitions manufacturers was reduced to 10%, with provision that it should cease after January 1, 1918. The excess-profits tax in the 1917 law allowed normal deductions of $3,000 for corporations and $6,000 for individuals plus an amount equal to the percentage of the invested capital (in 1917) represented by the average annual income during the prewar period 1911–1914, such

percentage in no case to be less than 7% or more than 9% of the capital. Profits above the amount thus computed were to be taxed as excess profits, the rate being 20% on excess profits up to 15%, 25% on the excess from 15% to 20%, 35% on the excess from 20% to 25%, 45% on the excess from 25% to 33%, and 60% on excess profits over 33%. The difficulties with these tax provisions related primarily to the determination of the average invested capital for the prewar period and the determination of the invested capital in 1917.

The act of February 24, 1919, usually referred to as the act of 1918, increased the income-tax rates and graduated them more steeply on large incomes. This act confined the war excess-profits tax to corporations, making it apply after January 1, 1919, only to corporations having more than $10,000 of net income from government contracts. For all other corporations, there was substituted an excess-profits tax which defined normal profits as a rate of 8% on the invested capital plus a flat deduction of $3,000. Net income beyond the sum thus determined was taxed as excess profits at the rate of 20% on the excess net income up to a figure representing 20% of the capital invested and at the rate of 40% on the excess net income above that point. This excess-profits tax finally disappeared in the revision of the revenue laws in 1924.

A number of years later, in hearings before the War Policies Commission, Bernard Baruch said:

> The excess-profits tax is not a substitute for price stabilization. Senator Swanson has brought out by questions to nearly every witness an opinion by some that, by letting prices rise to magnificent heights we can induce extraordinary effort by holding out hope of extravagant profits and then later frustrate that hope by an excess-profits tax which shall recapture 80 per cent of such profits. Other witnesses seemed to think that all the equalization of war burdens that would ever be necessary or practicable could be accomplished by the excess-profits tax. For example, on page 135 of the record appears the following colloquy:
>
> "Senator Swanson: ' . . . During the war prices were fixed so as to stimulate production and people produced night and day, thinking they were making money. Afterwards we took 80 per cent of the profits in taxes and they realized they were not making so much as they thought they were making. . . . '
>
> "Mr. Baker: ' . . . Now the price of coal had to be fixed so that the people who had the high-cost producing mines could still live, and, when you did that, the surface mines . . . got very much more than a good profit for them. That was recovered by an excess-profits tax.'
>
> "Senator Swanson: 'You think you can equalize that better by exercising the power of taxation than by trying to fix the price?'
>
> "Mr. Baker: 'That would be my judgment.'

"Senator Swanson: 'You think if Congress will exercise its power to tax it can equalize in substantial degree—not entirely exactly but in substantial degree—the inequality of the profits by the power of taxation?'

"Mr. Baker: 'Yes, sir. I think Congress did try to do that and tried very earnestly and conscientiously to do it and I think they succeeded probably in accomplishing as nearly a perfect job as could have been done by the other process with less disturbance while the war was going on.'"

By the "other process" I understand Mr. Baker to mean price stabilization.

I hope I shall not be understood as being opposed to the excess-profits tax. The war policy advocated here by me could not be effectuated without it. It was intrinsic in my recommendation. But I must emphasize, in all earnestness, that (except for human slaughter and maiming and all that goes with them) inflation is the most destructive of the consequences of war. As I have maintained before and shall more clearly demonstrate later, it is inflation that doubles the cost of war, imposes the severest hardship on our people and, through inevitable deflation, burdens the future with a constantly increasing debt and a long period of painful and bitter readjustment such as we see to-day.

Excess-profits taxes—standing alone—have no effect whatever to check inflation. Their only effect is to increase it. Thus 20 per cent of $500,000 profit is $100,000, and 20 per cent of $1,000,000 profit is $200,000. One way to increase $500,000 profit to $1,000,000 profit without increased risk or effort is to double price. For this reason there is more incentive to increase prices—and therefore profits—under an 80 per cent excess-profits tax than there is without it. Indeed, the main result of such a system is to induce rapid price increase to absorb the tax. Precisely because it accelerates and in nowise checks inflation the excess-profits tax —without more—offers no cure at all for war evils. On the contrary, it aggravates them.

. . . . . .

While the excess-profits tax is an indispensable concomitant to proper industrial mobilization, the points I have tried to demonstrate and now to emphasize by repetition are:

(a) Even with a fixed price structure and a high excess-profits tax there will be huge war profits.

(b) It is both futile and unnecessary to try to stimulate production by high prices—relying on an excess-profits tax to recapture these profits.

(c) The excess-profits tax—standing alone—as a means for equalizing the burdens of war and eliminating the profits of war is fatally defective because it aggravates inflation and therefore fails to protect us against the most destructive phenomenon of modern war.[1]

In September, 1939, after Canada entered the war with Germany, an excess-profits tax was enacted. This tax affected all business, whether incorporated or not. The taxpayer had the option of being

[1] *Hearings before the War Policies Commission*, Seventy-first Congress, Second Session, H. J. Res. 251 (Washington, Government Printing Office, 1935).

taxed under one of two plans. The first plan provided a graduated scale so that profits in excess of 5%, but not above 10%, of capital were subject to a 10% tax; profits amounting to between 10% and 15% of capital were taxed 20%; profits between 15% and 20% of capital were taxed 30%; profits between 20% and 25% of capital were taxed 40%; and profits over 25% of capital were taxed 60%. The second option provided a rate of 50% on all profits in excess of the average profits of the taxpayer over the preceding four years.

These excess-profits taxes were in addition to income taxes. The income-tax rate on corporations was raised from 15% to 18% and in the case of consolidated returns from 17% to 20%. The income tax on individuals was increased by a war surtax of 20% of the existing tax. This Canadian tax measure also included increases in various excise taxes, and it extended the sales tax to cover a longer list of items.

At about the same time, the first war budget in England called for drastic increases in taxation. The standard rate for the income tax was increased from 27½% to 35% for the remainder of the fiscal year and to 37½% for the following year. Surtaxes were increased on incomes above £2,000. The graduated rate of this surtax was 1*s*.3*d*. per pound on £2,000 incomes, rising to 9*s*.6*d*. per pound on incomes over £30,000. Estate duties were increased 10% on estates between £10,000 and £50,000 and 20% on estates in excess of £50,000. Increases were made in the various customs and excise duties, including those on tobacco, beer, spirits, wine, and sugar. Finally, an excess profits tax of 60% was imposed on the amount by which the profits of all trades and businesses of any description (other than professions) exceeded "standard profits." The term "standard profits" was intended to designate prewar profits, and options of several different years or combinations of years were available for the calculation of these prewar profits. When the average amount of capital employed in a taxable period was greater or less than the average amount of capital employed in the standard prewar period, the standard profits for the taxable period were to be increased or decreased, as the case might be, by percentages (either 8% or 10% in case of capital increases and 6% in all cases of decrease) of such increase or decrease of the capital.

In November, 1939, John Maynard Keynes put forward some proposals for a system of compulsory savings as a partial means of financing the war. In March, 1940, these proposals, somewhat revised, were published in book form. Excerpts from this book were as follows:

We have reached the broad conclusion that allowing for the increase in war output and taking credit for the pre-war yield of taxes and for those savings on which we can rely in any case, there remains about £950 million of incomes in private hands which must not be spent but must be diverted to the finance of the war.

I suggest that perhaps as much as one half of this, namely £500 million, can be raised by taxation. Indeed in a full year and disregarding time lags in collection the war taxes already imposed in Sir John Simon's emergency budget may provide £400 million towards this. I include in this at least £100 million from Excess Profits Tax, even if we avoid any significant degree of inflation. Inflation would, of course, greatly increase the yield of this tax; but the yield should be substantial even without this adventitious aid, partly as a reflection of the higher level of output and partly on account of the distribution of profits between individual businesses being materially different from what it was in the base year. Other fiscal devices, including a sales-tax on certain classes of non-necessities, should be capable of finding another £100 million. But it would not be easy for our fiscal machine to raise much more than this with due regard to justice and efficiency, except by a general sales-tax, a wages-tax, or the use of inflation as a tax-gatherer.

The idea of bridging the remaining gap of £450 million, in addition to the £400 million for which we have already taken credit, by voluntary savings without any aid from inflation is chimerical. It must be remembered that we have already assumed an annual subscription by the public to government loans of £900 million (£350 in exchange for foreign assets, £150 from depreciation funds and £400 from new savings) less such amount as accrues for investment in government funds, etc., from overseas borrowing and from the proceeds of sales of gold; for the total increased expenditure of the Government is not £950 million a year but (on our assumptions) £1,850 million. For reasons we have already given, the additional savings would have to come largely from the income group with £5 a week or less and would require a change in their habits of expenditure for which there is no evidence.

For these same reasons the amount by which the potential expenditure of the lower income-groups has to be curtailed will be more or less the same whichever method is adopted. Inflation will be the most burdensome alternative, since this will inevitably bring some advantage to the entrepreneur class, and might cost the worker 20 per cent in terms of the real value of his earnings. Inflation will also be the most burdensome on the smallest incomes,—a defect it shares with a general sales-tax. New taxes, such as a sales-tax or a wages-tax, or old taxes aided by inflation, are alike in that they finally deprive the workers of the benefit of their earnings from their heavier burden of labour. They will work harder, but, as a group, they will *never* derive any personal benefit from it. That is what will happen, will inevitably happen, if the Treasury and the Trade Union leaders agree on the one thing where they will find agreement easiest, namely, to drift along without a definite policy, following the usual methods and rejecting new ideas.

Is there no better way? We have seen that it is physically impossible for the community as a whole to consume *now* the equivalent of their

increased war effort. That is obvious. The war effort is to pay for the war; it cannot also supply increased consumption. Those who make the effort have, therefore, only two alternatives between which to choose. They can forego the equivalent consumption altogether; or they can *postpone* it.

For each individual it is a great advantage to retain the rights over the fruits of his labour even though he must put off the enjoyment of them. His personal wealth is thus increased. For that is what wealth is,—command of the right to postponed consumption.

This suggests to us the way out. A suitable proportion of each man's earnings must take the form of *deferred pay*.

. . . . . .

The basis on which the details have been arrived at is the following:—

(1) The aggregate real consumption of the group with £5 a week or less should be maintained for as long as possible at or near the pre-war level.

(2) Those who remain in the lower half of this group are likely to have benefited least, or not at all, from the aggregate increase in war incomes, and cannot afford, therefore, to have any important part of their current earnings deferred if they are to maintain their standard of life.

(3) Since some rise in the cost of living relatively to wage-rates (though not to total earnings) is inevitable, and since it is impossible under any scheme to avoid individual inequalities of treatment, we should make sure by means of family allowances that the inequality will work out in favour of households with families, so that these will be for certain better off.

(4) Since the increased war incomes of the lower income groups probably represent increased work to a greater extent than in the case of the higher income groups, the contribution of the former should be mainly in the form of deferment of earnings and the contribution of the latter mainly in the shape of increased taxation.

(5) The increase in the cost of imports is likely to involve an increase in the cost of living relatively to wages of not less than 5 per cent, even with the existence of subsidies.

There remains the question whether we can hope to provide the whole of the £950 million required, or rather £1,050 million, including the cost of family allowances, by taxation and the deferment of pay. The proposals, which I put forward in *The Times* and the *Economic Journal*, were a little faint-hearted in this respect and avowedly fell short of what was required. It now seems to me better to start with a scheme which aims at being adequate, even if this is a counsel of perfection. For subsequent concessions are sure to whittle away the yield; so that a scheme which is moderately less than adequate at the start will be seriously inadequate at the finish. Since various concessions recommended in the next chapter are likely to cost at least £50 million, I shall aim, therefore, at a scale of deferment which should yield £600 million gross.

Whether the actual scales proposed below will in fact achieve these objects, it is impossible to forecast with accuracy. They *aim* at carrying out the above principles. If it is shown that they would fail to do so, they

can be amended accordingly. Put into figures the distribution of the burden *aimed* at is the following:—

	Income-Group Below £250	Above £250	Total
	(Million)	(Million)	(Million)
Increased taxes*	£150	£350	£500
Deferment of earnings	250	350	600
Loss through relative rise in the cost of living	125	50	175
	£525	£750	£1275
Less increase in war incomes	425	400	825
	£100	£350	£450
Less family allowances†	£100	....	£100
Decrease in real consumption	Nil	£350	£350

* Including increased yield of pre-war taxes.

† For the sake of simplicity, I am assuming that the existing income tax allowances for children already cost on the average 5*s.* per child for the income group about £250, which may or may not be correct. Probably it is an overstatement, since the allowance works out at 3*s.*9*d.* per child up to about £400 earned income, gradually rising thereafter to 7*s.*6*d.*

The loss, estimated above, due to a rise in the cost of living relatively to wages, allows for a cost of living 10 per cent above pre-war only partially offset by a 5 per cent rise in wages. This is, roughly speaking, the present position. The estimate assumes that the higher income group will be somewhat less affected by this factor than the lower.

In terms of pre-war real consumption the final result means, very roughly, that the aggregate consumption of the higher income group will be reduced by fully a third and the aggregate consumption of the lower income group not at all.[1]

To accomplish this program, Keynes proposed that 35 shillings a week to unmarried men and 45 shillings a week to married men, with flat allowances of 5 shillings per week per child, should be considered a basic minimum income. A percentage of all incomes in excess of the basic minimum was to be paid to the government, partly as direct taxes and partly as deferred pay. This percentage for the aggregate of deferred pay and direct taxes was to be graduated as follows:[2]

Annual Income	% of Excess over Basic Income
Below £750	35%
£750– £2,000	40
£2,001– £3,000	45
£3,001– £5,000	55
£5,001–£10,000	65
£10,001–£15,000	70
£15,001–£20,000	75
£20,001–£50,000	80
Above £50,000	85

[1] JOHN MAYNARD KEYNES, *How to Pay for the War* (New York, Harcourt, 1940), pp. 27–30, 35–37. Excerpts reproduced by permission.

[2] *Ibid.*, p. 87.

Part of the proportion of a man's income withheld under this formula would be used to discharge his income tax and surtax if any; the balance would be credited to him as a deposit. At the option of the individual, this deferred pay might be deposited with a Friendly Society, Trade Union, the Post Office Savings Bank, or other appropriate institution.

Keynes proposed that after the war a capital levy should be made to raise an amount sufficient to discharge the government's liability in respect of deferred pay.

7. The United States of America, 1940

The economic problems of the armament program

In May and June of 1940, the speed and completeness of the German victory over France, together with the sudden realization of the marked change in the character of modern warfare, aroused feverish interest in the United States in problems of national defense. The American people suddenly became aware of critical deficiencies in their defense preparations on land, at sea, and in the air.

War Department appropriations and Navy Department expenditures for national defense from 1930 to 1939 had been as shown in Exhibits 1 and 2.

In June, 1940, Congress passed a bill appropriating $1,770,000,000 for the Army and Navy. This Act brought the authorizations for defense spending by the current session of Congress well above $5,000,000,000 (not all of which, of course, could be spent during the next fiscal year). Still other proposals for additional authorizations for spending for defense purposes were before Congress at the end of the fiscal year; and it was clear that even larger expenditures would be required over near-by years if the United States was to provide itself with a two-ocean navy and an air force capable of resisting aggression anywhere in North or South America. Some estimates of the possible total costs of such a program ran to $30,000,000,000 or $40,000,000,000 or even higher. Conservatively, on an annual basis additional expenditures for armament purposes of from $6,000,000,000 to $8,000,000,000 for several years, beyond regular government expenses, seemed not unlikely.

All this happened at a time when national deficits had been occurring for nine consecutive years; when the Federal government debt stood at approximately $43,000,000,000, only $2,000,000,000 short of the statutory limit; and when government expenditures were

EXHIBIT 1

WAR DEPARTMENT APPROPRIATIONS: FISCAL YEARS 1930–1939

(Thousands of dollars)

Fiscal Year	Maintenance*	Equipment, Armament†	Training‡	Public Works§	Miscellaneous‖	Total
1930	$ 216,964	$ 32,523	$ 6,501	$ 60,185	$ 15,825	$ 331,998
1931	214,335	36,515	7,712	63,701	24,737	347,000
1932	211,469	40,349	3,462	63,476	16,245	335,001
1933	198,944	28,448	9,833	36,290	30,485	304,000
1934	182,812	11,940	7,780	23,620	50,848	277,000
1935	204,921	25,428	6,407	24,745	19,499	281,000
1936	212,086	65,762	11,383	39,447	26,322	355,000
1937	244,541	83,769	9,563	18,307	31,822	388,002
1938	260,386	79,537	11,140	30,495	35,442	417,000
1939	268,950	109,918	12,227	35,853	33,052	460,000
Totals	$2,215,408	$514,189	$86,008	$396,119	$284,277	$3,496,001

* Pay of military and civilian personnel, clothing, subsistence, and forage.
† New equipment and ammunition, replacement, modernization, maintenance, and repairs of equipment.
‡ Direct charges only.
§ New construction, maintenance, and operation of Army plant.
‖ Seacoast defense, research and development, procurement planning, and other (including departmental, refunds, and unobligated balances).
Source: Data submitted to the House of Representatives by Representative Walter G. Andrews of New York State. *Congressional Record*, May 24, 1940, p. 10364.

EXHIBIT 2

NAVAL EXPENDITURES: FISCAL YEARS 1930–1939

(Thousands of dollars)

Fiscal Year	Maintenance	Ship Construction	Ship Modernization	Aircraft, Airships	Public Works	Total
1930	$ 296,404	$ 49,872	$ 7,811	$ 14,386	$ 6,819	$ 375,292
1931	286,284	37,929	7,606	13,158	12,830	357,807
1932	280,134	39,204	7,743	13,535	13,012	353,628
1933	257,238	48,251	12,349	13,124	11,214	342,176
1934	213,085	66,731	5,566	4,281	13,976	303,639
1935	281,317	132,313	2,681	10,347	13,947	440,605
1936	312,382	182,679	900	14,227	8,437	518,625
1937	330,341	181,522	243	18,316	8,609	539,031
1938	362,091	191,085	.....	27,256	7,513	587,945
1939	374,866	226,709	.....	24,247	34,384	660,206
Totals	$2,994,142	$1,156,295	$44,899	$152,877	$130,741	$4,478,954

Source: Data submitted to the Senate by Senator David I. Walsh of Massachusetts. *Congressional Record*, May 23, 1940, p. 10176.

running at the rate of $8,000,000,000 or $9,000,000,000 a year, with tax income (exclusive of social security taxes) averaging about $5,500,000,000.[1] Other aspects of the financial and industrial situation of the United States as of this time are discussed in the following paragraphs.

The statement of the Board of Governors of the Federal Reserve System issued for the week ending June 26, 1940, showed that the lendable excess reserves of banks had increased during the week to a new record high of $6,800,000,000, and that total gold stocks had risen to $19,871,000,000.[2]

According to the *Federal Reserve Bulletin* for June, 1940, the total loans and investments of all member banks of the Federal Reserve System as of March 26, 1940, were $34,163,000,000. Figures for all banks on December 30, 1939, showing a breakdown of total loans and investments, had been: loans, $22,167,000,000;[3] investments, $28,714,000,000.[3] Comparable figures for a date ten years earlier, December 31, 1929, had been: loans, $41,918,000,000; investments, $16,499,000,000. The total deposits, exclusive of interbank deposits, of all banks on December 30, 1939, had been $58,344,000,000,[3] as compared with a figure of $55,289,000,000 on December 31, 1929. The marked change which had taken place in the velocity of turnover of bank deposits was indicated by the fact that debits to individual deposit accounts at banks in principal cities had been $423,932,000,000 in 1939, as compared with $982,531,000 000 in 1929.

Total security issues for new capital in 1939 had been $2,276,000,000, only $371,000,000 of which had been corporate issues, the difference representing state and municipal issues, the issues of Federal agencies, and a few foreign issues. Comparable figures for the year 1933 had been $720,000,000 total issues for new capital, of which $161,000,000 had been corporate issues; and for the year 1930, corresponding figures had been $6,912,000,000 total issues for new capital, of which $4,483,000,000 had been corporate issues.

Interest rates were low. Commercial loan rates (averages of rates charged customers by banks in 19 cities) for March, 1940, were 2.65%. Bond yields for the week ending May 25, 1940, were as follows: U. S. Treasury, 2.47%; municipal, 3.01%; corporate, 3.77%.

The U. S. Bureau of Labor Statistics index of wholesale commodity prices for the week ending May 25, 1940, stood at 77.8 (1926 = 100); the average for the year 1939 had been 77.1. The retail food price index for April, 1940, stood at 78 (1923–1925 = 100).

[1] See case on Deficit Spending, p. 507.
[2] *Boston Herald*, June 28, 1940, p. 35.
[3] Preliminary figures.

The Federal Reserve Board's index of industrial production for April, 1940, was 102 (preliminary figure); the most recent high point had been 128 in December, 1939. The U. S. Department of Commerce estimated national income in the United States for the calendar year 1939 at $69,400,000,000, as compared with $71,200,000,000 in 1937 and $82,900,000,000 in 1929.[1] Some other estimates placed the 1939 figure a little higher than $70,000,000,000.

On June 25, President Roosevelt signed a new measure widening the basis of the tax structure and increasing the rates. This Act also increased the national debt limit to $49,000,000,000. The Act was summarized as follows in newspaper reports:[2]

The nation shouldered its heaviest Federal tax load since the World War today.

President Roosevelt signed a bill estimated to raise an additional $4,692,500,000 in the next five years by adding 2,200,000 persons to the list of income-tax payers and by increasing the rates of income, profits, excise, gift, and inheritance taxes. The money will help to finance the defense program.

. . . . . .

The Treasury calculated that the new tax law would increase revenue in the 1941 fiscal year, which begins Monday, from $5,652,300,000 (not counting social security funds, which are now outside the budget) to $6,367,600,000. An extra $994,300,000 was expected in each of the succeeding four years.

Next year's revenue, if realized, will be the largest since 1920, when peak collections were made on World War taxes. The 1942 fiscal year may set a new revenue record of about $7,000,000,000.

Officials estimated that 2,200,000 persons would pay Federal income taxes for the first time because of reduction of personal exemptions for heads of families from $2,500 to $2,000 and for single persons from $1,000 to $800. This lowering of exemptions will also increase the payments of those now taxed.

To facilitate the defense program the act authorized the Treasury to borrow immediately against the five-year proceeds of the measure. Sale of $4,000,000,000 of "national defense notes" was authorized, and the national debt limit was increased from $45,000,000,000 to $49,000,000,000. While the Federal debt now is $42,918,209,181, regular Federal expenditures had been expected to exhaust the old debt limit within the next year without provision for the extraordinary defense expenditures.

Effective dates of the tax increases vary. The income tax provisions apply to incomes earned during the 1940 calendar year and will be payable March 15, 1941.

A 10 per cent addition to the estate and gift taxes became effective at 11:45 A.M. Eastern standard time today, the time the President signed the bill.

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[1] *Survey of Current Business*, June, 1940, p. 6.

[2] *New York Times, Wednesday*, June 26, 1940, p. 9.

Increased excise taxes, such as those on liquor and cigarettes, will become effective at 12:01 A.M. Monday, July 1.

The heaviest of the new tax bills will fall upon income-tax payers. They are expected to pay $319,000,000 in the next fiscal year and $580,000,000 in the following four years in addition to their payments under former income-tax rates.

The new law requires a return—a report on income—from every one earning more than $2,000, whether subject to tax or not.

Another series of changes increases the surtax rates on persons having net income of between $6,000 and $100,000. Under this provision, the surtax (which is in addition to the 4 per cent "normal" income tax) was increased from 5 per cent to 6 per cent on net incomes of between $6,000 and $8,000. These increases range upward to a change from 55 per cent to 56 per cent on net incomes of between $90,000 and $100,000.

The tax on amusements will apply henceforth to admissions of 20 cents and more, instead of 40 cents as at present, but the rate of 1 cent for every 10 cents or fraction thereof is unchanged.

An extra 1 per cent was added to each bracket of the corporation tax, raising the rate for companies with income of more than $25,000 from 18 per cent to 19 per cent.

Then on top of all old and new income-tax provisions, a 10 per cent super tax was added. Thus, if a citizen's income-tax bill comes to $100, the super tax increases it to $110.

. . . . . .

Increased rates on commodities under the tax bill signed today are as follows:

Commodity, Tax Basis	Old Rate	New Rate
Distilled spirits, 100-proof gallon	$2.25	$3.00
Brandy, 100-proof gallon	$2.00	$2.75
Beer, barrel	$5.00	$6.00
Wine, wine gallon	5–20¢	6–30¢
Amusement admissions, tax 1 cent per 10 cents or fraction if price is over	40¢	20¢
Cigarettes (regular size), package of 20	6¢	6½¢
Playing cards, pack	10¢	11¢
Automobiles, sale price	3%	3½%
Trucks, sale price	2%	2½%
Gasoline, gallon	1¢	1½¢
Oil, gallon	4¢	4½¢
Club dues, initiation fees	10%	11%
Safe deposit boxes, rental price	10%	11%
Refrigerators, sale price	5%	5½%
Radios, sale price	5%	5½%
Tires, pound	2¼¢	2½¢
Inner tubes, pound	4¢	4½¢
Cabaret admissions, each 10 cents or fraction of price	1½¢	2¢
Stock sales, per $100 value	2–5¢	3–6¢
Bond sales, per $100 value	4¢	5¢
Firearms, sale price	10%	11%
Auto parts, accessories, sale price	2%	2½%

On July 1, 1940, President Roosevelt sent the following message to Congress:

> We are engaged in a great national effort to build up national defenses to meet any and every potential attack.
>
> We are asking even our humblest citizens to contribute their mite.
>
> It is our duty to see that the burden is equitably distributed according to ability to pay, so that a few do not gain from the sacrifices of the many.
>
> I, therefore, recommend to the Congress the enactment of a steeply graduated excess profits tax, to be applied to all individuals and all corporate organizations without discrimination.[1]

In view of the number of persons unemployed and the presumed fact of substantial plant capacity existing in the United States, some observers suggested that the "guns versus butter" dilemma did not apply to the United States. The argument was advanced that it ought to be possible for the United States to rearm without lowering its standard of living. In public utterances, President Roosevelt had expressed the view that the program for national defense ought not to involve the surrender of any social gains.

The probable number of unemployed at this time was between 8,000,000 and 9,000,000, out of a total of 55,000,000 desirous of being gainfully employed. It was estimated that seasonal unemployment accounted for 2,000,000 of the number out of work, and it was also surmised that the remaining 6,000,000 or 7,000,000 were probably below average in ability. Agriculture was a potential source of additional man power, the expectation being that perhaps 2,000,000 men could be shifted from agriculture to industry, with the advantageous effect of reducing somewhat the surpluses of agricultural products.[2]

According to a study by The Brookings Institution,[3] even during most of the 1920's the productive plant facilities in the country had been utilized at only about 80% of capacity. In the depression years, according to some estimates, this figure dropped as low as 61%. These estimates, however, were based on the assumption that plant capacity was remaining unchanged over this period.

The number of skilled workers, which was 5,900,000 in 1930, was estimated to be approximately 800,000 less in 1940, because of the inroads of death, retirement, promotion, and transfer, and because of the inadequate number of apprentices trained. During approxi-

[1] *Boston Herald*, July 2, 1940.
[2] S. H. SLICHTER, "Paying for Armaments," *Atlantic Monthly*, July, 1940.
[3] HAROLD G. MOULTON, *Income and Economic Progress* (Washington, The Brookings Institution, 1935), pp. 22 et seq.

mately the same period, the civilian personnel of the Federal government increased from 559,000 to 988,000.[1]

It was estimated that approximately 15,000,000 workers in the United States were subject to the Fair Labor Standards Act. This Act imposed a limit of 42 hours a week (40 hours after October 24, 1940) and required that time and one-half should be paid for overtime. The Walsh-Healey Act, applying to government contracts of $10,000 or more, also imposed a 40-hour week with time and one-half for overtime.

C. PRICE CONTROLS FOR AGRICULTURE

8. Seaver Mills

ANTICIPATED EFFECTS OF COTTON PROCESSING TAX

At various times during the postwar period, Seaver Mills had purchased cotton in advance of current requirements for manufacturing. The quantity of cotton purchased above that needed for current use frequently had amounted to as much as a 20 weeks' supply, and in periods of rising prices the mill had been able to supplement its earnings from manufacturing operations by sale of this excess supply of cotton. The executives of Seaver Mills recognized the risk of loss in such forward buying, but during that period competition in the sale of cotton goods was so intense that prices of finished products often were determined by manufacturers who had bought cotton at advantageous prices; in other words, manufacturers' margins between the cost of the raw cotton and the prices of the cloth were narrow, and at times profit was made possible only by manufacturing raw materials purchased at exceptionally favorable prices.

Beginning in 1928, the company changed its purchasing policy, and during 1928 and 1929 it liquidated its excess holdings of cotton. At the time of this change in policy, the management believed that cotton prices were relatively high and that any reductions in the supply would not be sufficient to bring about a substantial increase in prices. After the liquidation of the excess holdings, purchases of cotton were made for immediate requirements only; inventories were kept at a minimum, and commitments for future purchases were reduced considerably. In 1930, when the Federal Farm Board

[1] Slichter, *op. cit.*

began to purchase cotton in the open market, three of the directors of Seaver Mills urged that cotton be purchased by the mills for advance requirements, since they believed that purchasing on the part of the Government would prevent any decline in cotton prices and, by taking cotton off the market, would undoubtedly result in advancing prices. The treasurer of the firm, however, believed that prices could not rise substantially in the face of the business depression in 1930 and the consequent falling off in the demand for cotton products, and he was skeptical of the ability of the Federal Farm Board to keep prices at a stable level.

Seaver Mills continued to buy cotton on a hand-to-mouth basis during 1930 and 1931. Prices of middling spot cotton in New York during these years declined from 17.22 cents per pound in January, 1930, to 6.24 cents per pound in December, 1931 (see Exhibit 1). Prices decreased somewhat further in 1932, and in June reached a low of approximately 5 cents per pound. In August and September, a substantial increase in cotton manufacturing activity (see Exhibit 2) was accompanied by a rapid advance in raw cotton prices, prices in August ranging between a low figure of 5.90 cents per pound and a high figure of 9.20 cents per pound. Prices receded from this high level in October, and consumption of cotton also declined slightly.

EXHIBIT 1

MONTHLY AVERAGE PRICES OF MIDDLING UPLAND SPOT COTTON IN NEW YORK CITY, JANUARY, 1928, TO DECEMBER, 1933

(Cents per pound)

Month	1928	1929	1930	1931	1932	1933
January	19.12	20.23	17.22	10.28	6.65	6.24
February	18.36	20.22	15.62	10.96	6.85	6.05
March	19.37	21.19	15.18	10.91	6.85	6.39
April	20.62	20.33	16.42	10.19	6.17	7.02
May	21.58	19.53	16.43	9.38	5.73	8.65
June	21.54	18.72	14.47	9.05	5.27	9.47
July	21.71	18.62	13.11	9.28	5.88	10.74
August	19.28	18.64	12.03	7.22	7.44	9.56
September	18.65	18.85	10.96	6.50	7.68	9.64
October	19.62	18.46	10.62	6.32	6.57	9.59
November	19.92	17.53	10.94	6.44	6.22	10.04
December	20.46	17.27	10.01	6.24	5.95	10.17

Source: New York Cotton Exchange, *Cotton Year Book.*

In October, November, and December, 1932, Seaver Mills again bought cotton somewhat in advance of current requirements, keeping

on hand a 9 weeks' supply rather than its usual 4½ weeks' supply. The crop for 1932 was estimated at more than 4,000,000 bales below that of 1931, but the carry-over of American cotton was at the highest level in recent years. Despite this high carry-over, the treasurer of Seaver Mills believed that cotton was very cheap at a level of slightly more than 6 cents a pound.

EXHIBIT 2

MONTHLY INDEXES OF COTTON CONSUMPTION ADJUSTED FOR SEASONAL VARIATION

(1923–1925 average = 100)

Month	1931	1932	1933
January	82	83	88
February	86	85	87
March	89	85	86
April	92	68	91
May	90	63	113
June	90	64	139
July	93	63	135
August	92	82	120
September	93	99	103
October	85	96	95
November	84	95	89
December	86	93	77

Source: *Federal Reserve Bulletin.*

In the early months of 1933, cotton prices remained relatively low. Discussion of acreage reduction and other measures to aid the cotton farmer, which had been prevalent in the latter part of 1932, became even more widespread in early 1933. Furthermore, there was some demand for inflation of the currency as a means of boosting prices. The passage by Congress of the Agricultural Adjustment Act, with its provisions for acreage reduction in cotton and for collecting the processing tax from the manufacturers, was viewed with some alarm by the treasurer of the Seaver Mills.

One of the principal purposes of the Agricultural Adjustment Act of 1933 was to raise the price of cotton and the income of the cotton growers. A campaign to destroy a portion of the growing crop was undertaken, and a processing tax of 4.2 cents per pound was levied to provide funds for securing a reduction in the acreage planted to cotton. The objective was to give the grower at least parity prices, that is, to establish prices which would restore his prewar purchasing power.

That the success of the program would depend on both the acreage reduction of cotton and the processing tax was explained as follows by Mordecai Ezekiel, Assistant Chief Economist for the Federal Farm Board, during the hearings on the bill before the Senate Committee on Agriculture early in 1933:

I would like to state briefly the things that it was proposed to do by this plan. The first thing that it was proposed to do was to assist urban recovery. . . .

Nearly 7,000,000 of the city unemployed are due to the inability of the farmers to buy. . . .

At the same time, the imposition of a tax, or the combined effects of farmers' dumping and a tax, before there was any assurance of a reduction in production, would almost surely break the domestic price. It might break the domestic price so much that the farmers would lose all hope in the plan's effectiveness and workability, and would not reduce the production to get the benefits the next year.

. . . It is of no use to impose a tax on any of these products until after a reduction in the production of those products is certain. That is to say, it will not work if you try to put a tax on the wheat crop before the reduction in acreage is known. The tendency would be to break prices, discredit the whole plan, and lose the cooperation of the farmers. If you wait until it is certain that the farmers have reduced their production before you impose the tax, the tax will be passed on to consumers. But if you put the tax on before it is certain the production has been reduced, the tax would be taken out of the farm prices. Only if you wait until acreage has been reduced, will the tax be paid by the consumer and not by the producer. . . .

The Act provided for refunds of the tax on goods sold to charitable organizations and also on goods exported. The effects of the tax were described in a report of the Agricultural Adjustment Administration in part as follows:

Two factors make the processing tax on cotton of slight effect on prices received by producers. First, the United States normally exports between 55 and 60 per cent of its cotton crop. Since no tax is levied on cotton for export, the price to foreign buyers is not appreciably affected by the processing tax on domestic consumption, and the price paid by domestic mills cannot be less than that offered by foreign buyers. The tax, therefore, is an additional cost attached to cotton in domestic consumption, over and above the export price for cotton. It does not increase the price to foreign buyers or place American cotton or cotton goods on an unfavorable competitive basis abroad. Second, the domestic demand for textile materials is relatively inelastic.[1] Domestic mills will pay relatively high prices for cotton and consume large amounts of it when the

[1] Editors' Note: A diagrammatic statement of the different elasticities in the domestic and foreign market is given in the Appendix.

consumer demand is strong, but when demand is weak consumption is decreased, even though prices are low.[1]

The emergency program in 1933 called for a reduction of 10,000,000 acres in the acreage planted to cotton, and benefit payments were made to farmers for their reduction in planting. The acreage reduction program for 1934 called for a 40% reduction from the 1928–1932 average planted acreage, and in 1935 for a 25% reduction from this 1928–1932 base figure. There was some question of the effects of such curtailment on foreign production. The report of the Agricultural Adjustment Administration included the following comment:

Domestic production could without doubt be curtailed by reducing acreage, but what about foreign production? Was it possible that if the American farmers produced less cotton, their competitors abroad would produce more to take its place? It was brought out at the conference [a conference of representatives of the Bureau of Agricultural Economics, the Extension Service, and the Agricultural Adjustment Administration, which met in May, 1933, to consider the situation of the cotton growers] that as the world's largest source of cotton, the United States has a controlling influence in the supply and demand situation. Other countries are not well equipped to forge ahead when prices are low. Labor costs are low in India, but production practices are not efficient. Yields and quality of the crop are low. Russia's production may expand, but its consumption requirements will also increase. That country is not likely to export much cotton. China's total output does not appear to be increasing, although there has been an increase in the amount grown commercially. Some of the newer cotton-growing countries whose acreage jumped under the stimulus of post-war boom prices have unit costs considerably higher than ours.

The opinion was expressed that although it would be desirable to have all producing countries adjust production uniformly and thereby distribute the burden of improvement, it would be unwise for this country to wait until such unanimity of action were obtained before putting any program into effect. The important objective was obviously to correct the unsatisfactory situation, and yet to avoid stimulating foreign production. Creation of a world shortage and excessively high prices might stimulate the development of new producing regions abroad and the expansion of old ones, just as the shortage of cotton and high prices resulting from the damage of the boll weevil did in the period from 1921 to 1925. But a program aimed at reduction of the cotton surplus and the increase of cotton prices to parity did not seem likely to bring about any material expansion in cotton growing abroad. Furthermore, although American cotton consumers would be paying the market price plus the processing tax, American cotton would still be available to foreign purchasers at the market price. Not until a large part of the excessive

[1] U. S. Department of Agriculture, Agricultural Adjustment Administration, *Agricultural Adjustment: A Report of Administration of the Agricultural Adjustment Act, May, 1933, to February, 1934* (Washington, Government Printing Office, 1934), p. 29.

carryovers had been removed would there be any danger of world market prices advancing to a point which would stimulate significant increases in cotton acreages in other competing countries.[1]

This opinion was not accepted by some experienced students of the cotton market.

Despite the reduction of acreage in 1933, favorable climatic conditions resulted in a crop much larger than was expected; and there was a strong demand for measures to prevent a decline in cotton prices. The resulting loan program was described as follows:

> . . . the Agricultural Adjustment Administration cooperated with other agencies of the Government in steps to protect the price of cotton. In this connection conferences were held with Members of Congress and other representatives of cotton producers in an effort to devise further plans. As a result of these conferences what has come to be known as the "10-cent loan program" was formulated. This program provided for lending cotton producers 10 cents a pound on the unsold portion of their crop. With the approval of the President, funds for this purpose were made available by the Reconstruction Finance Corporation to a new unit known as the Commodity Credit Corporation.[2] Among the officers and directors of the Commodity Credit Corporation are the Secretary of Agriculture, the Governor of the Farm Credit Administration, and officials of the Reconstruction Finance Corporation.
>
> It was arranged that cotton producers, to become eligible for loans must agree to participate in the 1934 acreage reduction campaign sponsored by the Agricultural Adjustment Administration. Producers who obtained loans have been charged 4 per cent interest. The notes mature July 31, 1934, but the Commodity Credit Corporation expressly reserves the right to call the note at any time when the price of middling 7/8-inch spot cotton on the New Orleans market, as determined by the Bureau of Agricultural Economics, is at or above 15 cents a pound.
>
> Banks, factors, brokers, merchants, warehousemen, cooperative marketing associations, local lending agencies, and other agencies dealing in cotton throughout the country were invited to make loans on the forms prescribed by and in accordance with the regulations of the Corporation, with the provision that such paper would be purchased by the Corporation at par with accrued interest at any time up to June 30, 1934.[3]

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[1] *Ibid.*, p. 23.

[2] Editors' Note: The decision to lend up to 10 cents a pound on all 1934 cotton in the hands of producers followed a convention in Washington attended by delegates appointed by the governors of the states of Alabama, Arkansas, South Carolina, Georgia, Mississippi, Oklahoma, Texas, Missouri, and Louisiana. This convention demanded 20-cent cotton and inflation. The 200 delegates (planters and members of Congress) adopted the following resolution offered by Senator Smith of South Carolina: "We call on the Secretary of Agriculture to immediately suspend until January 15 the processing tax on cotton, since we believe that it is being paid by farmers and is depressing the price of cotton."

[3] Agricultural Adjustment Administration, *op. cit.*, pp. 34–35.

What effects, both long-run and short-run, should the treasurer of Seaver Mills have expected the cotton program of the AAA to exert on the price of cotton, cotton acreage, receipts by growers, demand for cotton goods, quantity of cotton goods sold on the domestic market, and quantity of cotton exports? What differing effects, if any, should he have anticipated from the processing tax, the reduction in acreage, and the loan program? What other factors should he have considered as probably influencing the situation?

APPENDIX

In its report, *The World Cotton Situation, with Outlook for 1931–1932 and The Long-Time Outlook for Southern Agriculture*,[1] the U. S. Department of Agriculture gave the results of its analysis of the relation between prices and consumption of American cotton in the United States and in foreign countries. It presented the following chart and note:

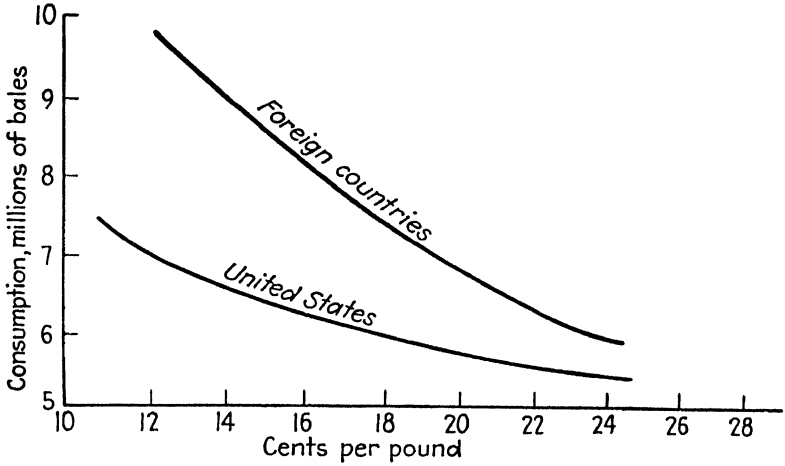


EXHIBIT 3.—Relation between Prices and Consumption of American Cotton, United States and Foreign Countries.

Low prices stimulate cotton consumption in foreign countries more than in the United States. Changes in business conditions affect the consumption of cotton in the United States more than do changes in

[1] U. S. Department of Agriculture, Miscellaneous Publication 104, December, 1930, p. 23. See also Federal Farm Board, *Outlook for American Cotton* (Bulletin 4), December, 1930, p. 15.

prices. During the last few years an increase in prices from 12 to 20 cents has had a tendency to reduce consumption in the United States only about 1,000,000 bales, whereas in foreign countries it has reduced consumption of American cotton by about 3,000,000 bales.

9. New England Milk Prices

Reasons for and effect of government intervention

Early in 1933, a group of New England milk producers' cooperative marketing associations petitioned the Secretary of Agriculture to take control of the Boston milk market, under the authority given to him by the Agricultural Adjustment Act, in order to assist them in arriving at a satisfactory solution of their marketing problems. The producers thought "marketing problems" existed, because they were unable to secure what they considered a fair price for their milk. The problem of the Secretary of Agriculture, therefore, centered primarily about price, and the first attempt to solve it resulted in the first Boston Milk License,[1] which became effective March 16, 1934.

There followed a series of legal actions, marked by conflicting court decisions, and complicated by the Supreme Court's voiding of the Agricultural Adjustment Act; but in June, 1937, Congress specifically authorized the Federal control of milk by passing the Agricultural Marketing Agreement Act. After a series of public hearings, an amended milk order, known as Order 4, went into effect on August 1, 1937. The provisions of Order 4 required the dealers to make certain payments both for the expenses of the administrative office and for redistribution among the producers. When the first payment was due, the dealers exercised a right given them by the law and asked for an administrative hearing before a representative of the Secretary of Agriculture to clarify the procedure under the Order. Meanwhile these dealers were not complying with the Order, and the government brought suit in equity against 30 dealers in the Boston area in order to obtain an injunction to force their compliance. Finally, on June 5, 1939, the Supreme Court of the United States handed down a decision upholding the Agricultural Marketing Agreement Act and the Order.[2]

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[1] "License" is a term referring to rules issued by the Secretary of Agriculture under the Agricultural Adjustment Act. The word "order" has since been substituted for "license."

[2] 59 S. Ct. 1019.

The series of court actions brought out the fact that the problem of pricing milk in the Boston market was not the result of the depression alone, but had grown out of a long series of events beginning as far back as 1916. In that year, after freight rates had been drastically reduced and the leased-car system abolished, Vermont had become for the first time an important part of the Boston milkshed,[1] and a permanent surplus supply of milk had come into the market. Thereafter, the N.E.M.P.A. (New England Milk Producers' Association), which had been organized in 1913, began receiving members from that portion of Vermont recently added to the Boston milkshed and obtained for them fluid[2] milk prices for part of their production. Before that time, most of the producers in Vermont had been selling their milk to local cooperative creameries at surplus milk prices for use in manufactured products. When these creameries saw that fluid milk prices were being paid to some producers in their territory, they realized that they would have to pay competitive prices in order to keep their members, and that the only way they would be able to pay competitive prices was by selling fluid milk.

Until the time that the Vermont creameries attempted to enter the Boston market, the N.E.M.P.A. had been furnishing most of the milk for Boston, and it still had a sufficient quantity for the entire market. The only way, therefore, that the cooperative creameries of Vermont could enter the fluid milk market was by lowering prices, and they began to sell to the smaller Boston dealers at prices approximately one-half cent per quart under the N.E.M.P.A.

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[1] "Milkshed" refers to that geographical area which normally supplies the fluid milk (see Appendix A) requirements of any consuming area. The Boston milkshed was composed roughly of Massachusetts, Vermont, New Hampshire, Maine, and a small portion of eastern New York.

[2] The Order relating to the Boston Market Area, issued July 28, 1937, defined Class I (fluid) milk as "all milk sold or distributed as milk, chocolate milk, or flavored milk and all milk not specifically accounted for as Class II [surplus] milk." Surplus milk was then defined as "milk specifically accounted for (*a*) as being sold, distributed, or disposed of other than as milk, chocolate milk, or flavored milk and (*b*) as actual plant shrinkage within reasonable limits."

Surplus milk was used for cream, butter, cheese, ice cream, and other manufactured products which were less perishable than fluid milk. The price of surplus milk was established in an open market and bore some relationship to the market price of cream or butter (see Appendix A). Fluid milk prices regularly exceeded those for surplus milk by approximately $1 per hundredweight. The alleged cause of this differential was the added expense of transportation and the cost of the sanitary requirements for producing fluid milk. Actually, much of the milk sold as surplus was of a quality equal to that of fluid milk.

The cost of transporting milk in the form of fluid cream was, of course, substantially lower than the cost of transporting an equivalent quantity of fluid milk; and the cost of transporting an equivalent quantity in the form of manufactured dairy products was lower by an even wider margin.

prices. The smaller dealers who were supplied by these creameries bought all, or nearly all, their milk as fluid milk, but at the reduced price. At the same time, they were able to synchronize their purchases and sales to such an extent that they had very little milk which could not be sold at the fluid milk price. In the Boston area, the larger dealers controlled about 70% of the market; but these larger dealers were paying higher prices for their milk than were the smaller dealers. The smaller dealers, therefore, were able either to increase their margins or to sell below the retail prices of the larger dealers.

The larger dealers were unable to compete on the same basis. They could not buy from the same sources, inasmuch as the N.E.M.P.A. controlled the only source of supply sufficiently large to take care of their requirements. It was necessary for them to continue purchasing from the N.E.M.P.A. in order to be assured of having enough milk for all their consumers at all times. To allow the larger dealers to meet the new competition, the N.E.M.P.A. adjusted the price to them, not by cutting the price of fluid milk to meet the prices of the Vermont creameries,[1] but by selling them surplus milk at prices below its market value. Because the surplus milk of the N.E.M.P.A. never entered into an open market, its market value was never established directly; but a market value was calculated by relating the milk equivalent to the market quotations for cream or butter in Boston. Under the agreement with the larger dealers, the N.E.M.P.A. set the price of surplus milk to them below this market value equivalent; the price was likewise below the price the dealers would have had to pay for surplus milk from other sources.

Most of the larger dealers found it profitable to maintain their own ice cream plants, cheese factories, or other facilities to dispose of surplus milk. The smaller dealers could not afford to make the large capital expenditures necessary for such facilities and hence concentrated entirely on fluid milk distribution. For this reason, a reduction in the price of surplus milk allowed the larger dealers to increase the profit margin on their products made from surplus milk. (An oversimplified hypothetical illustration of the development of the price structure of the Boston milkshed is shown in Exhibit 1.)

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[1] It later became known that N.E.M.P.A. could not meet the fluid milk prices of the Vermont creameries because the contracts between these creameries and the smaller dealers were based on a quotation for fluid milk at a differential (usually about one-half cent per quart) under the N.E.M.P.A. price.

EXHIBIT 1

OVERSIMPLIFIED HYPOTHETICAL ILLUSTRATION OF THE DEVELOPMENT OF THE PRICE STRUCTURE OF THE BOSTON MILKSHED, SHOWING THE COMPOSITE PRICE RECEIVED BY PRODUCERS WHO WERE SELLING THROUGH VERMONT CREAMERIES AND THE N.E.M.P.A.*

		Composite Price per Cwt. Received by Producer
Before Vermont was included in the Boston milkshed:		
Vermont creameries		
100 lb. surplus at $1.00 per cwt.		$1.00
N.E.M.P.A.		
80 lb. fluid at $2.00 per cwt.	$1.60	
20 lb. surplus at $1.00 per cwt.	0.20	1.80
After Vermont was included in the Boston milkshed, but before price cutting began:		
Vermont creameries		
100 lb. surplus at $1.00 per cwt.		1.00
N.E.M.P.A. (including some producers in Vermont)		
70 lb. fluid at $2.00 per cwt.	$1.40	
30 lb. surplus at $1.00 per cwt.	0.30	1.70
After Vermont creameries began price cutting:		
Vermont creameries		
20 lb. fluid at $1.80 per cwt. (sold to small Boston dealers)	$0.36	
80 lb. surplus at $1.00 per cwt. (sold, as before, as manufactured dairy products)	0.80	1.16
N.E.M.P.A.		
50 lb. fluid at $2.00 per cwt.	$1.00	
50 lb. surplus at $1.00 per cwt.	0.50	1.50
But, to enable the larger dealers, who were buying milk from N.E.M.P.A., to compete with the smaller dealers buying from the Vermont creameries, N.E.M.P.A. prices soon became:		
50 lb. fluid at $2.00 per cwt.	$1.00	
50 lb. surplus at $0.50 per cwt.	0.25	1.25
From the dealer's point of view, the situation after the Vermont creameries began cutting prices was as follows:†		
Dealers buying from Vermont creameries:		
100 lb. milk (all fluid) cost $1.80 per cwt.		$1.80
90 lb. fluid milk sold for $2.66 per cwt.	$2.39	
10 lb. surplus milk sold for $1.33 per cwt.	0.13	2.52
Profit		$0.72
Dealers buying from N.E.M.P.A.:		
Before price adjustment		
50 lb. fluid milk cost $2.00 per cwt.	$1.00	
50 lb. surplus milk cost $1.00 per cwt.	0.50	$1.50
50 lb. fluid milk sold for $2.66 per cwt.	$1.33	
50 lb. surplus milk sold for $1.33 per cwt.	0.67	2.00
Profit		$0.50

* Based on the assumptions that the constant real value of milk to the producer was: $1.00 per cwt. for surplus milk, and $2.00 per cwt. for fluid milk.

† Based on the assumptions that the dealers had a markup of 25 % and that selling price was always based on the real value of milk to the producers.

EXHIBIT 1 (*Continued*)

OVERSIMPLIFIED HYPOTHETICAL ILLUSTRATION OF THE DEVELOPMENT OF THE PRICE STRUCTURE OF THE BOSTON MILKSHED, SHOWING THE COMPOSITE PRICE RECEIVED BY PRODUCERS WHO WERE SELLING THROUGH VERMONT CREAMERIES AND THE N.E.M.P.A.*

		Composite Price per Cwt. Received by Producer
After adjustment:		
50 lb. fluid milk cost $2.00 per cwt.	$1.00	
50 lb. surplus milk cost $0.50 per cwt.	0.25	1.25
Selling price the same as before adjustment		2.00
Profit		$0.75

* Based on the assumptions that the constant real value of milk to the producer was: $1.00 per cwt. for surplus milk, and $2.00 per cwt. for fluid milk.

In the autumn of 1921, a large Boston grocery chain began to buy milk from a cooperative creamery in Vermont whose fluid milk sales had previously been negligible. The chain took this step after the Chairman of the Commission on the Necessities of Life for Massachusetts, noticing the fact that the price of milk in retail stores in Boston was approximately the same as the price of milk delivered to consumers by regular dealers, had suggested that the consumers should get cheaper milk on the cash-and-carry basis. For a very short time, the chain bought milk at prices below those of the N.E.M.P.A., on the same basis as the smaller dealers. Soon, however, it was paying to the producers prices stated to be above those of the N.E.M.P.A. Nevertheless, it continued to undersell the dealers in its retail stores. Instead of shipping raw milk, the chain pasteurized and bottled the milk near the source of supply and shipped milk to Boston in quart bottles. Because of the lower costs which it declared were made possible by this method of preparing the product for distribution and by direct selling through its own stores, the chain consistently sold milk at prices ranging from 1 cent to 4½ cents per quart under the retail price of house-to-house distributors. Other producing and distributing agencies frequently protested that this was unfair competition. (Appendix C shows some of the results of a study of the cost of distributing milk in the Boston area.)

Despite the disagreements among producing and distributing organizations, the Boston milk market maintained an appearance of stability until 1929–1930, when a combination of an expansion in production, brought about by several years of good prices, and a

decline in consumption, brought about by the depression, caused the prices of manufactured dairy products to drop sharply and reacted upon the entire price system. For a time, the N.E.M.P.A. attempted to maintain its fluid milk price by granting further concessions on the price of surplus milk. But a contemporaneous increase in the surplus milk supply of the cooperative creameries in Vermont forced these creameries to put forth greater effort in an attempt to sell fluid milk at whatever price they could get. They continued to sell below the N.E.M.P.A. price, increasing the differential at times beyond one-half cent per quart. Since it appeared that the only solution to this situation was monopolistic control of production, the N.E.D. (New England Dairies, Inc.) was established with the N.E.M.P.A. as its largest unit and predominant force. The N.E.D. immediately embarked upon a schedule of expansion in an attempt to buy out competing supply stations and to gain control of the whole Boston milkshed. The attempt failed for a variety of reasons; a demoralized market existed when the cooperatives petitioned for help under the Agricultural Adjustment Act.

Under the first Milk License, the "use plan" of paying for milk was adopted as the best means of determining a fair price. This plan was based on the assumption that there was a fundamental difference between fluid and surplus milk and that they should be paid for at different prices. The amount to be paid for at each price by each dealer depended on the use to which the milk was put by the dealer.

During several stages of the development of the Boston market, there had been times when the common method of paying the producer for milk was the flat price basis, i.e., one price to the producer for all milk regardless of whether it was sold as fluid or surplus. Under such a price system, the dealer bore all the risks (and quite frequently received the profits) of balancing his purchases against his sales of fluid milk, because he set the flat price at a point somewhat above the value of surplus milk, which was established in the open market, and somewhat below the price for fluid milk. Because he set this point in advance of the actual sales, it was based upon his estimate of the quantity of milk which he could sell at the fluid price and the quantity which he would have to dispose of at the surplus price. Any differences between the estimated and the actual sales, whether intentional or not, changed the dealer's margin. Even before the License was issued, the use plan had been quite commonly adopted in the Boston area to overcome the objections to the flat price basis. Substitution of the use plan for the flat price basis

changed not only the price paid by the dealers but also the price received by the producers, and transferred to the producers more of the risk of carrying the surplus.

Under the License, each dealer had to submit to the Market Administrator[1] reports showing the use of all the milk he had handled in each delivery period (the first to the fifteenth, and the sixteenth to the last day of each month). After preparing a summary to show the use of all milk in the Boston market, the Administrator established a composite price[2] by applying the fluid and surplus prices which were set according to the provisions of the License.

For surplus milk, a minimum price was calculated for each delivery period according to a formula specified in the License. Until July 17, 1934, this formula was based on the average wholesale price of 92-score butter at Boston. The price of butter proved to be an unsatisfactory base for the surplus price because it did not at all times bear the same relation to the price of cream, the product into which most surplus milk was manufactured. Therefore, the surplus price did not accurately reflect at all times the value of milk used as cream. The surplus-price formula was changed by an amendment to the License effective July 17, 1934, so that thereafter the price of surplus milk was based directly on the price of cream at Boston. The price per hundredweight of surplus milk containing 3.7% butterfat delivered by producers to a distributor's plant located within 75 miles of Boston was 3.7 times the average price per pound of butterfat in cream of bottling quality in carload or truckload lots at Boston, plus 8½ cents for the 85 pounds of skim milk in each hundredweight of milk, minus 20 cents per hundredweight for the station charge allowed to the distributor. If the surplus milk was delivered by producers to a plant located more than 75 miles from Boston, the distributor was allowed another deduction, amounting to 6 cents per hundredweight of milk, to cover the cost of transportation of the cream to the market. A sample calculation of the method of arriving at the price to be paid for surplus milk is shown in Exhibit 2.

For fluid milk, a minimum price was also established in the License, but the actual figure could not be determined by so simple a method as that of relating it to a market price. It was the expressed policy of Congress, as stated in the Agricultural Adjust-

[1] The Milk Market Administrator was an executive officer appointed by the Secretary of Agriculture to administer the License.

[2] "Composite price" referred to the total price paid for a quantity of milk; it resulted from the payment of two different prices, one for that part used as fluid milk, and another for that part used as surplus milk. It was the weighted average of the two prices.

ment Act, to raise milk prices received by the producers and to maintain them at a level where milk would have a purchasing power equal to the purchasing power it had had during the base period from August, 1909, to July, 1914. Because statistics were not available for that period, the years from August, 1919, to July, 1929, were substituted as the base years; and prices for the current years were

EXHIBIT 2

SAMPLE CALCULATION OF THE MINIMUM PRICE PER HUNDREDWEIGHT TO BE PAID TO ANY PRODUCER IN THE BOSTON MILKSHED FOR SURPLUS MILK DELIVERED AT A PLANT LOCATED MORE THAN 75 MILES FROM THE STATE HOUSE

Market quotations for cream, Boston, 1934:			
September 2–5	$12.491	per 40-quart can	
6–8	12.608		
9–12	12.225		
14–15	11.751		
16–19	11.716		
20–22	11.627		
23–26	11.563		
27–29	11.503		
Weighted average	11.956		
$11.956 ÷ 33 (pounds of butterfat in 40 quarts of cream) =		$0.3623	per pound of butterfat
		× 3.7	pounds of butterfat per cwt. of milk
		$ 1.341	per cwt. of milk
Addition for 85 pounds of skim milk		0.085	
		$ 1.426	
Less: Country station charge		0.20	
Surplus price f.o.b. city plant		$ 1.23	
Deduction:			
Transportation from outside 75-mile zone	0.06		
Administration of license	0.02		
Marketing services of Milk Market Administrator*	0.05	0.13	
Net price for surplus		$ 1.10	per cwt.

* This was deductible only if the farmer was not a member of a cooperative. Presumably, a member of a cooperative would pay about the same amount to the cooperative organization.

calculated at which milk would have the same purchasing power that it had had during the base years. These prices were called "parity prices" and became the ultimate goal which the regulating agency hoped to obtain. After a study had been made of data measuring purchasing power, such as are given in Exhibit 3, the minimum price for fluid milk in the Boston area was set in the License at $3.26 per hundredweight.

In applying the principles of the Agricultural Adjustment Act, the Secretary of Agriculture focused his attention primarily on the price of milk to the producer and gave little attention to the price to the consumer. It was argued that in raising the price to the producer to the parity price there was little danger of increasing the price to the consumer because, as the figures in Exhibit 3 seemed to

EXHIBIT 3

SELECTED STATISTICAL DATA USED AS A GUIDE IN ESTABLISHING FLUID MILK PRICES UNDER THE BOSTON LICENSE

Year and Month	Index of Prices Paid by Farmers for Commodities Bought	Prices per Hundredweight of 3.7% Class I Milk, f.o.b. City		Index of Buying Prices of 3.7% Class I Milk, f.o.b. City	Retail Selling Price Delivered per Quart Bottled	Index of Retail Selling Price per Quart Bottled
		Paid by Dealers	Parity Adjusted for Seasonal Variation			
1920–1929.....	100	$3.94*	.....	100	14.8¢	100
1930.....	91.8	4.05	$3.62	102.8	15.2	102.7
1931.....	78.5	2.95	3.09	74.9	12.8	86.5
1932.....	67.8	2.56	2.67	65.0	10.5	70.9
1933.....	69.0	2.68	2.72	68.0	11.0	74.3
1934.....	77.9	3.04	3.07	77.2	11.3	76.4
1935						
January.....	79.8	3.26	3.22	82.7	12.0	81.1
February.....	80.4	3.30	3.19	83.8	12.0	81.1
March.....	80.4	3.49	3.14	88.6	13.0	87.8
April.....	80.4	3.49	3.09	88.6	13.0	87.8
May.....	80.4	3.49	3.04	88.6	13.0	87.8
June.....	80.4	3.49	3.04	88.6	13.0	87.8
July.....	79.8	3.25	3.06	82.5	13.0	87.8
August.....	79.2	3.02	3.13	76.6	12.0	81.1
September....	77.9	3.02	3.13	76.6	12.0	81.1
October.....	77.9	3.02	3.15	76.6	12.0	81.1
November....	77.3	3.02	3.15	76.6	12.0	81.1

* Calculated from prices supplied by W. H. Bronson, New England Milk Producers' Association.
Source: U.S. Department of Agriculture, Agricultural Adjustment Administration, Dairy Section, Paper 1, Series on Marketing Agreements and Orders, December 2, 1935, p. 11.

indicate, price movements between 1930 and 1934 had operated to benefit the dealers. Therefore it was expected that any restoration of producers' income would come at the expense of the dealers and not of the consumers. The Dairy Section of the Agricultural Adjustment Administration did, however, make a study of the effects of price changes upon consumption in the Boston market from March, 1922, to September, 1931, the results of which are

EXHIBIT 4

CHANGES IN SALES OF FLUID MILK FOLLOWING CHANGES IN RETAIL PRICES, BOSTON, MASSACHUSETTS, MARCH, 1922, TO SEPTEMBER, 1931

Month	Sales (30-day month basis) (Million lb.)	Index of Seasonal Variation	Seasonally Adjusted Sales (Million lb.)	Retail Prices per Quart (Cents)
March, 1922	22.0	98.6	22.3	13.5
May, 1922	22.8	99.5	22.9	12.5
% change	....	.....	+ 2.7%	− 7.4%
June, 1922	23.9	102.8	23.2	12.5
August, 1922	22.9	103.1	22.2	13.5
% change	....	.....	− 4.3%	+ 8.0%
March, 1923	23.0	98.6	23.3	14.5
May, 1923	23.6	99.5	23.7	13.5
% change	....	.....	+ 1.7%	− 6.9%
June, 1923	25.6	102.8	24.9	13.5
September, 1923	23.2	100.5	23.1	14.5
% change	....	.....	− 7.2%	+ 7.4%
October, 1923	23.6	100.4	23.5	14.5
May, 1924	25.2	99.5	25.3	12.0
% change	....	.....	+ 7.7%	−17.2%
June, 1924	26.2	102.8	25.5	12.0
October, 1924	24.1	100.4	24.0	14.5
% change	....	.....	− 5.9%	+20.8%
February, 1925	24.6	97.6	25.2	14.5
April, 1925	25.2	97.2	25.9	13.5
% change	....	.....	+ 2.8%	− 6.9%
April, 1925	25.2	97.2	25.9	13.5
June, 1925	28.0	102.8	27.2	13.0
% change	....	.....	+ 5.0%	− 3.7%
June, 1925	28.0	102.8	27.2	13.0
September, 1925	25.7	100.5	25.6	14.5
% change	....	.....	− 5.9%	+11.5%
October, 1926	28.4	100.4	28.3	14.5
February, 1927	27.8	97.6	28.5	14.0
% change	....	.....	+ 0.7%	− 3.4%
June, 1927	29.0	102.8	28.2	14.0
March, 1928	29.5	98.6	29.9	15.5
% change	....	.....	+ 6.0%	+10.7%
March, 1928	29.5	98.6	29.9	15.5
May, 1928	29.5	99.5	29.6	14.5
% change	....	.....	− 1.0%	− 6.5%

EXHIBIT 4 (*Continued*)

CHANGES IN SALES OF FLUID MILK FOLLOWING CHANGES IN RETAIL PRICES, BOSTON, MASSACHUSETTS, MARCH, 1922, TO SEPTEMBER, 1931

Month	Sales (30-day month basis) (Million lb.)	Index of Seasonal Variation	Seasonally Adjusted Sales (Million lb.)	Retail Prices per Quart (Cents)
June, 1928	29.9	102.8	29.1	14.5
September, 1928	29.4	100.5	29.3	15.5
% change	....	.....	+ 0.7%	+ 6.9%
November, 1930	29.1	100.7	28.9	15.5
March, 1931	30.2	98.6	30.6	12.5
% change	....	.....	+ 5.9%	−19.4%
July, 1931	31.6	106.8	29.6	12.5
September, 1931	30.1	100.5	30.0	13.5
% change	....	.....	+ 1.3%	+ 8.0%
Average percentage change*	....	.....	− 5.8%	+11.9%
Average percentage change†	....	.....	+ 3.8%	− 9.3%
Absolute average percentage change‡	....	.....	4.5%	10.2%

* Represents average of percentage increases in price which were associated with percentage decreases in sales.

† Represents average of percentage decreases in price which were associated with percentage increases in sales.

‡ Represents average of percentage changes in price or in sales, without regard to signs, which were associated with opposite changes in sales or in price.

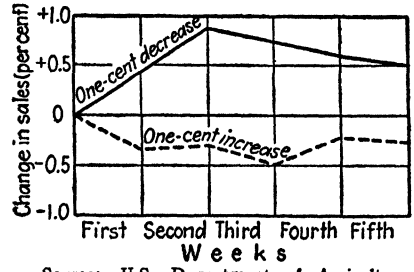
Source: U.S. Department of Agriculture, Agricultural Adjustment Administration, Dairy Section, Technical Paper 1, pp. 44, 45.

given in Exhibit 4. A chart showing the results of a similar study made in New York City, by H. A. Ross, from 1919 to 1924, is shown as Exhibit 5.

After the "fair price" was established for milk, it was still necessary to determine how the proceeds should be paid to the producer. Some producers near the market insisted that all their milk was actually sold as fluid milk and that therefore they should receive fluid milk prices for their entire output. In reality, none of the milk from any individual producer was kept separate in the plant of a distributor, but milk from many sources was intermingled in the pasteurizing and bottling operations. Other producers, farther from the market, whose output was necessary in order to supply the total requirements of the market, contended that it would be unfair to make them bear the entire burden of the surplus problem; and it was generally agreed that they would in all probability stop producing milk and turn to some other product if they received fluid milk

prices only at the time when a portion of their milk was needed to meet the fluid milk requirements. If a plan of payment were adopted whereby producers near the market received the fluid price for their entire output, there would be some producers near the border of the milkshed who would not receive the fluid milk price for any portion of their milk except during the season of low production, and the effect would be that the area of the milkshed would increase or decrease with every change in supply or demand.

Before the period of Federal regulation, it had been the practice for each dealer to contract to purchase the output of a group of farmers whose production was sufficient to furnish his highest seasonal requirements of fluid milk. At the end of each delivery period, the dealer had ascertained the proportion of the total milk delivered to him by all his producers which he had sold as fluid milk; then the dealer had paid the fluid milk price to each producer, regardless of location, for that same proportion of the quantity he had delivered. All producers furnishing milk to the same dealer, therefore, had received the same composite price f.o.b. the dealer's plant. There had been no differential because of location, but each farmer had been required to pay the cost of transportation to the dealer's plant.



Source: U.S. Department of Agriculture, Technical Bulletin 73, *Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York*, by H. A. Ross (Washington, Government Printing Office, 1928), p. 45.

EXHIBIT 5.—Average Effect, in the Five Weeks Following Price Changes, of a 1-cent Price Change on Retail Sales of Quarts of Grade "A"[1] and Grade "B"[2] Milk, New York Metropolitan Area, 1919–1924.

If a dealer who was paying for milk on the use plan increased the proportion of his total milk supply that was sold as fluid milk, he had had to pay a higher composite price for his milk. Sometimes it had happened, therefore, that neighboring farmers supplying different dealers received different prices for their milk because of the varying proportions sold by each dealer as fluid and as surplus milk.

To eliminate this seeming inequity, the License included a provision for an equalization plan under which all the data on sales of fluid milk in the entire area were to be pooled and every producer was to receive the fluid milk price for the same proportion of his production. Every dealer was to be on an equal basis with every other, paying the established fluid price for the milk he sold as fluid milk, and paying the established surplus price for the milk he sold

as surplus milk; and every producer was to be paid at the established composite price, less adjustments for quality[1] and the cost of transportation.

The Market Administrator required that every milk dealer submit to him within eight days after the close of each delivery period an account of his receipts of milk and the uses to which it had been put. The Administrator then combined the reports from all dealers and determined the proportions of the entire milk supply which had been sold as fluid and as surplus milk. He next applied the fluid milk price (established by the License) to that proportion sold as fluid milk and the surplus price (calculated as shown in Exhibit 2) to that proportion sold as surplus milk, and then arrived at the composite price which every producer was to receive for the milk he had delivered. Within 12 days after the close of the period, the dealers were notified of this price and were required to pay the producers before the twenty-fifth day at that price less the allowable adjustments for quality and transportation.

Under the use plan, the dealers who had sold as fluid milk higher proportions of the total quantity of milk they had received than the average for the entire market would pay higher composite prices for their milk than that announced by the market administrator. Under the equalization plan, however, the differences were not paid to the producers, as in the past, but were paid into the equalization fund. The market administrator then paid from the equalization fund to those dealers who had sold as fluid milk a smaller proportion of their total receipts than the average for the entire market an amount sufficient to bring their payments to their producers up to the announced composite price. The result was that every dealer paid the same price for the milk he sold as fluid milk and every farmer received the same composite price. Exhibit 6 gives a sample calculation of a composite price, based on the prices in effect in September, 1934.

Because it was recognized that any price which was artificially high would tend to break down, there was included in the License a base rating plan designed to introduce some degree of production control to maintain the price system in balance. Base rating plans, like the other parts of the License, were not new in the Boston market and were well understood by the producers in the area. The

[1] Adjustment for quality was allowed under the License by establishing 3.7% milk as the standard and setting up differentials for milk above and below this quality in accordance with a standard policy of the industry. The percentage 3.7 referred to the butterfat content of the milk.

desirability of a base rating plan was alleged to rest upon the fact that there was a large number of producers, each one of whom could increase or decrease production. A high price for fluid milk would be an incentive for each individual farmer to increase his production in order to receive a higher cash return. This increase in production would tend to lower the composite price because a greater proportion of the milk produced would be paid for at the surplus price; as a result of the lower composite price, those individuals who did not increase their production would receive a smaller income than before. Thus, if any one producer started to increase production,

EXHIBIT 6

CALCULATION OF THE NET PRICE PER HUNDREDWEIGHT TO BE PAID TO A FARMER 193 MILES FROM THE STATE HOUSE, IN SEPTEMBER, 1934, WHEN THE MINIMUM PRICE ESTABLISHED UNDER THE LICENSE WAS $2.95 PER CWT. FOR FLUID MILK

Price established by the license for fluid milk:		$2.95 per cwt.
Less:		
Freight	$0.36	
Country receiving station charge	0.20	
Containers	0.03	
Administration of license	0.02	0.61
		$2.34
Marketing services of Milk Market Administrator*		0.05
Net price for fluid milk		$2.29
Composite price:		
62.4% at fluid price, $2.29 per cwt		1.43
37.6% at surplus price (Exhibit 2), $1.10 per cwt		0.41
Composite price		$1.84

* This was deductible only if the farmer was not a member of a cooperative. Presumably, a member of a cooperative would pay about the same amount to the cooperative organization.

every other producer would have to increase production also in order to maintain his income. An individual farmer might benefit for a short period by increasing production, but in the end prices would drop. In order to prevent a great increase, therefore, the base rating plan undertook to assign to each farmer the number of pounds of milk which would be considered his "normal" or "base" production, and which would be paid for at the composite price. He did not receive the composite price for more than that amount under the base rating plan unless there was an actual shortage of milk; nor was his excess production above his base rating included in the calculation of the composite price. Any increase in production beyond the base was paid for only at surplus prices.

The first License provided that the base production of each farmer should be the figure resulting from the application of a

definite percentage to his average daily deliveries of milk during September, October, and November, 1933, or his average daily deliveries of milk during the entire year 1933, whichever were greater. This definite percentage was to be set by the Market Administrator at such a point as would make the total of daily base ratings of all producers approximately equal to the expected total daily sales of fluid milk in the market. After data on milk production and consumption had been collected from both producers and distributors, 61 was declared to be the proper percentage; but in order to allow for the fact that producers close to the city had in the past adjusted their production to the sales of fluid milk, the following percentages were established:

85% for producers within 35 miles of the State House.
Between 85% and 61% for producers more than 35 miles but less than 100 miles from the State House.
61% for all other producers.

Each producer in the Boston area was then notified of the number of pounds of milk which was to be considered as his base rating, for which he would be paid at the composite price to be determined and announced by the market administrator. Exhibit 7 illustrates the calculation of a payment under the base rating system. The base rating assigned to each producer was not to be adjusted yearly, as had been done by some cooperatives under their base rating systems,[1] but provision was made for the adjustment of inequitable base ratings upon petition by the producer. Rules were likewise established for granting base ratings to new producers.

In attempts to adjust the base rating plan to meet new situations, the rules for figuring bases under the License were changed many times until, in the Order issued July 28, 1937, the plan was dropped because it had become unpopular with the producers.

Contemporaneously with the development of Federal control of the Boston milk market, the Commonwealth of Massachusetts was also attempting to regulate its dairy industry and to obtain higher prices for the producers within its boundaries. The Massachusetts Milk Control Act was passed in 1934. Its purposes were much the same as those of the Federal act, and in many respects it was intended

[1] If base ratings were not revised yearly, there was some control on production, because any increase would be paid for only at the surplus price. Under a system of yearly revision, however, the base rating plan might tend to increase production because a farmer would be able to increase his future base rate by increasing production for one year at surplus prices. He might be willing to accept low prices on an increased production for one year if he were sure of receiving higher prices each year thereafter.

to supplement the action of the Federal government where the problems were purely intrastate. Administration of the law was placed in the hands of the Massachusetts Milk Control Board. Although the board did not officially force the adoption of base rating plans or an equalization system, its approach to the problems of the industry was much the same as that of the Federal Market Administrator. The Massachusetts law went further than the

EXHIBIT 7

SAMPLE CALCULATION TO ILLUSTRATE THE OPERATION OF A BASE RATING PLAN FOR THE PAYMENT FOR MILK*

Producer *X*, located 195 miles from the State House, Boston, had the following total deliveries of milk (both Class I and Class II) during 1933:

January	5,961 lb.
February	5,419
March	6,095
April	5,814
May	6,095
June	6,186
July	6,414
August	6,205
September	5,970
October	6,200
November	6,030
December	5,881
Daily average for the year	198 lb.
Daily average, September, October, November	200 lb.
% of total production necessary to supply fluid milk	61%
Base rating for Producer *X*	122 lb.
September, 1934, production	6,000 lb.
Base: 122 lb. per day × 30 days	3,660 lb.
Individual surplus	2,340 lb.

Payments would be as follows:

3,660 lb. at composite price (Exhibit 6), $1.84 per cwt.	$67.34
2,340 lb. at surplus price (Exhibit 2), $1.10 per cwt.	25.74

* For simplicity, it has been assumed that the pay period was a full month. Actually, it was one-half month.

Federal regulation in that it established control over the retail distribution of milk. It provided that resale prices could be established by the Board in any district where 25% of the producers so petitioned. It also forbade the sale of milk in retail stores at prices more than 1 cent below the delivered price charged by the house-to-house distributors.

The Boston chain store company which had been buying, pasteurizing, and bottling its own milk and cream discovered that it was unable to maintain a satisfactory volume of milk sales unless its price was 2 cents or more below the dealers' delivered price. An

executive of the chain asserted that it should be allowed to sell at a wider differential because its costs were at least 3 cents a quart lower than the dealers'. He said that unless the differential in selling price was more than 1 cent, the consumers believed that the dealers were really offering greater value than the stores because of the credit, delivery, and other services which they were giving. As a result of the restrictions on underselling the dealers, the chain dropped all promotional sales effort and merely sold milk to those who asked for it. The chain's sales of fluid milk dropped sharply. It reported, however, that as the volume of fluid milk sales declined there was a corresponding rise in sales of condensed milk, which was imported from outside the Boston milkshed. (Some of the results of a study made by the Milk Research Council, Inc., on the relative situation of evaporated and fluid milk are given in Appendix D.)

In explaining the composite price of milk in Boston, what cost conditions and what demand conditions were of major importance?

What was the effect of the composite price system on the income of the New England farmers?

Did the combined programs of the Federal government and the Commonwealth of Massachusetts represent a sound method of attack on the basic problems of the New England milk industry?

Appendix A

Milk Markets

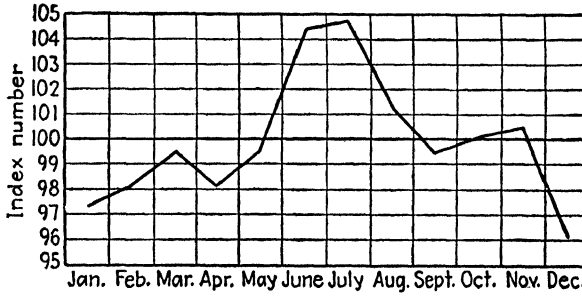
The reason for the existence of an open cream market is found in the nature of the product and the conditions of its production.

The area of any milkshed is limited principally by the ability to transport fluid milk quickly to market, since milk is perishable and its sale is governed by the sanitary requirements of health authorities. Modern refrigeration and transportation have definitely extended the distance from which fluid milk can be shipped, but the refusal of health authorities to admit fluid milk from noninspected sources and their further refusal to inspect farms which they consider too far away has limited the area of most milksheds to sources that are in reality not so far distant as transportation facilities would allow.

Because of these limitations, the fluid milk requirements of any area are met from a relatively adjacent territory, and there is no direct competition from outside that territory. As a result of this

situation, there are areas devoted to dairying which are relatively inefficient and which would be devoted to other uses were it not for the geographical limitations on competition. New England is such a territory, producing its own fluid milk without direct competition from other dairying areas.

For surplus milk, the situation is different. Manufactured dairy products are much less perishable than fluid milk and can be transported and stored with comparative ease; and in most cases sanitary requirements are not so strict, and health authorities do not demand that the source of supply be inspected. For this reason, milk in the form of manufactured products can be, and is, imported

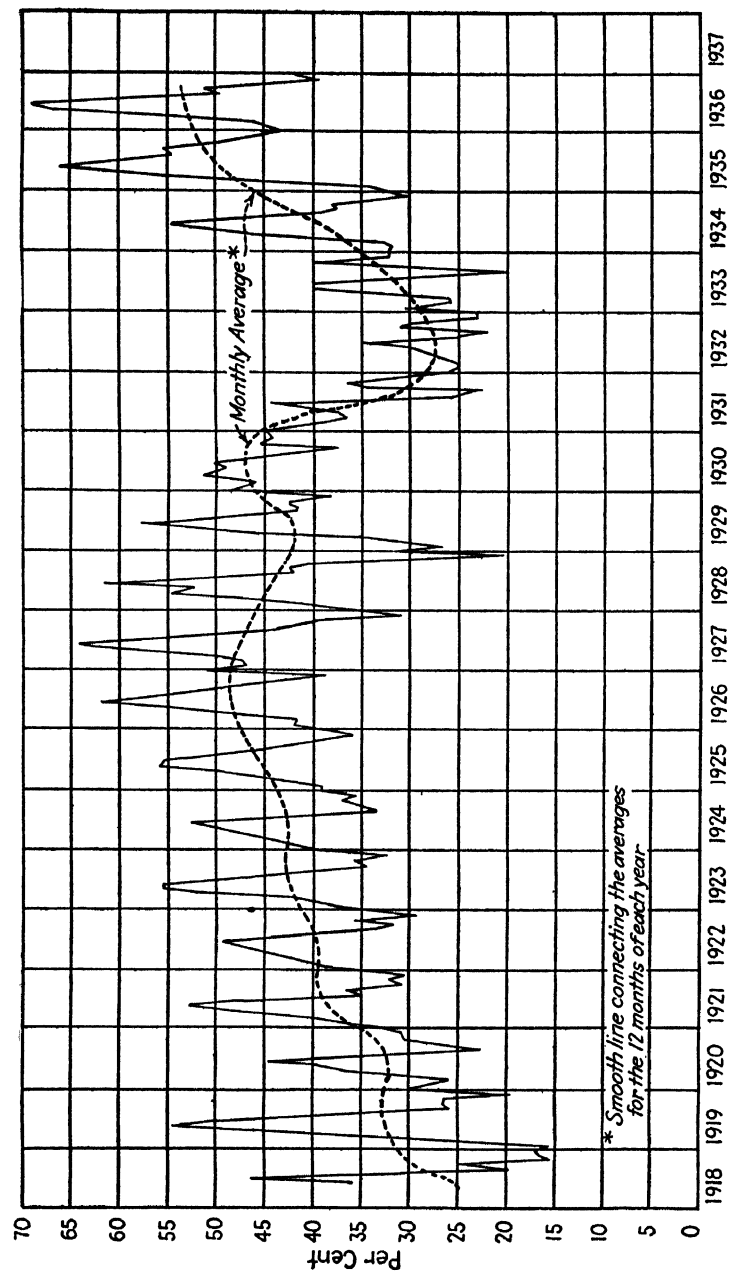


Source: J. M. Cassels, *A Study of Fluid Milk Prices* (Cambridge, Harvard University Press, 1937), p. 100.

EXHIBIT 8.—Index of Seasonal Variations in Sales of Fluid Milk in Boston, 1921–1931.

from more efficient producing areas into the marketing areas whose fluid milk is supplied by relatively inefficient adjacent producers. Since the efficient areas are in a position to produce enough milk to supply all manufactured products for less efficient areas, the result is that there is competition between the products of the efficient areas and the surplus milk of the local milksheds, and the prices of these products are determined in the open market.

Surplus milk will always be present within a fluid milk market because of the nature of the product. In the first place, there are variations in the regular day-to-day consumption because of temperature, rain, holidays, and so on, and a "normal surplus" (or reserve) supply must always be produced to take care of peak demands. Secondly, there are seasonal variations in both production and consumption, with the result that, in order to be assured of a constantly sufficient supply, most urban dealers find it necessary to contract to purchase during the entire year the output of enough producers to furnish sufficient milk to meet their highest seasonal demands. This procedure, which is necessary to assure the supply



Source: New England Milk Producers' Assn.

EXHIBIT 9.—Percentage of Milk in Boston Market Used as Surplus, 1918–1936.

of milk, naturally causes surpluses in the seasonal periods of low consumption or high production. A chart of an index of seasonal variations of sales is shown in Exhibit 8. A third reason for the existence of surplus milk, and the most difficult to overcome, is uncontrolled production. A chart of the percentage of surplus milk in the Boston market from 1918 to 1932 is shown in Exhibit 9.

Appendix B

Milk production in New England[1]

A study made of the New England market indicated that for the year 1929 the total net production of milk was about 427,000,000 gallons. This amount was greater than the total amount of fluid milk consumed in New England during the year; and if it had been produced as needed throughout the year, it would have been more than sufficient to meet the fluid milk requirements. Actually, however, because of the seasonal variations of production and consumption, 18% of the milk produced in New England was turned into manufactured products. The result was that fluid milk and cream had to be imported, and 12% of the fluid milk consumed came from outside New England. The local production of manufactured dairy products was quite inadequate to meet the local needs and amounted to less than 15% of what was consumed. New England produced only 44% of its consumption of all dairy products and was therefore known as a deficit area.

New England was a deficit area because of its high cost of production. The high cost of production was caused by the necessity of importing feed from other sections of the country. Only about 25% of the feed for milk cows during the year was obtained from pasture in Massachusetts; 30% in Maine and New Hampshire; and 34% in Vermont. Because of the relatively high cost of dairying, there were few farms used exclusively as dairy farms in New England, and most milk was produced on a large number of farms which were also used for other purposes. In 1929, for example, 78% of the farms in Maine had milk cows; 75.9% in New Hampshire; 86.7% in Vermont; and 67.5% in Massachusetts.

Nevertheless, dairying was an important phase of New England farming. In 1934, the percentage of the total cash income from

[1] Adapted in the main from J. M. Cassels, *A Study of Fluid Milk Prices* (Cambridge, Harvard University Press, 1937).

farm production which was attributable to dairy products was 31.0% in Maine, 46.6% in New Hampshire, 38.8% in Massachusetts, and 68.6% in Vermont; the corresponding figure for the entire United States was 17.8%. Comparable figures in 1929 were 17.3% for Maine, 44.8% for New Hampshire, 34.1% for Massachusetts, 63.7% for Vermont, and 18.0% for the United States.

Because of this large number of small producers and their dependence upon purchased feed, there were possibilities of shifting from dairying to other farm activities. The price of feed and the price of milk were the two main factors that brought about such a shift.

Studies have been made from time to time to examine the changes in production resulting from changes in price. In order to recognize fully that the cost of feed was as important as the price received by the farmer, the ratio of the milk prices to feed prices (called the milk-feed ratio) has been used as the price factor. One study for the period from 1917 to 1925 showed a coefficient of correlation of 0.790 between the milk-feed ratio and the amount of milk produced. A more recent study for the years from 1921 through 1931, however, showed a coefficient of correlation so low (0.034) that it would indicate little relationship.

Appendix C

Cost of Distributing Milk in the Boston Market[1]

In an attempt to shed some light upon the continued discussion of whether retail stores actually could handle milk more cheaply than house-to-house distributors, the Massachusetts Milk Control Board had a study of the cost of distributing milk in the Boston market during 1935 prepared by Charles F. Rittenhouse & Company, Certified Public Accountants. Some of the conclusions arrived at after the study was completed were summarized as follows:

1. The weighted average cost for handling a quart of milk at retail in the city was $.0536, but a great majority (70.7%) of the market was served at a cost of $.0556.
2. The weighted average cost for handling a quart of milk at wholesale was $.0309, but the great majority (91.7%) of the market was served at a cost of $.0292.

[1] Adapted from *Summary Report on Cost of Distributing Milk in the Boston Market*, 1936, prepared for the Massachusetts Milk Control Board by Charles F. Rittenhouse & Company, Certified Public Accountants, Boston and New York.

3. The weighted average cost of handling a quart of milk in chain grocery and combination stores was $.0135.

4. The average store differential for milk in quart bottles, based on chain grocery and combination store costs, varied from $.0092 to $.0129, depending on the basis for comparison with dealers' costs, whether the averages for the market or the averages for the larger dealers were used.

EXHIBIT 10

ANALYSIS OF THE COST OF DISTRIBUTING MILK IN THE BOSTON MARKET

	Cents per Quart of Milk			
	All Dealers		7.2% of Dealers	
	Retail	Wholesale	Retail (70.7% of total sales)	Wholesale (91.7% of total sales)
City plants	0.85	0.85	0.73	0.73
Containers	0.17	0.12	0.17	0.12
Delivery	4.25	2.04	4.57	1.99
Interest	0.09	0.08	0.09	0.08
	5.36	3.09	5.56	2.92
Chain stores:				
Selling expense	1.32		1.32	
Interest	0.03		0.03	
	1.35		1.35	
Cost at retail through chain stores	4.44		4.27	
Net differential in favor of chain stores	0.92		1.29	

Source: *Summary Report on Cost of Distributing Milk in the Boston Market*, 1936, prepared for the Massachusetts Milk Control Board by Charles F. Rittenhouse & Company, Certified Public Accountants.

A more detailed statement of the costs determined by this study is shown in Exhibit 10.

The reason for the variation of the costs determined by the weighted average from those for the great majority of the market, as shown in (1) and (2) above, was the fact that a small number of dealers handled a very large proportion of all the milk and that these dealers had higher retail distribution costs but lower wholesale costs than the smaller dealers. It was discovered that 7.2% of all the dealers handled 70.7% of all the retail, and 91.7% of all the wholesale, business. For this reason, a separate analysis was made of the costs of this group of dealers.

The study also revealed that 31.3% of all the milk sold in the Boston market was sold through grocery stores, and that of this amount two-thirds was sold by independent grocery stores and one-third by chain stores. The differential reported in (4) above was based, however, upon chain store costs and would have been smaller if the costs of the independent stores had been included. The exact difference between the costs of independent and chain stores was not measured, because no sufficiently exhaustive study was made of the independent stores. In arriving at the differential between dealers' retail costs and chain store costs, it was also assumed that the wholesale costs of distributing milk to the chain stores was the same as the wholesale costs of the milk dealers, whereas one grocery chain, for example, was known to be purchasing directly from the producers affiliated with the Vermont creameries and performing all the wholesale functions within its own organization.

APPENDIX D

RELATIVE SITUATION OF EVAPORATED AND FLUID MILK

A survey of the relative situation of evaporated and fluid milk in the United States was summarized as follows:[1]

1. Consumption of evaporated milk has increased steadily and rapidly in the last twenty years. Between 1920 and 1930 the consumption doubled. Since 1930 the consumption of evaporated milk has increased by nearly 25 per cent.
2. Though the consumption of fluid milk increased by more than 20 per cent from 1920 to 1930, since that year it has decreased by more than 6 per cent.
3. A major cause of the relative increase in the use of evaporated milk has been the economic situation—the necessity on the part of many families to seek a low-cost milk supply. Other causes are: Federal relief buying and distribution of evaporated milk; State relief purchases and recommendation to relief recipients of evaporated milk; a steady, well-contrived and well-financed propaganda on behalf of evaporated milk, and the relative decrease in the cost of evaporated milk as compared with fluid milk.
4. The effect of the increase in evaporated milk consumption in the New York City market has been to decrease the income of the milk producer and adversely affect the fluid milk distributor.

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[1] EDWARD FISHER BROWN, *The Effect of Evaporated Milk Consumption on Fluid Milk Sales in the United States, with Special Reference to New York City* (New York, Milk Research Council, Inc., 1935).

This survey included the statistics shown in Exhibit 11 on consumption of milk from 1920 to 1934.

EXHIBIT 11

CONSUMPTION OF EVAPORATED AND FLUID MILK IN THE UNITED STATES, 1920–1934

Index of Total Consumption (1930 = 100)			Per Capita Consumption		
Year	Evaporated Milk	Fluid Milk and Cream	Evaporated Milk (Milk equivalent quarts)	Fluid Milk and Cream (Quarts)	Per Cent of Total Consumed as Evaporated Milk
1920	49.6	*	7.5	*	*
1921	60.7	78.7	9.1	152.4	5.6%
1922	65.8	*	9.7	*	*
1923	71.7	82.6	10.4	152.0	6.4
1924	79.0	86.0	11.3	154.4	6.8
1925	76.5	88.4	10.7	155.6	6.4
1926	81.3	90.8	11.3	157.2	6.7
1927	81.3	93.0	11.04	158.8	6.5
1928	89.2	95.5	11.9	159.2	6.9
1929	98.2	98.8	12.9	163.2	7.3
1930	100.0	100.0	13.1	162.8	7.4
1931	103.2	98.8	13.3	160.0	7.6
1932	111.8	98.6	14.4	160.0	8.2
1933	112.5	95.9	14.4	155.2	8.4
1934	124.2	93.7	15.7	150.8	9.4

* Not given.
Source: EDWARD F. BROWN, *The Effect of Evaporated Milk Consumption on Fluid Milk Sales in the United States* (New York, Milk Research Council, Inc., 1935), pp. 2, 4.

D. OVERCAPACITY AND OVERINVESTMENT

10. EXCESS MANUFACTURING CAPACITY

A FACTUAL STUDY OF THE SHOE INDUSTRY

In the latter years of the 1920's, the assertion began to be heard that American industry was overbuilt; and in the depression which began in 1929, renewed importance was attached to the problem of industrial capacity. Various definitions of overcapacity were advanced, such as the following:

In general an industry is overcapacitated if, over a representative period of time (say 5 to 7 years), the output of that industry, when operating at substantially full normal capacity, cannot be sold at prices sufficient to cover the variable and overhead expenses incurred and yield a rate of return which is considered normal by entrepreneurs with floating capital to invest.[1] Overcapacity, as defined here, may be attributable to decline in demand (downward shift of demand curve), to failure of an anticipated upward shift of the demand curve to develop, or to an overestimate on the part of entrepreneurs of the prevailing demand (that is, of the height of the demand curve).[2]

In accepting the presidential nomination in 1932, Franklin D. Roosevelt, then Governor of New York, said:

In the years before 1929 . . . enormous corporate surpluses piled up which went chiefly in two directions: First, into new and unnecessary plants which now stand stark and idle; and secondly, into the call money markets of Wall Street. . . . By no means an adequate proportion [of corporate profit] was even paid out in dividends—the stockholder was forgotten.

Various formulas were suggested for measuring overcapacity, as a preliminary to taking remedial steps. The following is an example of such a formula:

Where an industry can organize itself with a central planning council to forecast demand—and that is generally possible with fair accuracy in the major industries—such industry should proceed to eliminate useless equipment and prevent the installation of excessive productive capacity. The necessary steps would be:

(*a*) Forecast probable demand under most favorable conditions, preferably in terms of machine-hours' production required each month.

(*b*) Determine the available capacity in machine-hours, on the basis of 70 hours per week (except continuous processes) for existing serviceable equipment. The 70-hour week is selected as normal, since it usually permits optimum operation of two shifts, each with normal sleeping periods, and allows temporary expansion of hours for seasonal needs.

(*c*) Make a tentative reconciliation of peak loads, with the objective of securing maximum employment stability, using a few 90-hour weeks, mostly 70-hour, and some 35-hour or 40-hour weeks, with alternate weeks' layoff for each shift (workers having had opportunity to accumulate reserves in busy season).

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[1] Temporary overcapacity, caused by seasonal and cyclical fluctuations in the industry in question, does not fall under the above head. A complete statement of what constitutes overcapacity would also require careful treatment both of the cost curves of particular concerns and the industry as a unit and of old and obsolescent equipment which is not normally used.

[2] JOSEPH J. SPENGLER, "Population Growth, Consumer Demand and Business Profits," *Harvard Business Review*, Vol. XII, No. 2, January, 1934, p. 212.

(*d*) Estimate the actual surplus capacity in the industry, over and above a safe reserve of about 20%.

(*e*) Formulate retirement and control plan for equipment.[1]

Under the NRA, some industries agreed in principle on measures to deal with overcapacity, as illustrated by the provisions from the code for the cement industry quoted below:

Prior to the construction or operation of a new plant, or the increase in the productive capacity of an existing one, or the movement of all or part of such a plant from one place to another, the Cement Institute, on receipt of such information, shall promptly collect complete information concerning existing productive capacity in the area in which the proposed new plant is to be located, together with data concerning consumption of cement in that area. If these data disclose that such new plant will result in further increasing the problem of overproduction or overcapacity in such area, the Cement Institute may petition the President to prohibit the construction, or operation, of the proposed new plant, or the increase in manufacturing capacities of such existing plants. The provisions hereof shall not be construed to prevent the modernization of existing plants to improve quality of product and/or operating efficiency.

The Board may study the problem of permanent excess of productive capacity in any area and may from time to time prepare and submit to the Administrator for consideration plans for the closing down or amortization of the less economical plants.[2]

Toward the latter part of 1933, J. F. McElwain, a leader in the boot and shoe industry, undertook to measure the extent to which that industry had excess capacity. The boot and shoe manufacturing industry often had been cited as an outstanding example of productive overcapacity. In 1921, for instance, the following comment had been made on the problem of overcapacity:

Clothing factories are built 45% larger than is necessary; printing establishments are from 50% to 150% overequipped; the shoe industry has a capacity of 1,750,000 pairs a day and produces little more than half that number. Throughout the metal trades, standardization of product would permit large reductions in plant and equipment.[3]

Later the following data had been published on the status of the boot and shoe manufacturing industry as of 1921 and 1923:[4]

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[1] H. P. LOSELY, "To Rationalize Investment, Destroy Surplus Capacity," *The Iron Age*, December 7, 1933, pp. 17 and 60.

[2] Approved Code 128, Code of Fair Competition for the Cement Industry, as approved on November 27, 1933, by President Roosevelt, p. 334.

[3] Federated American Engineering Societies, *Waste in Industry* (New York, McGraw-Hill, 1921) pp. 17–18.

[4] U. S. Bureau of the Census, *Biennial Census of Manufactures: 1923*, p. 1201.

Number of establishments (1923)	1,608
Actual output, value (1923)	$1,000,078,022
Maximum possible output, value (1923)	1,393,329,897
Actual output as percentage of maximum possible output:	
1921	62.7%
1923	71.8

The figure for maximum output was computed from estimates submitted by each manufacturer reporting.

In 1931, Ethelbert Stewart, then the Commissioner of Labor Statistics of the U.S. Department of Labor, had written:

The latest census returns show 1,329 boot and shoe factories in the United States. Only 14.5% of these establishments, now employing 60.4% of the wage earners, are producing 65.6% of the total output, operating on broken or irregular time. If these same plants were to operate full time at their present capacity they would produce 95% of the required output. To put it more concretely, to operate the necessary 200 or so boot and shoe establishments full time at present capacity, you would have to close 1,129 other boot and shoe establishments. Not only that, but if all of the establishments worked at the same efficiency that the best establishment now works, we could—expressing it in terms of human labor—produce with 81,811 men all of the boots and shoes we are now producing with 202,191 men. To go a little more into detail, the most efficient boot and shoe factory in the United States so far as I know, measured in output per man per day, produces 14 pairs of shoes per man per day. At this rate of production, 81,811 men working 300 days in the year would produce the same number of shoes now produced by 202,191 men, whom the census reports as engaged in the industry.[1]

In 1933, a statement on behalf of the National Boot and Shoe Manufacturers Association in relation to a proposed code of fair competition had included the following:

The manufacture of boots and shoes is an industry in which the average profit is small in relation to the volume of business and to capital invested.

This is indicated by the following figures taken from the summary of corporation income tax returns as the average of the years 1926–1930 inclusive.

Twelve hundred fifty-five concerns reported, which were engaged in the manufacture of boots, shoes, cut stock, and findings. Of these concerns, 669 reported a total profit of $51,149,000 before Federal taxes, on a volume of $800,119,000. This profit represented only 6.4% on the volume, or, after Federal taxes, about 5.6%.

Five hundred eighty-six concerns reported a loss of $16,814,000 on a total volume of $230,564,000, or 7.3% on that volume. It will be seen that over 46% of the concerns reporting, producing over 20% of the total production, operated at a loss.

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[1] ETHELBERT STEWART, "Irregularity of Employment," *Annals of the American Academy of Political and Social Science*, Vol. 154, March, 1931, p. 9.

The average profit of the entire industry was slightly over $34,000,000, representing a net profit of only 3.3% on the volume before Federal taxes, or approximately 8.5% on the invested capital. Out of this average profit of $34,000,000 was paid the Federal income tax of about $6,400,000 on the profit of those concerns reporting a net income, reducing the profit to $27,600,000, or 6.9% on invested capital.

These facts and figures demonstrate that increases in costs cannot be absorbed by the industry but must be passed on to the consumer.

. . . . . .

In 1925 and 1927, which may be considered normal years, the wage earners in the industry numbered about 205,000 (Bureau of Census). The average production was about 333,000,000 pairs (*Commerce Year Book*, 1932, page 457). The average full time employment was about 49 hours per week (Bureau of Labor Statistics, *Bulletin* 579, page 3). The average time actually worked in 1926, according to figures compiled by the National Industrial Conference Board, was 45.6 hours per week ("Wages in the United States") and the average from 1920 to 1929 was 44.9 hours (*Service Letter*, April 30, 1933).

. . . . . .

It is estimated that production in 1933 will equal the average of 1925–1927 and will probably amount to 335,000,000 pairs. It is also believed that production for the period of twelve months beginning July 1, 1933, will reach and possibly exceed 350,000,000 pairs.

Taking forty-five hours as the average actually worked in 1925–1927 and first assuming that the production will equal the average in those years, it is plain that a reduction to forty hours as proposed by the code should mean an increase of 1/8th in the number of persons employed over 205,000, the number employed in 1925–1927, or, roughly, a total of 230,000 employees. This figure is in excess of the largest number of employees ever reported in the industry.

If production reaches 350,000,000 pairs, the revival in business activity continuing, we must on a forty-hour basis employ many more persons than under our estimate for 335,000,000 pairs.

Since 1927, there has been no such technological progress in the shoe industry as there has been in some other industries. Shoes are manufactured by the use of the same machines, with very few important changes, and by the same processes. There is not apparent any reason why the production per employee on a given grade of shoes should have materially altered during the past six years.

. . . . . .

The shoe manufacturer is already faced with additional costs in a very considerable amount due to the reduction of hours to forty, including not only direct labor costs, but costs resulting from the fact that more machinery, lasts, dies, patterns, etc., will have to be procured and utilized, even for the manufacture of the same number of shoes as heretofore, and also the increased cost of other items of overhead.

. . . . . .

The principal and inescapable reason for the seasonal nature of the shoe industry is that purchasers, particularly women, buy to a large extent on the basis of styles, colors, etc. Shoes are not a standardized product. This is particularly true of women's shoes but to a greater extent than would be supposed applies to men's and to other shoes as well. The public taste is fickle. The styles and colors, sizes and widths, that will be in demand for a given season cannot be foretold long in advance.[1]

One of the first tasks confronting Mr. McElwain, in his effort to measure the excess capacity in the shoe industry, was to determine the industry's total productive capacity. At the outset, he consulted the several trade directories and from them listed every boot and shoe manufacturer. For each plant, the directories published the manufacturer's estimate of his capacity in terms of pairs per day. Mr. McElwain had these estimates scrutinized closely for probable accuracy by an expert familiar with the industry. The expert took into account the size of each factory, the quantity and layout of the machinery used, and the types of shoes made. On the basis of these factors, he checked the estimates in the trade directories and thus worked out a final estimate of the capacity of each producer. The aggregate of these estimates Mr. McElwain accepted as a reliable measure of the industry's capacity. He found that annual shoe output per capita of the population during the period 1869 to 1932 had varied from 2.13 pairs in 1869 to 3.15 pairs in 1923.

Mr. McElwain made no attempt to secure from manufacturers of shoe machinery a complete list of all machinery leased out to the shoe factories. Although such a list, if obtained, might have afforded some basis for estimating independently the capacity of the industry, Mr. McElwain was of the opinion that variations in size and layout of plant, and in combinations of machinery used in making various types and styles of shoes, would invalidate the accuracy of the estimates. For instance, a plant might require, as a precaution against breakdown or because of the need for flexibility in making different styles, more machinery of one type than it possibly could use to full capacity. Thus one heelmaking machine capable of turning out, say, 1,500 heels daily might be used in connection with two turning machines, each capable of turning 500 pairs in an eight-hour day. If, at the seasonal low point of output, each turning machine produced 300 pairs, a total of 1,200 heels would be needed. But if, at the seasonal height of output, the two machines turned

[1] Code of Fair Competition for the Boot and Shoe Manufacturing Industry, Statement with regard to Article V, Hours and Rates of Pay, on behalf of The National Boot and Shoe Manufacturers Association, September 12, 1933, pp. 1, 2, 4, and 5.

1,000 pairs, 2,000 heels would be needed; another heelmaking machine therefore might be kept in the plant for such periods. In slack periods, consequently, the plant would have a heelmaking capacity of 3,000 against actual need for 1,200, and a shoemaking capacity of 1,000 pairs against actual need for 600. In other instances, a plant might be able to produce certain parts ahead of requirements and thus operate with less machinery than would be required for peak output.

Mr. McElwain's conclusions were given in the following report:

SHOE MANUFACTURING

ACTUAL PRODUCTION vs. MACHINE CAPACITY

I. THE POPULAR IMPRESSION

The opinion has frequently been expressed that the shoe industry in the United States is greatly "overmachined," that is to say, has excessive machine capacity, and is equipped to make from 900,000,000 to 1,200,000,000 pairs per year, or from four to five times its present yearly production, which fluctuates between 300,000,000 and 350,000,000 pairs and averages about 325,000,000 pairs.

II. THE REALITY

The shoe manufacturing industry as a whole is probably not overequipped. If it seems to have more equipment than it can employ at all times, it nevertheless has no more than conditions peculiar to the industry require.

III. THE DEMONSTRATION

1. The Rental System. The great majority of machines used in shoe manufacturing, and the most important ones, are owned by the United Shoe Machinery Corporation and are rented to manufacturers. The rental of a machine is usually based on the number of pairs of shoes produced by that machine, with a minimum guaranty payable by the lessee. Consequently:

A. It is to the interest of the Shoe Machinery Corporation to keep each machine working so that all its invested capital will bring a fair return. The agents of the Corporation throughout the country are continually instructed to request shoe manufacturers to return idle or excess machinery, so that it may be available for renting to lessees who can keep it busy and pay royalties.

B. On the other hand, no manufacturer wants to pay a minimum guaranty on a machine he is not using and does not expect to use in the near future. He returns idle machines when he sees they are not needed.

These two factors keep idle machinery at a minimum.

2. Actual Productive Capacity. Such publications as the American Shoe Making Directory and the Shoe and Leather Reporter Annual contain estimates of the productive capacity of the industry computed from questionnaires sent out to manufacturers. Figures from these

books for 1932 and 1933 indicate a productive capacity of approximately 2,296,000 pairs per day. This amounts to about 550,000,000 pairs per year, on a basis of 240 working days, which is doubtless ample when allowance is made for Saturdays, Sundays, holidays, vacations, inventory periods, shutdowns, strikes, etc. No doubt the tendency is for shoe manufacturers to overestimate their capacity, and 550,000,000 pairs per year is probably liberal or excessive.

3. Actual Production. The average annual production is about 325,000,000 pairs of shoes. On the face of these figures, there seems to be a genuine excess of productive capacity.

4. Considerations Accounting for Alleged Excessive Capacity.

A. Seasonal Variations. Production in the shoe industry is not uniform throughout the year in spite of the fact that manufacturers would like, and that they endeavor, to make it so. Changing styles and unpredictable demand are the factors bringing about a considerable variation in monthly production. Therefore the industry has seasonal peaks and valleys. The peak of production in any year is 66⅔ per cent in excess of the production at the low point of the year. To put it in another way, the peak in any year is about 25% above the average monthly production of the year, and the valley or low point is about 25% below the average monthly production of the year.

The industry must have available machines and equipment sufficient to meet the peak demand. Taking the average consumption of shoes to be 325,000,000 pairs per year, seasonal peaks will be up 25% from that figure, or at an average annual rate of 406,000,000 pairs per year.

Or, going at it in another way, and averaging the peak months of each year from 1922 to 1933 in the Department of Commerce Yearbook, we have a figure of 396,000,000 pairs per year.

Or, still again, the actual production in October, 1929, a peak month, was 37,191,000 pairs, or at the rate of 450,000,000 pairs per year.

The productive capacity of the industry is only about 22% over this last figure.

B. Variation in Types of Shoes. There must be productive or machine capacity sufficient not only to handle peaks of production in the industry as a whole but to care for changes in popular taste for different styles and kinds of shoes. At one time the demand is for Goodyear welts, at another for McKay sewed shoes, at another for summer, athletic, or sport shoes. There are many other types of shoes in varying demand. Certain machines are adapted for only one or more of these varieties, or for only men's or women's or children's shoes or slippers. Yet the manufacturer making a general and particular line of shoes must have the machinery necessary or adapted for each kind and style, and some of it may be idle part of the time.

C. Reduction in Hours. The figures for productive capacity as supplied by manufacturers for 1932 and 1933 are for years before the reduction in hours effected by the NRA. The productive capacity of machinery now installed has declined and will decline under the codes. Factories are now restricted to 40 hours per week (with privilege of operating 45 hours during any 8 weeks of a 6 months' period), whereas heretofore they operated 48 hours and upwards per week.

The experience of shoe manufacturers when the codes became effective illustrates this point. When working hours were reduced, due to the NRA, most of the efficient producers were forced to secure additional equipment from the United Shoe Machinery Corporation. The figures of the Corporation indicate that it experienced an exceptionally heavy demand for machines and was at times as much as 16 weeks behind in the delivery of key machines. There was never a time when it was more difficult to secure the delivery of machines badly needed to meet the demand.

5. Elimination of Overtime. Before the NRA it was possible for manufacturers, when the demand required, to operate on an overtime basis. This is no longer possible. For elasticity in hours, which was formerly possible and which increased the productive capacity of existing machinery, must be substituted elasticity in machine equipment. More machines are necessary, part of which may be idle at times but will be operated by added employees in busier seasons.

6. Small Manufacturers. A small part of the apparent overequipment of the industry may be accounted for by the fact that smaller concerns often do not have sufficient volume to utilize efficiently all their machine equipment. They have no more machines than they require, but many of their key machines may have a capacity much larger than the daily production of their factories and may be used only a portion of the time.

CONCLUSION

In view of the foregoing considerations, the machine equipment of the industry does not seem to be at all excessive.

Did Mr. McElwain succeed in demonstrating that overcapacity was not a serious problem in the shoe industry? Are overcapacity and overinvestment the same thing?

11. New State Ice Company *v.* Liebmann[1]

STATE CONTROL OF INVESTMENT

Mr. Justice Brandeis in an opinion dissenting from the majority decision of the United States Supreme Court in the case of the New State Ice Company *v.* Liebmann wrote in part as follows:

Chapter 147 of the Session Laws of Oklahoma, 1925, declares that the manufacture of ice for sale and distribution is "a public business"; confers upon the Corporation Commission in respect to it the powers of regulation customarily exercised over public utilities; and provides specifically for securing adequate service. The statute makes it a mis-

[1] 52 S.C.R. 371, 1932.

demeanor to engage in the business without a license from the commission; directs that the license shall not issue except pursuant to a prescribed written application, after a formal hearing upon adequate notice both to the community to be served and to the general public, and a showing upon competent evidence, of the necessity "at the place desired"; and it provides that the application may be denied, among other grounds, if "the facts proved at said hearing disclose that the facilities for the manufacture, sale and distribution of ice by some person, firm or corporation already licensed by said commission at said point, community or place, are sufficient to meet the public needs therein." Section 3.

Under a license, so granted, the New State Ice Company is, and for some years has been, engaged in the manufacture, sale, and distribution of ice at Oklahoma City, and has invested in that business $500,000. While it was so engaged, Liebmann, without having obtained or applied for a license, purchased a parcel of land in that city and commenced the construction thereon of an ice plant for the purpose of entering the business in competition with the plaintiff. To enjoin him from doing so this suit was brought by the ice company. Compare Frost *v.* Corporation Commission, 278 U. S. 515, 49 S. Ct. 235, 73 L. Ed. 483. Liebmann contends that the manufacture of ice for sale and distribution is not a public business; that it is a private business and, indeed, a common calling; that the right to engage in a common calling is one of the fundamental liberties guaranteed by the due process clause; and that to make his right to engage in that calling dependent upon a finding of public necessity deprives him of liberty and property in violation of the Fourteenth Amendment. Upon full hearing the District Court sustained that contention and dismissed the bill. 42 F. (2d) 913. Its decree was affirmed by the Circuit Court of Appeals. 52 F. (2d) 349. The case is here on appeal. In my opinion, the judgment should be reversed.

. . . . . .

Seventh. The economic emergencies of the past were incidents of scarcity. In those days it was preeminently the common callings that were the subjects of regulation. The danger then threatening was excessive prices. To prevent what was deemed extortion, the English Parliament fixed the prices of commodities and of services from time to time during the four centuries preceding the Declaration of Independence. Like legislation was enacted in the Colonies; and in the States, after the Revolution. When the first due process clause was written into the Federal Constitution, the price of bread was being fixed by statute in at least two of the states, and this practice continued long thereafter. Dwelling houses when occupied by the owner are pre-eminently private property. From the foundation of our government those who wished to lease residential property had been free to charge to tenants such rentals as they pleased. But for years after the World War had ended, the scarcity of dwellings in the city of New York was such that the state's legislative power was invoked to insure reasonable rentals. The constitutionality of the statute was sustained by this Court. Marcus Brown Holding Co. *v.* Feldman, 256 U. S. 170, 41 S. Ct. 465, 65 L. Ed. 877. Similar legislation of Congress for the city of Washington was also

upheld. Block *v.* Hirsh, 256 U. S. 135, 41 S. Ct. 458, 65 L. Ed. 865, 16 A. L. R. 165.

Eighth. The people of the United States are now confronted with an emergency more serious than war. Misery is widespread, in a time, not of scarcity, but of overabundance. The long-continued depression has brought unprecedented unemployment, a catastrophic fall in commodity prices, and a volume of economic losses which threatens our financial institutions. Some people believe that the existing conditions threaten even the stability of the capitalistic system. Economists are searching for the causes of this disorder and are reexamining the basis of our industrial structure. Businessmen are seeking possible remedies. Most of them realize that failure to distribute widely the profits of industry has been a prime cause of our present plight. But rightly or wrongly, many persons think that one of the major contributing causes has been unbridled competition. Increasingly, doubt is expressed whether it is economically wise, or morally right, that men should be permitted to add to the producing facilities of an industry which is already suffering from overcapacity. In justification of that doubt, men point to the excess capacity of our productive facilities resulting from their vast expansion without corresponding increase in the consumptive capacity of the people. They assert that through improved methods of manufacture, made possible by advances in science and invention and vast accumulation of capital, our industries had become capable of producing from 30 to 100 per cent more than was consumed even in days of vaunted prosperity; and that the present capacity will, for a long time, exceed the needs of business. All agree that irregularity in employment—the greatest of our evils—cannot be overcome unless production and consumption are more nearly balanced. Many insist there must be some form of economic control. There are plans for proration. There are many proposals for stabilization. And some thoughtful men of wide business experience insist that all projects for stabilization and proration must prove futile unless, in some way, the equivalent of the certificate of public convenience and necessity is made a prerequisite to embarking new capital in an industry in which the capacity already exceeds the production schedules.

Whether that view is sound nobody knows. The objections to the proposal are obvious and grave. The remedy might bring evils worse than the present disease. The obstacles to success seem insuperable. The economic and social sciences are largely uncharted seas. We have been none too successful in the modest essays in economic control already entered upon. The new proposal involves a vast extension of the area of control. Merely to acquire the knowledge essential as a basis for the exercise of this multitude of judgments would be a formidable task; and each of the thousands of these judgments would call for some measure of prophecy. Even more serious are the obstacles to success inherent in the demands which execution of the project would make upon human intelligence and upon the character of men. Man is weak and his judgment is at best fallible.

Yet the advances in the exact sciences and the achievements in invention remind us that the seemingly impossible sometimes happens. There are many men now living who were in the habit of using the age-old

expression: "It is as impossible as flying." The discoveries in physical science, the triumphs in invention, attest the value of the process of trial and error. In large measure, these advances have been due to experimentation. In those fields experimentation has, for two centuries, been not only free but encouraged. Some people assert that our present plight is due, in part, to the limitations set by courts upon experimentation in the fields of social and economic science; and to the discouragement to which proposals for betterment there have been subjected otherwise. There must be power in the states and the nation to remould, through experimentation, our economic practices and institutions to meet changing social and economic needs. I cannot believe that the framers of the Fourteenth Amendment, or the states which ratified it, intended to deprive us of the power to correct the evils of technological unemployment and excess productive capacity which have attended progress in the useful arts.

To stay experimentation in things social and economic is a grave responsibility. Denial of the right to experiment may be fraught with serious consequences to the nation. It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country. This Court has the power to prevent an experiment. We may strike down the statute which embodies it on the ground that, in our opinion, the measure is arbitrary, capricious, or unreasonable. We have power to do this, because the due process clause has been held by the Court applicable to matters of substantive law as well as to matters of procedure. But, in the exercise of this high power, we must be ever on our guard, lest we erect our prejudices into legal principles. If we would guide by the light of reason, we must let our minds be bold.

Entirely apart from the legal aspects, which represented the sounder policy from the standpoint of political economy: the adverse decision of the Supreme Court in this case, or the dissenting view of Mr. Justice Brandeis?

APPENDIX A

CONTROL OF PRODUCTION UNDER THE ICE CODE[1]

The Oklahoma Ice Law was a trade association victory. The existing Oklahoma ice manufacturers prospered. Oklahoma prices created new "highs." Oklahoma domestic trade prices were 15% higher than the average prices in all other southern states.

Five years later, i.e., in 1930, the constitutionality of the Oklahoma Ice Law was challenged by one Liebmann. He began to build an ice

[1] Excerpts from an article of the same title by Benjamin M. Parker, *Harvard Business Review*, Vol. XIII, No. 4, Summer, 1935.

plant without applying to the State Ice Commission for a certificate of public convenience and necessity. The New State Ice Company with the support of the trade association sought to enjoin Liebmann. Its bill for an injunction was filed in the Federal Court on March 31, 1930. A decree was entered on June 24, 1930, denying an injunction and declaring the law to be unconstitutional. This decree was affirmed in the Circuit Court of Appeals on August 27, 1931, and in the United States Supreme Court on March 21, 1932.[1] The Oklahoma Ice Case tells its own story. It is that the Federal Courts penetrated the mocking manifestation of the trade association which sought to become a bedfellow of the State.

. . . . . .

The NIRA Ice Code

Trade association morale was at its lowest ebb when the National Industrial Recovery Act was passed on June 16, 1933. The trade association was gasping for breath. Unhesitatingly it sought to become resuscitated under the promising oxygen hood erected by the NIRA. It immediately prepared the Ice Code. It was one of the very early codes, and was approved on October 3, 1933. Article XI provides for the control of production.[2]

The gesture which gave the Oklahoma Ice Commission the power to fix maximum prices is omitted in the Ice Code. Self preservation seemed to prompt the writing of Article XI. "No admission into the ice industry" was the new battle cry of the chief supporters of the trade association.

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The Smaller Independents and Monopoly

Mr. Clarence Darrow, in his capacity as Chairman of the National Review Board of NRA, found that Article XI of the Ice Code was monop-

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[1] New State Ice Co. *v.* Liebmann, 285 U. S. 262 (1932).

[2] "If at any time an individual, firm, corporation or partnership, or other form of enterprise, desires to establish additional ice production, storage, or tonnage in any given territory, said party must first establish to the satisfaction of the Administrator that public necessity and convenience require such additional ice-making capacity, storage or production. The ice manufactured from any plant that was not in actual operation on September 8, 1933, shall not be sold to any purchaser for a period of twelve months from the date subsequent to September 8, 1933, upon which the operation of such plant may be initiated or resumed, at prices lower than the lowest corresponding prices in good faith published as required by this Code, in a schedule or schedules governing prices to such purchasers; providing and excepting that this provision will not apply to the sales of ice manufactured by the following:

"*A.* Plants installed upon authority or a certificate of necessity and convenience duly issued by the Administrator; or

"*B.* Plants temporarily shut down for repairs for a period not in excess of twelve months prior to September 8, 1933; or

"*C.* Plants that were owned or whose output was controlled by companies or operations that were on September 8, 1933, in good faith engaged in the business of selling ice to the general trade in the market in which the ice from such plants is proposed to be sold, such plants being of the intent in good faith to further the economic conduct of the business of such company or operation."

olistic and oppressive and that it was being administered in the interests of the large companies.

"Monopolistic practices obtain in this industry and small enterprise is oppressed, apparently because the code was made by representatives of the larger companies, in whose interests it seems to be administered. . . . Article XI of the Ice Code provides that there shall be no establishing of additional "ice production, storage or tonnage," unless the Administrator shall be satisfied that public necessity and convenience require such legislation. It is to be noted that in the State of Oklahoma the legislature enacted a similar provision and the United States Supreme Court successfully held the provision to be unconstitutional. . . . It is clearly monopolistic, oppressive, and should be eliminated from the code."[1]

. . . . . .

Ice-Plant Construction

A survey of ice-plant construction during the last thirty years is a necessary orientation, preceding any evaluation of Article XI of the Ice Code. Mechanical refrigeration is essentially a modern development. The first successful ice manufacturing plant was erected in 1890. Fourteen years later there were some 2,000 ice plants in operation. Today, there are nearly 8,000 plants.

. . . . . .

Arthur Stone Dewing has accounted for this reckless construction of large ice plants. He accuses the "hybrid utility" which entered the ice business in order that it might increase its "production and sale of bonds and stocks."[2] A case in point follows:

"This particular holding company was promoted ostensibly as an electric company, but it was in reality an ice company with a plating of electricity. And this single case is analogous to a score or more of mixed utility holding companies promoted in the period from 1924 to 1929 for the primary purpose of providing bankers with profitable wares to be sold to an uncritical public affected with the emotionalism of the new era psychology."[3]

In the year 1932 the sales of ice dropped. Ice profits vanished with low production. This played no insignificant part in the ruin of many of the public utility holding companies.[4]

Conclusion

The speculating promoters succeeded in saddling the ice industry with uneconomical ice production capacity. The uncritical security-buying public had been sufficiently mulcted by them. It would therefore be very natural to expect the reentry of the entrepreneur into the ice industry and the building of small plants in response to ice demands in specific localities. In 1933, all low plant construction records in the ice industry

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[1] 86 *Ice & Refrigeration* 376 (1934).
[2] *Financial Policy of Corporations*, 3d ed. (New York, Ronald, 1934), p. 885.
[3] *Ibid.*, p. 887.
[4] *Ibid.*

were smashed. (See Exhibit 1.) Only 54 plants were built, with an average capacity of 20.8 tons a day, creating a capacity increment of only 1,125 tons a day.

Such new "lows" were established without the aid of Article XI of the Ice Code. Such low increment in ice plant capacity was the economic response to ice demands by the entrepreneur. Only the entrepreneur who has thoroughly studied the demands of his community now seeks admission into the ice industry. He does not build unless he believes that he can so earn his livelihood. Ice is a local industry. Therefore his judgment and faith, which cause him to choose to enter the ice industry, must be respected and honored. The history of the ice industry does not accuse him of being an unnecessary and uneconomical creator of production facilities. The vested interests in the ice industry do, however, view the entrepreneur with disdain because he complicates and prevents their monopolistic machinations. Representatives of the vested interests, who for years have fixed prices to the detriment of the consumer, and who have failed to achieve the monopoly by their own efforts, wrote Article XI. They inveigled the President into assisting them in the achievement of their monopoly and into arbitrarily denying and unreasonably curtailing the common right to engage in a lawful private business.

EXHIBIT 1

TOTAL NUMBER OF PLANTS AND NEW CONSTRUCTION

Year	Total Number of Plants*	Total Daily Capacity in Tons*	Yearly Increment in Number of Plants	Yearly Increment in Daily Capacity in Tons†	Average Size of New Plant in Tons per Day†
1904	2,218	66,220			
1904–9	.....	.....	156	10,156	65.0
1909	3,000	117,000			
1909–11	.....	.....	203	3,078	15.2
1911	3,406	123,156			
1911–14	.....	.....	280	11,681	41.8
1914	4,245	158,200			
1914–19	.....	.....	174	5,933	34.0
1919	5,117	187,864			
1919–22	.....	.....	128	11,675	91.5
1922	5,500	222,891			
1923	5,747	245,891	247	23,000	93.1
1924	6,025	258,940	278	13,049	46.9
1925	6,262	265,759	237	6,819	28.8
1925–27	.....	.....	538	12,120	22.5
1927	7,338	290,000			
1928	7,474	318,405	136	28,405	208.9
1929	7,588	332,816	114	14,411	126.4
1930	7,651	349,342	63	16,526	262.3
1931	7,714	354,412	63	5,070	80.5
1932	7,828	366,015	114	11,603	101.8
1933	7,882	367,140	54	1,125	20.8

*86 *Ice & Refrigeration*, 307.
†Revised by editors.

But the *imprimatur* of the President was not sacrosanct in the eyes of the United States Supreme Court. It declared all codes unconstitutional.[1] The Ice Code is included and the Federal Courts have again frustrated the plans and the monopolistic hopes of the trade association.

APPENDIX B

CAPACITY CONTROL AND THE ICE CODE[2]

. . . . . .

. . . The importance of the rate of flow of savings into investment to activity in the capital goods industries is today common knowledge. With approximately ten million employees directly dependent upon activity in the capital goods industries[3] and the activity of these industries dependent upon investment, the total annual amount of investment becomes a matter of major importance to government.

. . . . . .

As Deputy Administrator of the Ice Code the writer became the beneficiary of one of these sporadic and accidental advances into this no man's land of economic planning. Finding myself there, I decided to take the adventure seriously and attempt to determine whether or not the regulation of private investment in the ice industry, at least, would prove to be on the flank of governmental development or in the true line of advance. I asked myself two questions, one general and one specific. The general question was: Is the regulation of the flow of savings into ice manufacturing machinery a proper concern of government? The specific question was: If it is a proper concern, is the capacity control provision in the Ice Code a proper way to bring it about?

CONTROL OF INVESTMENT IN THE ICE INDUSTRY

In addressing myself to the general question I was not long in reaching a conclusion. My line of reasoning was as follows: A public policy which allows savings to flow into ice manufacturing machinery at a rate which exceeds the actual need or effective demand for the ice to be produced thereby, resulting in the displacement from production of machinery the usefulness of which is not exhausted, and which is *not marginal* with respect to the cost at which it can produce ice, tends to reduce the standard of living of the community. It is important to note the italicizing of "not marginal" above, for I am assuming that the new machinery does not produce ice at a lower cost but supplies ice at the same cost. If this

[1] U. S. *v.* Schechter Poultry Co. (decided May 27, 1935).

[2] Excerpts from an article of the same title by Robert K. Straus, *Harvard Business Review*, Vol. XIV, No. 1, Autumn, 1935.

[3] Report of the NRA Durable Goods Industries Committee, submitted to the Administrator, May 14, 1934.

premise be the fact, the particular machinery which will be taken off the market through loss of sales will be selected by a process other than a pricing process—probably related to goodwill as operative through brands, distributor arrangements, etc.

It seems to be obvious that if we permit ice machinery to be thrown away before its capacity to produce is exhausted we are deliberately restricting the standard of living of the country, for if the new machinery replaces the old machinery before the usefulness of the latter is exhausted, oversaving has taken place at the expense of consumption. In other words, income has been diverted to the purchase of unneeded capital goods which could well have gone for the purchase of consumer goods. Such a policy with respect to capital goods corresponds to a policy with respect to consumer goods which encourages the junking of houses, automobiles, furniture, or clothing before the articles in question have exhausted their possible usefulness. We have seen the introduction of style elements into the selling of all types of consumer goods in order to speed the replacement of these goods prior to the exhaustion of their usefulness. Though it is not possible to appeal to irrational buying habits in the sale of capital goods as it is in the sale of consumer goods, a public policy which accelerates the replacement of old capital goods by new capital goods before the former are truly no longer useful is equally wasteful, perhaps more so. For consumer goods, through the medium of secondhand markets, may be used by other than their original owners, while the market for secondhand capital goods is far more limited.

Therefore, I concluded, it is a proper concern of government to pursue a policy which will bring about a flow of savings into the ice industry proportional to the effective demand for ice and which will tend to prevent the wasting of machinery. If the volume of savings ready to flow into the ice industry exceeds the need for savings, translated into ice machinery, government should concern itself with preventing the conversion of savings into machinery which is not necessary.

In reaching this conclusion I have premised that additional plants which might be established would not produce ice at a cost lower than that of the existing plants. This premise is more than fair, as the relationship between direct and indirect costs in the production of ice is such as to result in a very sharp decrease in total cost as the ratio of actual production to capacity to produce increases. Thus the result of the introduction of new ice machinery in an area already sufficiently equipped is to lower the average ratio of actual production to capacity to produce and hence to increase the total cost of production at each plant already in operation.

Capacity Control Provision of the Ice Code

We come now to the specific question of whether the "capacity control" provision of the Ice Code was an acceptable method with which to carry out an agreed-upon policy which aims to regulate the flow of savings into new capital goods capable of producing artificial ice.

There were two schools of thought on this point. On the one hand, we had those who believed that regulation was best achieved by uncodified competition—the classical economic doctrine. This group argued that

any individual who wishes to go into the business of producing ice should be free to do so, regardless of whether the market in which he plans to sell his product is already adequately served by other producers or not. The rate of return on investment will act as sufficient regulation. If there is no profit to be made, the individual will not enter the business of producing ice. Or, if he enters it, and thinks that there is a profit to be made and finds that he is mistaken, he will retire either voluntarily or through bankruptcy.

Those opposed to this classical view—the economic planners—argued that if the classicists will admit that regulation of the flow of savings into investment is desirable, it can never be accomplished under a regime of uncodified competition. The reason, according to the planners, is that under uncodified competition effective regulation only takes place after investment through destruction of investment. The excess investment is eliminated through retirement of the excess capital goods from the business scene. This is not control of new investment at all, but control of total investment through destruction of excess investment. The excess saving has taken place, the excess investment has taken place, the excess capital goods have been purchased, the plant has started to operate, and then the investment in plant has been destroyed. Thus the objective of public policy, as we have stated it, has not been achieved, since capital goods have been thrown away before their capacity to produce has been exhausted, and in so far as capital has been unnecessarily accumulated and then destroyed, the standard of living has been lowered.

. . . . . .

. . . We had developed certain basic criteria which we attempted to apply to the consideration of the status of the industry in each market area where an application to construct additional production or storage facilities arose. These criteria were as follows:

1. Was there ample production capacity to meet the peak demand for fresh ice?
2. Was the manufacturing equipment modern and efficient?
3. Was the average annual load factor high enough to indicate economical use of available facilities?
4. Was the ratio of the values of total fixed assets in the area to total production comparable to that existing in other areas?
5. Was the price of ice at the plant reasonable?[1]
6. Was the price of ice delivered at the home reasonable?
7. Was the service to the community adequate, in the sense of ice being available at any hour, delivered to the home with speed and courtesy?

If the industry in a given market area could score 100% on an examination based upon these seven questions, it was fairly certain that public necessity and convenience did not require any additional production facilities.

. . . . . .

[1] "Reasonable" was construed to mean comparable to a possible minimum based upon cost studies.

In administering Article XI of the Ice Code we addressed ourselves to the problem of the economic usefulness of a particular investment. In seeking to restrain investments which appeared economically useless, we inevitably raised the question of whether a judgment could be reached which was sufficiently founded on factual evidence. It is my conviction that it was possible to secure such evidence in a sufficient number of instances to warrant continuation of the restrictive policy—and that in so far as this was possible a social purpose was served which is not served under a regime of unrestricted investment, particularly when it is my belief that the removal of governmental restrictions in the public interest will only promote the development of industry-imposed restrictions in the private interest.

At the request of the Editors of the *Review*, Mr. Straus offered certain comments upon the article on "Control of Production under the Ice Code," by Benjamin M. Parker, published in the Summer number of the *Review*. Extracts from these follow.

Mr. Parker is correct, in my opinion, in stating that:

(1) The cause of the inclusion of Article XI in the Ice Code was the desire of the industry to protect its investments.

(2) The administration of Article XI by the Code Authority was most unsatisfactory, since it sought to achieve the protection of existing investments without regard to the protection of the public.

(3) Article XI tended to create a monopoly in a given local area, in so far as it protected existing producers against the introduction of new producing capacity.

Mr. Parker, I believe, is incorrect when he states that:

(1) Because Article XI tended to create a monopoly it was therefore economically unsound.

(2) Because of the inactivity of the utility speculative promoters, the creation of unnecessary ice productive capacity will not take place. In my opinion, the ice machinery manufacturers will supply the necessary pressure towards overexpansion, and will succeed in saddling additional unnecessary investment upon an already much overexpanded industry.

I have agreed with Mr. Parker as to his analysis of what motivated the inclusion of Article XI in the Ice Code, and have also agreed that the Code Authority's influence upon the administration of the provision until NRA took over the conduct of the public hearings was most unsatisfactory. It was not, however, that "the smaller men in the industry were not satisfied with the Code Authority's persistent refusal to issue any certificates of public convenience and necessity" which led to the revision of administrative procedure that I have described. Actually, the complaints against the Code Authority's policy came chiefly from the manufacturers of ice machinery and, so far as they did not come from them, from ice distributors who wished to go into the production of ice, usually to create a nuisance value for their plant. But behind these efforts of the ice distributors there almost always lurked an ice machinery company that had no interest in selling ice machinery which would be used, provided that it was purchased.

During my administration of the Code, while I witnessed numerous attempts of entrenched interests to entrench further for purely selfish purposes, I also witnessed numerous attempts of the machinery manufacturers to sell machinery to entrepreneurs whose chief objective was to create a nuisance value for themselves. In one particular case a New York entrepreneur who had erected a 200-ton plant in the spring of 1933 and sold out at double the cost of his plant, after operating a few months, attempted to start all over again in the winter of 1935. After not one but numerous experiences of this *genre*, I cannot agree with Mr. Parker that "only the entrepreneur who has thoroughly studied the demands of his community now seeks admission to the ice industry. Therefore his judgment and faith, which cause him to choose to enter the ice industry, must be respected and honored."

APPENDIX C

The general underlying problem in this case is one on which many economists have expressed themselves. The following excerpts offer a range of views.[1]

Adam Smith, *The Wealth of Nations* (Everyman's Library Edition, New York, E. P. Dutton & Company, Inc., 1924), Vol. I, pp. 398, 399–401:

Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of the society, which he has in view. But the study of his own advantage naturally, or rather necessarily, leads him to prefer that employment which is most advantageous to the society.

. . . . . .

Secondly, every individual who employs his capital in the support of domestic industry, necessarily endeavours so to direct that industry that its produce may be of the greatest possible value.

The produce of industry is what it adds to the subject or materials upon which it is employed. In proportion as the value of this produce is great or small, so will likewise be the profits of the employer. But it is only for the sake of profit that any man employs a capital in the support of industry; and he will always, therefore, endeavour to employ it in the support of that industry of which the produce is likely to be of the greatest value, or to exchange for the greatest quantity either of money or of other goods.

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[1] These excerpts are reproduced by permission of the several publishers.

But the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry, or rather is precisely the same thing with that exchangeable value. As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it.

What is the species of domestic industry which his capital can employ, and of which the produce is likely to be of the greatest value, every individual, it is evident, can, in his local situation, judge much better than any statesman or lawgiver can do for him. The statesman who should attempt to direct private people in what manner they ought to employ their capitals would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no council or senate whatever, and which would nowhere be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it.

Richard T. Ely, *Outlines of Economics* (fifth revised edition, New York, The Macmillan Company, 1931), pp. 500–501:

One of the strongest arguments for the superiority of the competitive system over any possible substitute for it lies in the claim that, under competition, the guiding of production into the channels indicated by the search for money profits will result in the maximum satisfaction of human wants. This seems to follow from the fact that the prices people are willing to pay for different commodities measure the importance which they attach to the possession of those particular commodities. The shifting of labor and capital from less profitable to more profitable uses means, in general, that more intense wants will be satisfied with the same expenditure of productive energy. This argument, that under free competition the pursuit of money profits leads to the best adaptation of productive efforts to the satisfaction of the wants of consumers, is one that has rarely been squarely met by those who attack the competitive system. There are, however, several important considerations that lessen to some extent its force.

Thomas N. Carver, *Essays in Social Justice* (Cambridge, Harvard University Press, 1915), pp. 108–110:

At this point it is well to be on our guard against a common interpretation of Adam Smith's famous dictum regarding a beneficent order of nature under which the individual is led, "as by an invisible hand, to promote the public interest while trying to promote his own." Adam Smith saw clearly, as has every clear-headed student of the problem since his day, that under the competitive system, properly safeguarded, men are led by their self-interest to do many things which result in good to society. In fact it would not be difficult to show that, in the mass, most of the good and useful things that are done in any progressive community are done through self-interest. The few really good things which are done through pure altruism are so conspicuous because of their unfamiliarity, as to attract notice.

But it is a mistake to assume that this beneficent order of nature exists, or can possibly exist, in the absence of very careful and strict government supervision and interference. Government and government alone prevents competition from lapsing into the brutal struggle for existence, where self-interest leads to uneconomic as well as to economic, to destructive as well as to productive activity on the part of the individual. But where governmental interference is wisely and efficiently directed, so that men are not allowed to follow their self-interest in the direction of destructive, harmful, or uneconomic activities, they will still follow their self-interest. Since the only ways left open to them are the productive, useful, and economic activities, their self-interest impels them into these activities. Thus it is that, *under proper government interference and control*, men are led as by an invisible hand, to promote the public interest while trying to promote their own.

The perception of this great truth made a deep impression upon the minds of those philosophers who first grasped its significance. To them it seemed so beneficent as to become identified almost with the divine order of the universe. Therefore they were accustomed to regard it as the natural order of things. By a natural order of things, however, they did not mean a state of things which could exist where there was no government, much less a state of things which had ever existed in any primitive or idyllic community, but rather a state of things which seemed to fit so well into the universal scheme of things, cosmic and social, as to produce the maximum of harmony and the minimum of friction. From this point of view, their essential position has never been successfully assailed, though a different terminology has been substituted for theirs. Instead of calling it the natural order, we should now be content to say that it is the best and most workable scheme of economic organization that has ever been invented. In fact, it has not been *invented* at all, but is the result of a gradual adjustment to circumstances, meeting each situation with the best wisdom available.

Let it not be understood, however, merely because government supervision and control are necessary to the maintenance of the competitive system as distinguished from the unmitigated struggle for existence, that all government interference is, therefore, justifiable. Speaking broadly,

it would not be so very unsafe to say that government interference is almost as frequently harmful as beneficial. It is only when it is wisely planned that it can be justified. To be wisely planned is, essentially, to distinguish accurately between economic and uneconomic activities, and to suppress the latter efficiently.

D. H. Robertson, *The Control of Industry* (New York, Harcourt, Brace & Company, Inc., 1923), pp. 4–5:

When we take a first glance at modern industry with a view to discovering the method of its government, the first fact which strikes us would be startling, if it were not so familiar. It is that the most obvious economic problem which confronts the inhabitants of any country or of the world as a whole does not appear to be submitted to any deliberate or conscious decision at all. That problem is to determine how the limited natural resources of the community, its limited flow of savings, its limited equipment of human brains and hands, is to be allocated between the infinity of different uses in which they are capable of yielding a harvest of enjoyment. In the main this momentous decision is left to the operation of what are somewhat vaguely termed natural forces, acting through the desires and activities of disconnected individuals. The final arbiter is the scattered army of consumers, whose freely expressed preferences and aversions attract and repel the community's resources in this direction and in that. The immediate agent is the more compact but still very heterogeneous company of the leaders of business, who severally decide what shall be produced and in what quantities, in accordance with the evidence that reaches them of the desires of consumers. How Value or Price stands at the centre of this system, or lack of system, acting as finger-post or danger-signal to consumers and producers, and exercising a sway more absolute than that of an oriental emperor or Russian Commissary; how the use of Money in the main oils the wheels of the machine, and in detail often throws it out of gear; the merits and defects of the whole arrangement;—these things have been broadly discussed in the first two volumes of this series. In this volume we shall be concerned in the main with narrower issues—with the nature and composition of that company of immediate agents who direct the processes of business, none of them (in his business capacity at least) visualizing the economic problem of society as a whole, but each working in his own comparatively narrow field. But now and again, even in our study of what is, we shall become aware that various agencies—notably the powers of Finance and of the State—are sometimes more concerned than would at first sight appear with the major problem of industrial government—the proper allocation of society's resources between different uses and occupations; and when we enter the realm of speculation, we must not shut our eyes to attempts to deal with this larger issue as well as with the secondary matter of the actual conduct of individual branches of businesses.

E. CONCENTRATION OF ECONOMIC CONTROL

12. TEMPORARY NATIONAL ECONOMIC COMMITTEE (A)

INSTRUCTIONS AND SUGGESTIONS TO THE COMMITTEE

I

MESSAGE FROM THE PRESIDENT OF THE UNITED STATES TRANSMITTING RECOMMENDATIONS RELATIVE TO THE STRENGTHENING AND ENFORCEMENT OF ANTITRUST LAWS[1]

TO THE CONGRESS OF THE UNITED STATES:

Unhappy events abroad have retaught us two simple truths about the liberty of a democratic people.

The first truth is that the liberty of a democracy is not safe if the people tolerate the growth of private power to a point where it becomes stronger than their democratic state itself. That, in its essence, is fascism—ownership of government by an individual, by a group, or by any other controlling private power.

The second truth is that the liberty of a democracy is not safe if its business system does not provide employment and produce and distribute goods in such a way as to sustain an acceptable standard of living.

Both lessons hit home.

Among us today a concentration of private power without equal in history is growing.

This concentration is seriously impairing the economic effectiveness of private enterprise as a way of providing employment for labor and capital and as a way of assuring a more equitable distribution of income and earnings among the people of the Nation as a whole.

I. THE GROWING CONCENTRATION OF ECONOMIC POWER

Statistics of the Bureau of Internal Revenue reveal the following amazing figures for 1935:

Ownership of corporate assets: Of all corporations reporting from every part of the Nation, one-tenth of 1 per cent of them owned 52 per cent of the assets of all of them.

And to clinch the point: Of all corporations reporting, less than 5 per cent of them owned 87 per cent of all the assets of all of them.

Income and profits of corporations: Of all the corporations reporting from every part of the country, one-tenth of 1 per cent of them earned 50 per cent of the net income of all of them.

And to clinch the point: Of all the manufacturing corporations reporting, less than 4 per cent of them earned 84 per cent of all the net profits of all of them.

The statistical history of modern times proves that in times of depression concentration of business speeds up. Bigger business then has larger

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[1] *Investigation of Concentration of Economic Power. Letter from the Chairman of the Temporary National Economic Committee Transmitting a Preliminary Report Pursuant to Public Resolution No. 113.* Senate Document No. 95, Seventy-sixth Congress, First Session, pp. 27–36.

opportunity to grow still bigger at the expense of smaller competitors who are weakened by financial adversity.

The danger of this centralization in a handful of huge corporations is not reduced or eliminated, as is sometimes urged, by the wide public distribution of their securities. The mere number of security holders gives little clue to the size of their individual holdings or to their actual ability to have a voice in the management. In fact, the concentration of stock ownership of corporations in the hands of a tiny minority of the population matches the concentration of corporate assets.

The year 1929 was a banner year for distribution of stock ownership. But in that year three-tenths of 1 per cent of our population received 78% of the dividends reported by individuals. This has roughly the same effect as if, out of every 300 persons in our population, one person received 78 cents out of every dollar of corporate dividends while the other 299 persons divided up the other 22 cents between them.

The effect of this concentration is reflected in the distribution of national income.

A recent study by the National Resources Committee shows that in 1935–1936—

"Forty-seven per cent of all American families and single individuals living alone had incomes of less than $1,000 for the year; and at the other end of the ladder a little less than 1½ per cent of the Nation's families received incomes which in dollars and cents reached the same total as the incomes of the 47 per cent at the bottom."

Furthermore, to drive the point home, the Bureau of Internal Revenue reports that estate tax returns in 1936 show that—

"Thirty-three per cent of the property which was passed by inheritance was found in only 4 per cent of all the reporting estates. (And the figures of concentration would be far more impressive if we included all the smaller estates which, under the law, do not have to report.)"

We believe in a way of living in which political democracy and free private enterprise for profit should serve and protect each other—to insure a maximum of human liberty not for a few but for all.

It has been well said that, "The freest government, if it could exist, would not be long acceptable, if the tendency of the laws were to create a rapid accumulation of property in few hands, and to render the great mass of the population dependent and penniless."

Today many Americans ask the uneasy question: Is the vociferation that our liberties are in danger justified by the facts?

Today's answer on the part of average men and women in every part of the country is far more accurate than it would have been in 1929 for the very simple reason that during the past nine years we have been doing a lot of common-sense thinking. Their answer is that if there is that danger it comes from that concentrated private economic power which is struggling so hard to master our democratic government. It will not come, as some (by no means all) of the possessors of that private power would make the people believe—from our democratic government itself.

II. FINANCIAL CONTROL OVER INDUSTRY

Even these statistics I have cited do not measure the actual degree of concentration of control over American industry.

Close financial control, through interlocking spheres of influence over channels of investment, and through the use of financial devices like holding companies and strategic minority interests, creates close control of the business policies of enterprises which masquerade as independent units.

That heavy hand of integrated financial and management control lies upon large and strategic areas of American industry. The small-business man is unfortunately being driven into a less and less independent position in American life. You and I must admit that.

Private enterprise is ceasing to be free enterprise and is becoming a cluster of private collectivisms; masking itself as a system of free enterprise after the American model, it is in fact becoming a concealed cartel system after the European model.

We all want efficient industrial growth and the advantages of mass production. No one suggests that we return to the hand loom or hand forge. A series of processes involved in turning out a given manufactured product may well require one or more huge mass-production plants. Modern efficiency may call for this. But modern efficient mass production is not furthered by a central control which destroys competition between industrial plants each capable of efficient mass production while operating as separate units. Industrial efficiency does not have to mean industrial empire building.

And industrial empire building, unfortunately, has evolved into banker control of industry. We oppose that.

Such control does not offer safety for the investing public. Investment judgment requires the disinterested appraisal of other people's management. It becomes blurred and distorted if it is combined with the conflicting duty of controlling the management it is supposed to judge.

Interlocking financial controls have taken from American business much of its traditional virility, independence, adaptability, and daring—without compensating advantages. They have not given the stability they promised.

Business enterprise needs new vitality and the flexibility that comes from the diversified efforts, independent judgments and vibrant energies of thousands upon thousands of independent businessmen.

The individual must be encouraged to exercise his own judgment and to venture his own small savings, not in stock gambling but in new enterprise investment. Men will dare to compete against men but not against giants.

III. THE DECLINE OF COMPETITION AND ITS EFFECTS ON EMPLOYMENT

In output per man or machine we are the most efficient industrial nation on earth.

In the matter of complete mutual employment of capital and labor we are among the least efficient.

Our difficulties of employing labor and capital are not new. We have had them since good, free land gave out in the West at the turn of the century. They were old before we undertook changes in our tax policy or in our labor and social legislation. They were caused not by this legislation but by the same forces which caused the legislation. The

problem of bringing idle men and idle money together will not be solved by abandoning the forward steps we have taken to adjust the burdens of taxation more fairly and to attain social justice and security.

If you believe with me in private initiative, you must acknowledge the right of well-managed small business to expect to make reasonable profits. You must admit that the destruction of this opportunity follows concentration of control of any given industry into a small number of dominating corporations.

One of the primary causes of our present difficulties lies in the disappearance of price competition in many industrial fields, particularly in basic manufacture where concentrated economic power is most evident —and where rigid prices and fluctuating pay rolls are general.

Managed industrial prices mean fewer jobs. It is no accident that in industries like cement and steel where prices have remained firm in the face of a falling demand pay rolls have shrunk as much as 40% and 50% in recent months. Nor is it mere chance that in most competitive industries where prices adjust themselves quickly to falling demand, pay rolls and employment have been far better maintained. By prices we mean, of course, the prices of the finished articles and not the wages paid to workers.

When prices are privately managed at levels above those which would be determined by free competition, everybody pays.

The contractor pays more for materials; the homebuilder pays more for his house; the tenant pays more rent; and the worker pays in lost work.

Even the Government itself is unable, in a large range of materials, to obtain competitive bids. It is repeatedly confronted with bids identical to the last cent.

Our housing shortage is a perfect example of how ability to control prices interferes with the ability of private enterprise to fill the needs of the community and provide employment for capital and labor.

On the other hand, we have some lines of business, large and small, which are genuinely competitive. Often these competitive industries must buy their basic products from monopolistic industry, thus losing, and causing the public to lose, a large part of the benefit of their own competitive policy. Furthermore, in times of recession, the practices of monopolistic industries make it difficult for business or agriculture, which is competitive and which does not curtail production below normal needs, to find a market for its goods even at reduced prices. For at such times a large number of customers of agriculture and competitive industry are being thrown out of work by those noncompetitive industries which choose to hold their prices rather than to move their goods and to employ their workers.

If private enterprise left to its own devices becomes half-regimented and half-competitive, half-slave and half-free, as it is today, it obviously cannot adjust itself to meet the needs and the demands of the country.

Most complaints for violations of the antitrust laws are made by businessmen against other businessmen. Even the most monopolistic businessman disapproves of all monopolies but his own. We may smile at this as being just an example of human nature, but we cannot laugh away the fact that the combined effect of the monopolistic controls

which each business group imposes for its own benefit inevitably destroys the buying power of the Nation as a whole.

IV. COMPETITION DOES NOT MEAN EXPLOITATION

Competition, of course, like all other good things, can be carried to excess. Competition should not extend to fields where it has demonstrably bad social and economic consequences. The exploitation of child labor, the chiseling of workers' wages, the stretching of workers' hours, are not necessary, fair, or proper methods of competition. I have consistently urged a Federal wages-and-hours bill to take the minimum decencies of life for the working man and woman out of the field of competition.

It is of course necessary to operate the competitive system of free enterprise intelligently. In gaging the market for their wares businessmen, like the farmers, should be given all possible information by government and by their own associations so that they may act with knowledge and not on impulse. Serious problems of temporary overproduction can and should be avoided by disseminating information that will discourage the production of more goods than the current markets can possibly absorb or the accumulation of dangerously large inventories for which there is no obvious need.

It is, of course, necessary to encourage rises in the level of those competitive prices, such as agricultural prices, which must rise to put our price structure into more workable balance and make the debt burden more tolerable. Many such competitive prices are now too low.

It may at times be necessary to give special treatment to chronically sick industries which have deteriorated too far for natural revival, especially those which have a public or quasi-public character.

But generally over the field of industry and finance we must revive and strengthen competition if we wish to preserve and make workable our traditional system of free private enterprise.

The justification of private profit is private risk. We cannot safely make America safe for the businessman who does not want to take the burdens and risks of being a businessman.

V. THE CHOICE BEFORE US

Examination of methods of conducting and controlling private enterprise which keep it from furnishing jobs or income or opportunity for one-third of the population is long overdue on the part of those who sincerely want to preserve the system of private enterprise for profit.

No people, least of all a democratic people, will be content to go without work or to accept some standard of living which obviously and woefully falls short of their capacity to produce. No people, least of all a people with our traditions of personal liberty, will endure the slow erosion of opportunity for the common man, the oppressive sense of helplessness under the domination of a few, which are overshadowing our whole economic life.

A discerning magazine of business has editorially pointed out that big-business collectivism in industry compels an ultimate collectivism in government.

The power of a few to manage the economic life of the Nation must be diffused among the many or be transferred to the public and its democratically responsible government. If prices are to be managed and administered, if the Nation's business is to be allotted by plan and not by competition, that power should not be vested in any private group or cartel, however benevolent its professions profess to be.

Those people, in and out of the halls of government, who encourage the growing restriction of competition either by active efforts or by passive resistance to sincere attempts to change the trend, are shouldering a terrific responsibility. Consciously or unconsciously they are working for centralized business and financial control. Consciously or unconsciously they are therefore either working for control of the Government itself by business and finance or the other alternative—a growing concentration of public power in the Government to cope with such concentration of private power.

The enforcement of free competition is the least regulation business can expect.

VI. A PROGRAM

The traditional approach to the problems I have discussed has been through the antitrust laws. That approach we do not propose to abandon. On the contrary, although we must recognize the inadequacies of the existing laws, we seek to enforce them so that the public shall not be deprived of such protection as they afford. To enforce them properly requires thorough investigation not only to discover such violations as may exist but to avoid hit-and-miss prosecutions harmful to business and government alike. To provide for the proper and fair enforcement of the existing antitrust laws I shall submit, through the Budget, recommendations for a deficiency appropriation of $200,000 for the Department of Justice.

But the existing antitrust laws are inadequate—most importantly because of new financial economic conditions with which they are powerless to cope.

The Sherman Act was passed nearly 40 years ago. The Clayton and Federal Trade Commission Acts were passed over 20 years ago. We have had considerable experience under those acts. In the meantime we have had a chance to observe the practical operation of large-scale industry and to learn many things about the competitive system which we did not know in those days.

We have witnessed the merging-out of effective competition in many fields of enterprise. We have learned that the so-called competitive system works differently in an industry where there are many independent units from the way it works in an industry where a few large producers dominate the market.

We have also learned that a realistic system of business regulation has to reach more than consciously immoral acts. The community is interested in economic results. It must be protected from economic as well as moral wrongs. We must find practical controls over blind economic forces as well as over blindly selfish men.

Government can deal and should deal with blindly selfish men. But that is a comparatively small part—the easier part—of our problem. The larger, more important and more difficult part of our problem is to deal with men who are not selfish and who are good citizens, but who cannot see the social and economic consequences of their actions in a modern economically interdependent community. They fail to grasp the significance of some of our most vital social and economic problems because they see them only in the light of their own personal experience and not in perspective with the experience of other men and other industries. They therefore fail to see these problems for the Nation as a whole.

To meet the situation I have described, there should be a thorough study of the concentration of economic power in American industry and the effect of that concentration upon the decline of competition. There should be an examination of the existing price system and the price policies of industry to determine their effect upon the general level of trade, upon employment, upon long-term profits, and upon consumption. The study should not be confined to the traditional antitrust field. The effects of tax, patent, and other Government policies cannot be ignored.

The study should be comprehensive and adequately financed. I recommend an appropriation of not less than $500,000 for the conduct of such comprehensive study by the Federal Trade Commission, the Department of Justice, the Securities and Exchange Commission, and such other agencies of government as have special experience in various phases of the inquiry.

I enumerate some of the items that should be embraced in the proposed study. The items are not intended to be all-inclusive. One or two of the items, such as bank holding companies and investment trusts, have already been the subject of special study, and legislation concerning these need not be delayed.

(1) **Improvement of Antitrust Procedure.** A revision of the existing antitrust laws should make them susceptible of practical enforcement by casting upon those charged with violations the burden of proving facts peculiarly within their knowledge. Proof by the Government of identical bids, uniform price increases, price leadership, higher domestic than export prices, or other specified price rigidities might be accepted as prima facie evidence of unlawful actions.

The Department of Justice and the Federal Trade Commission should be given more adequate and effective power to investigate whenever there is reason to believe that conditions exist or practices prevail which violate the provisions or defeat the objectives of the antitrust laws. If investigation reveals border-line cases where legitimate cooperative efforts to eliminate socially and economically harmful methods of competition in particular industries are thwarted by fear of possible technical violations of the antitrust laws, remedial legislation should be considered.

As a really effective deterrent to personal wrong-doing, I would suggest that where a corporation is enjoined from violating the law, the court might be empowered to enjoin the corporation for a specified period of time from giving any remunerative employment or any official position to any person who has been found to bear a responsibility for the wrongful corporate action.

As a further deterrent to corporate wrong-doing the Government might well be authorized to withhold Government purchases from companies guilty of unfair or monopolistic practice.

(2) **Mergers and Interlocking Relationship.** More rigid scrutiny through the Federal Trade Commission and the Securities and Exchange Commission of corporate mergers, consolidations, and acquisitions than that now provided by the Clayton Act to prevent their consummation when not clearly in the public interest; more effective methods for breaking up interlocking relationships and like devices for bestowing business by favor.

(3) **Financial Controls.** The operations of financial institutions should be directed to serve the interests of independent business and restricted against abuses which promote concentrations of power over American industry.

(*a*) *Investment Trusts.* Investment trusts should be brought under strict control to insure their operations in the interests of their investors rather than of their managers. The Securities and Exchange Commission is to make a report to Congress on the results of a comprehensive study of investment trusts and their operations which it has carried on for nearly 2 years. The investment trust, like the holding company, puts huge aggregations of the capital of the public at the direction of a few managers. Unless properly restricted, it has potentialities of abuse second only to the holding company as a device for the further centralization of control over American industry and American finance.

The tremendous investment funds controlled by our great insurance companies have a certain kinship to investment trusts, in that these companies invest as trustees the savings of millions of our people. The Securities and Exchange Commission should be authorized to make an investigation of the facts relating to these investments with particular relation to their use as an instrument of economic power.

(*b*) *Bank Holding Companies.* It is hardly necessary to point out the great economic power that might be wielded by a group which may succeed in acquiring domination over banking resources in any considerable area of the country. That power becomes particularly dangerous when it is exercised from a distance and notably so when effective control is maintained without the responsibilities of complete ownership.

We have seen the multiplied evils which have arisen from the holding company system in the case of public utilities, where a small minority ownership has been able to dominate a far-flung system.

We do not want those evils repeated in the banking field, and we should take steps now to see that they are not.

It is not a sufficient assurance against the future to say that no great evil has yet resulted from holding company operations in this field. The possibilities of great harm are inherent in the situation.

I recommend that the Congress enact at this session legislation that will effectively control the operation of bank holding companies; prevent holding companies from acquiring control of any more banks, directly or indirectly; prevent banks controlled by holding companies from establishing any more branches; and make it illegal for a holding company, or any corporation or enterprise in which it is financially interested, to borrow from or sell securities to a bank in which it holds stock.

I recommend that this bank legislation make provision for the gradual separation of banks from holding company control or ownership, allowing a reasonable time for this accomplishment—time enough for it to be done in an orderly manner and without causing inconvenience to communities served by holding company banks.

(4) **Trade Associations.** Supervision and effective publicity of the activities of trade associations, and a clarification and delineation of their legitimate spheres of activity which will enable them to combat unfair methods of competition, but which will guard against their interference with legitimate competitive practices.

(5) **Patent Laws.** Amendment of the patent laws to prevent their use to suppress inventions, and to create industrial monopolies. Of course, such amendment should not deprive the inventor of his royalty rights; but, generally speaking, future patents might be made available for use by anyone upon payment of appropriate royalties. Open patent pools have voluntarily been put into effect in a number of important industries with wholesome results.

(6) **Tax Correctives.** Tax policies should be devised to give affirmative encouragement to competitive enterprise.

Attention might be directed to increasing the intercorporate dividend tax to discourage holding companies and to further graduating the corporation income tax according to size. The graduated tax need not be so high as to make bigness impracticable, but might be high enough to make bigness demonstrate its alleged superior efficiency.

We have heard much about the undistributed profits tax. When it was enacted two years ago, its objective was known to be closely related to the problem of concentrated economic power and a free capital market.

Its purpose was not only to prevent individuals whose incomes were taxable in the higher surtax brackets from escaping personal income taxes by letting their profits be accumulated as corporate surplus. Its purpose was also to encourage the distribution of corporate profits so that the individual recipients could freely determine where they would reinvest in a free capital market.

It is true that the form of the 1936 tax worked a hardship on many of the smaller corporations. Many months ago I recommended that these inequities be removed.

But in the process of the removal of inequities, we must not lose sight of original objectives. Obviously the nation must have some deterrent against special privileges enjoyed by an exceedingly small group of individuals under the form of the laws prior to 1936, whether such deterrent take the form of an undistributed profits tax or some other equally or more efficient method. And obviously an undistributed profits tax has a real value in working against a further concentration of economic power and in favor of a freer capital market.

(7) **Bureau of Industrial Economics.** Creation of a Bureau of Industrial Economics which should be endowed with adequate powers to supplement and supervise the collection of industrial statistics by trade associations. Such a bureau should perform for businessmen functions similar to those performed for the farmers by the Bureau of Agricultural Economics.

It should disseminate current statistical and other information regarding market conditions and be in a position to warn against the dangers of temporary overproduction and excessive inventories as well as against the dangers of shortages and bottleneck conditions and to encourage the maintenance of orderly markets. It should study trade fluctuations, credit facilities, and other conditions which affect the welfare of the average businessman. It should be able to help small-business men to keep themselves as well informed about trade conditions as their big competitors.

No man of good faith will misinterpret these proposals. They derive from the oldest American traditions. Concentration of economic power in the few and the resulting unemployment of labor and capital are inescapable problems for a modern "private enterprise" democracy. I do not believe that we are so lacking in stability that we will lose faith in our own way of living just because we seek to find out how to make that way of living work more effectively.

This program should appeal to the honest common sense of every independent businessman interested primarily in running his own business at a profit rather than in controlling the business of other men.

It is not intended as the beginning of any ill-considered "trust-busting" activity which lacks proper consideration for economic results.

It is a program to preserve private enterprise for profit by keeping it free enough to be able to utilize all our resources of capital and labor at a profit.

It is a program whose basic purpose is to stop the progress of collectivism in business and turn business back to the democratic competitive order.

It is a program whose basic thesis is not that the system of free private enterprise for profit has failed in this generation, but that it has not yet been tried.

Once it is realized that business monopoly in America paralyzes the system of free enterprise on which it is grafted, and is as fatal to those who manipulate it as to the people who suffer beneath its impositions, action by the Government to eliminate these artificial restraints will be welcomed by industry throughout the Nation.

For idle factories and idle workers profit no man.

FRANKLIN D. ROOSEVELT.

The White House, *April 29, 1938.*

II

INVESTIGATION OF BUSINESS ORGANIZATIONS AND PRACTICES[1]

I. INTRODUCTION

1. General Objectives. The investigation of business organization and practices (frequently called investigation of monopolies) should be essentially a search to find an organization of business that actually works.

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[1] Excerpts from memorandum prepared by A. A. Berle, Jr., for the Temporary National Economic Committee. Reprinted, by permission, from *Plan Age*, Vol. IV, No. 7, September, 1938.

Economic organization may be roughly tested by the following:

(*a*) Does it provide an adequate supply of goods as tested by the normal market? As tested by the apparent need?

(*b*) Does it provide a maximum number of people with an opportunity to make a living under this process—a life under this process—conceived as conditions under which people can live, maintain families, expect to continue in the economic system and end this side of the relief line or the poor house?

(*c*) Does it accomplish this process with due regard for the liberty and self-government of the individual?

One result ought to be something in the nature of a triple income statement for the industrial system; the income statement being:

(*a*) A statement of production—set against distribution and need.

(*b*) A statement of employment and wages, set against the number of people who may reasonably be entitled to expect to support themselves in the industry.

(*c*) A commercial statement of profit and loss.

Such an approach will at least indicate the major successes or, more often, the failures resulting from the existing industrial system. At least, it will end certain illusions which now confuse national thinking. We know in advance that the present productivity of industry, which is so highly regarded and so often praised, is not, in fact, sufficient to meet the aggregate of "legitimate claims" made against it by labor, by consumers, possibly also by investors, in many instances. But this fact is rarely appreciated.

2. Some Unwarranted Assumptions. All previous investigations of this kind have commonly commenced with a set of preconceptions. There is reason to believe that the present investigation may be in danger of doing the same thing. It is appropriate to note a few of them.

a. Small Business Is Not Necessarily Competitive. There is a tendency to idealize the early nineteenth century and to assume that small business and the prices it charged were the result of competition. As far as I am able to see, there is little, if any, foundation for this. The village grocery store, the village blacksmith, the village grist mill, were all monopolies. Until the advent of the automobile, they charged conventional prices or administered prices which were not elastic. The people of the village could not go many miles to the next town. In a large measure this is still true in small towns. Such competition as there has been, curiously enough, came from large scale enterprise; mail-order houses, and later the chain stores. The theory that prices were adjusted by competition under the old small scale production in small towns, as far as I can see, simply never was generally true, despite some nostalgic reminiscences which are indulged in today.

b. Small Business Is by No Means Necessarily Humane. There was actually competition on a wide scale in large centers between small businesses. But there is no point in idealizing this, though, to some extent, it produced desirable results from the point of view of price and distribution. The type of competition in small business is more nearly the New York "sweat shop" in the garment trade; and the elimination of the "sweat shop," as such, while it considerably improved the lot of the

workers, has not produced units which stand out as monuments to a desirable social system. Actually, high speed competition by small units is as likely as not to produce, through sheer economic pressure, conditions that are undesirable, if not cruel; undesirable because there is constant attempt to meet the competition by depreciating the quality, as well as the price; cruel because labor or the shop masters (who are to all intents and purposes a section of the laboring class) are either exploited or forced to exploit themselves. I am by no means clear that the existence of a large number of half-starved contracting garment shop owners (usually laborers who try to go it independently) may not be only slightly less antisocial than the old "sweat shops." If the first was an open scandal, the second is certainly not pretty to look at.

Where there is no competition, the small scale unit may or may not be a creditable piece of social machinery, depending entirely on the character of the men who run it. Actually, the village monopolist, the exploiting grocery store owner, who was also the money-lender, is a perfectly familiar type. He must be set as a liability alongside of similar proprietors who are assets to the community, in that they handle the store, their cash, and their credit relations so as to try to develop the town and make a living easier for everyone.

The principal advantage of small business lay in the fact that public opinion, social pressure, and the like could be brought to bear on the small owner to the general advantage of the community. It cannot be brought to bear on the absentee owner, the chain store proprietor, the mill owner, who is as dominant a factor in the community, et cetera.

c. Efficiency of Size. There are two distinct preconceptions which cancel each other. One of them is that large scale enterprise is more efficient; the second is that it is, by hypothesis, less efficient as it grows.

I see no reason for indulging either preconception. The only solid factor about it is that pointed out by Mr. Brandeis on many occasions, namely, that a large scale enterprise will frequently and easily outrun the moral and mental stature of the man or men who direct it.

Aside from that point, the fallacy lies in the undefined use of the word "efficiency." An enterprise large enough to mesh with the financial machinery, including the Stock Exchange and commercial banks, is certainly more efficient, so far as obtaining capital goes, than a small scale enterprise. This is true even if it is less effective technically. It may be in a better position to meet legitimate claims of labor (most labor union people seem to think so), though I am by no means clear that this is generally true.

As to straight technical or mechanical effectiveness, there is presumably an optimum size. No one knows in respect to any industry what this optimum size is. Further, the optimum size will change overnight with the development of a new method or process or set of machinery.

The claimed effectiveness of a unit in finance or production may be completely neutralized, despite its ability to produce, if it is unable to bring its production towards a known demand.

The difficulty with this line of preconception is that a standard of approach has yet to be set. It is familiarly insisted that the old-fashioned farm was an inefficient unit. Yet if, besides the assumed cost of produc-

tion, there were taken into account the continuity of employment, the ability to use energies of adolescents and of old people, the ability to take care of sickness and give some scope for individual creation and the like, it might prove that, if the same factors were applied to a large scale plant, the old-fashioned farm was one of the most effective units known. Put differently, a highly efficient plant, according to modern ideas, may merely mean a plant which has succeeded in unloading the maximum possible amount of obligations on the community, to be handled socially. Perhaps it has passed on some of the advantages of this escape from obligation to the consumer in the form of price; leaving the State to collect the rest in the form of taxes.

d. Efficiency in Meeting Need. The major argument in favor of large scale industry has been that it did raise the standard of living, which, reduced to understandable terms, meant that it stimulated want for many goods and services, produced a great many goods and supplies and got those goods and supplies, on the whole, very widely distributed. I see no reason for indulging this preconception.

A clear distinction ought to be made between what people want and what they need. It is legitimate criticism of such studies as have been made by Stuart Chase that they take as a starting point, not what people *want*, but what an impartial commentator thinks they *ought* to want. In New York, it is probably true that milk can be laid down at distributing stations, like chain stores, for 7 cents a quart, but that, if it is delivered in bottles, the cost will be not less than 11 or 12 cents. People ought to want 7-cent milk and be prepared to go around the corner every morning to get it. They actually do want it put on the doorstep.

It probably is true that, without advertising, people would not want the number of things they want today. It does not follow that the standard of living would diminish if they stopped wanting cigarettes or canned soups or cosmetics or a new car every two years. The debate on this point really involves a philosophical assumption, namely, what is the "good life"? That discussion started, or rather reached a high point, in the time of Socrates, and no one has resolved it yet.

Nevertheless, because discussions have to start somewhere, the only practicable method of handling an investigation of the industrial system today is to assume that people are entitled to want what they actually do want; and to define economic efficiency as giving people what they want. Anything else involves deciding (and ultimately trying to tell people) what they ought to want, which becomes tyranny pure and simple.

Summarizing these observations, it seems to me that:

First, the general scope of the investigation ought to be a search for an organization of business that actually works;

Second, the standard must be whether it supplies the existing and developing wants of the people as they appear;

Third, that this involves the provision of an adequate supply of goods;

Fourth, and a distribution system that takes these goods towards known wants to the maximum degree possible;

Fifth, that the system must provide a maximum number of people with means of satisfying those wants through a contribution to the system;

Sixth, that the system must provide the people engaged in the process with a manner of life, which at least tends to satisfy a fair proportion of their wants;

Seventh, the system must evolve a method of organization that does not interfere unduly, actually or potentially, with the liberty of the individual; i.e., that its controls must release more individuality than they suppress;

Eighth, that there is no need to assume that these tests will be met by any single system or any single standard of size or set of practices at any given point.

As a final point, I note that, whenever a situation appears, it is always wise to attack it with the realization that there is a real reason for it. Habits, in a large country, do not emerge by chance. The reason may not be a good reason or may have ceased to be valid. The habit may be a bad habit. But there is always a reason, with which we may intellectually disagree, but which cannot be disregarded as a social force. Mere interruption of habits and social machinery means nothing unless an equivalent or better machinery is simultaneously provided or suggested.

. . . . . .

V. NATIONAL CONCENTRATION OF POWER

I presume some attention will be given to the problem of the concentration of power. This ought not to be confused with concentration of property or ownership. These are two different problems. I have not been able to get up any intellectual respect for books like Lundberg's "Sixty Families" (leaving aside the fact that it was extremely inaccurate) because property is one thing and power is another. Concentration of power in New York or Boston has nothing whatever to do with the private fortunes of individuals. The Van Sweringens were no less powerful at the end of their lives, when they were bankrupt, than they were in midstream, when they had between them a fortune worth on paper two or three hundred million.

A study of concentration of property interests and of income would be interesting, but probably would prove nothing except the existence of a property owning class. By the time it was discovered that one hundred thousand individuals owned a considerable percentage of the national income, it would also be discovered that most of these individuals had very little to say about what actually was being done. There may be strictly social reasons for having no individuals with large incomes, though I rather doubt this; but such reasons have little to do with industrial organization. Powerful individuals in industry may have large incomes; or they may not. There is no particular connection between the two facts.

The methods of control are well known. The most obvious of them are listed here purely for convenience: Ownership; Joint ownership with others; Ownership of voting stock; Ownership of controlling voting minority; Ownership of a special class of stock overweighed as to vote; Pyramided holding corporations; Interlocking directorates; Interlocking marketing agreements; Unity of financial group control; Control through short term credit; Control through patent licenses and price restrictions;

Control through being a principal customer; Control through monopoly of a necessary raw material, e.g., rayon, et cetera.

No accurate definition of control has ever been made. It is impossible to describe the process. In a good many cases the results would be fantastic in the extreme. I have a good working knowledge of how the firm of J. P. Morgan and Company "controls" the Guaranty Trust Company. They have no legal control of any kind. There is nothing to prevent the Board of Directors from doing anything it pleases. Yet at various intervals in the life of the Guaranty Trust Company it has been in difficulties and on each occasion it has applied to Morgan and Company for assistance and got it. By consequence, they not unnaturally seek and generally, though not always, follow the advice of Morgan. There is nothing necessarily vicious in this. It was frequently good advice from the strict banking point of view. Certainly it was good ethics in the 1921 incident. But it does create the problem of power. There is no way of changing that relationship unless and until some system of capital banking is evolved, whereby the Guaranty Trust Company can look for help in time of trouble to someone other than the private interests.

I have observed that the concentration of power is more likely to come from unity of interest than from any legal device. This seems almost beyond legal control. You cannot prevent men whose interests are about the same, and whose minds run along similar lines, from doing about the same thing at about the same time.

It seems to me that one important line of study is that of industrial geography. The Aluminum Company has preempted certain great areas in the United States through its alliances with the power companies. In this connection, let me say that it would be an assistance to the State Department if more were known about the alliance between that Company and the Niagara-Hudson and that Company and the Canadian power interests than is known today. We know the result well enough. No industry can buy power in the St. Lawrence area without making terms with that particular group of interests.

Very much the same thing is true in the rayon industry. Here there is practical control, through the control of the supply, over knitting and weaving of rayon. That, I understand, is one of the few country-wide "blankets," sharing distinction with the block booking in the movie industry, and, until recently, the "follow the leader" steel price policy.

There is even more importance in knowing why those things happen than that they happen. I think it would be found that the real desire to monopolize the market, either directly or through alliances, is less an anxiety to make huge profits than a desire to be sure that the concern will continue to exist. As to results, one might compare the steel industry with the highly competitive textile industry and, when the comparison is finished, ask whether the country would be materially better off if steel production were to follow the pattern of the textile mills.

For it must be considered that competition in large scale industry does not produce results as it does in small scale industry; that it does not drive the least efficient producer out of existence. It drives the least efficient producer into bankruptcy, whereupon someone buys the enterprise for a song; he can charge a lower price because he has no fixed charges to pay

for his capital; he can then bankrupt the next most inefficient producer; et cetera. Only when the entire industry has been bankrupt and competition is reduced to the basis of their operating profits does the condition arise in which any unit in the industry goes out of business. The economic law of competition works, no doubt; but the time taken for it to work is so long that we have not completed any cycle of that process yet; though it is just beginning to be completed in the sugar production industry and perhaps in the textile industry.

My point is merely that it by no means follows that some concentration of power may not be desirable in certain industries. I am by no means clear that, in some situations, the controlled cartel may not liberate individuals in the industry a good deal more than uncontrolled competition.

VI. EVALUATION OF THE JOB DONE

My hope is that the investigation of each industry will wind up with an evaluation of the job done by that industry, rather than, as in the case of previous antitrust investigations, an assumption that any particular form is or is not wicked. As I see it, the real question is whether a good job is being done from all points of view. In the introductory note a suggestion was made as to a triple balance sheet, which would serve as some test. More specific headings as to which one would like to have an estimate are these:

a. The Amount of Employment. Wage scale—hourly and annual; regularity of employment; conditions of employment.

b. The Output. Actually marketed; apparently needed.

c. The Price. Price is merely a method of distribution; to what extent does it work?

d. The Waste in the Process of Production and Distribution. This last factor can be roughly measured by the direct costs (e.g., cost of the raw material and the direct cost of labor) set against the price to the consumer. Unless this difference shows up in terms of net paid out profits or accumulated surplus, it goes to individuals who lie between the producer and the consumer. These individuals find their means of making a living through just this process. In a sense, waste is a form of taxation of the consumer for the benefit of a set of people in between, who have to be taken care of somehow; the elimination of waste means, of necessity, finding some useful form of outlet for the people displaced.

e. The Profit or Loss. From a commercial point of view, the job is evaluated, at least partially, by profits or losses. The results of any audit of the entire industry are likely to be surprising. It has been said that the oil industry, for instance, works at a net loss in any given year, though, of course, some units make very large profits. In this aspect operating profits only are important; the distortion of them by the financial structure is a relatively minor element. The operating profits indicate what the financial structure could be or ought to be.

f. Improvement of the Art. Any fair evaluation of any industrial process must include a study of the speed and soundness with which it has evolved. If it be assumed that there is virtue in improvement of the process, as such, that degree of improvement is worth noting.

I am not altogether clear that mere swift improvement is desirable in itself. Certainly it is not unless the results are promptly passed on to the consumer and all costs involved in it are taken care of. For instance, the evolution of labor saving machinery may lower the cost of production. It may also throw a great many people out of work. The cost of reestablishing the people thrown out is thrown off on the community; except as savings of men involved may be used up. In this sense, as things now stand, much of the cost of the improvement of any art is paid for, not by the industry, but by other people financially less able to bear it.

The problem is whether it is socially more desirable to have rapidly developing technique in industry, irrespective of who is hurt in the process, or whether it is better to have a regulated technique.

Highly competitive development tends towards the first process, a cartelized form at least affords the possibility of the second.

g. Life Created. I am unable to think of any audit of an industry without thinking of what happens to the people engaged in it.

The automobile industry is highly successful from the point of view of production. But the life history of an automobile worker might tell a wholly different story. Certainly, without some general notion of what the industry does to its people, we have no method of appraising whether the industry is a good thing or a bad thing for the country as a whole—"good" and "bad" being determined by the general average of the health and happiness of the largest number of people.

VII. CLAIMS AGAINST INDUSTRY

If the system in any industry is to be judged by its effects, some audit has to be made of the effects which apparently are desired. Another way of putting this is that some examination ought to be made of what the industry is expected to do.

There are four main claims which are being advanced:

a. The Claim of the Consumer for the Product. This is a claim for all goods or supplies which may be needed. This is not limited merely to all goods and supplies which can be paid for commercially. A low price naturally increases the ability of goods and supplies to travel towards need; a higher price impedes this. To this extent price is important: price is the method by which goods move from production toward need. It is, so far as I can see, the only reason why price has any importance at all. But there may be noncommercial ways of getting goods towards need, e.g., relief purchases, surplus commodity distribution, community use, et cetera, which in greater or less degree cut under the price system.

b. The Claim of Labor. For continuous work at an adequate rate of pay, labor organizations are establishing their claim almost entirely in terms of hourly wage rates and hours of labor. I think this is probably short-sighted; it would be more consonant with what they perhaps really want if the claim were advanced in terms of annual income and permanency of jobs, plus pensions and sick relief. Nevertheless, it ought to be possible to get some clear statement as to what the labor organizations really are steering for.

c. The Claim of Capital for a Return. This is historic; it involves some idea of the reward or hope which has to be held out to induce investment

of capital. Since most investment is at least partially risk-bearing, this would be interest plus a premium for risk.

d. The Claim of Management. This claim has never been stated and no one knows what it is. Management wants pay, of course, but it also wants prestige, power, et cetera. In a word, it wants very much what most politicians and people in Government want.

One of the most important things that the investigation can do is to serve as a forum in which these various claims can be stated. If, industry by industry, there are certain sessions set aside at which each group can lay out what it expects the industry under investigation to do for it, we shall have brought the discussion measurably forward. This would clear the air in the whole field of labor; likewise in the whole investment field; and it is possible we might even get some more or less rational ideas as to what is expected of an industry in dealing with the public. The public would be represented generally by the immediate customers of the industry; at all events, I can think of no other way of getting an intelligent statement of position.

III

Letter from President Roosevelt to Senator O'Mahoney, Chairman of the Temporary National Economic Committee, Dated May 16, 1939[1]

Dear Joe:

In my message to the Congress initiating the work of the Temporary National Economic Committee, I had occasion to say that idle factories and idle workers profit no man. It may equally be said that idle dollars profit no man. The present phase of the hearings before the Committee bears directly upon this problem.

It is a matter of common knowledge that the dollars which the American people save each year are not yet finding their way back into productive enterprise in sufficient volume to keep our economic machine turning over at the rate required to bring about full employment. We have mastered the technique of creating necessary credit; we have now to deal with the problem of assuring its full use.

In the series of hearings which the Securities & Exchange Commission is to hold before your Committee, I take it that a major problem of your Committee will be to ascertain why a large part of our vast reservoir of money and savings have remained idle in stagnant pools.

Is it because our economy is leaving an era of rapid expansion and entering an era of steadier growth, calling for relatively less investment in capital goods?

Is it because of lag, leak, and friction in the operation of investment markets which pervert the normal flow of savings into nonproductive enterprise?

These are questions for your Committee to answer.

I know of no more urgent ones in the country today.

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[1] *Verbatim Record of the Proceedings of the Temporary National Economic Committee* (Washington, Bureau of National Affairs, 1939), Vol. 3, pp. 347–348.

The hearings before your Committee, I hope, will assume the task of analyzing the financial machine in its relation to the creation of more needed wealth. We know that the mechanism can be improved. Improvement can only be made on a basis of clear analysis. Having made that analysis, I hope that your Committee will then be able to indicate ways by which the machine may be made to function more efficiently.

We have an immense amount of wealth which needs to be created in this country. Much of it can be created through private enterprise. Some of it can properly be created through quasi-public agencies. The problem is to use our added savings and increased credit to get this wealth moving, that is, to get it now in productive enterprises; and, at the same time, to make savings available for use in all categories of private enterprise, as well as for the great and recognized enterprises which can command capital, but have less actual need of capital than many smaller but equally deserving enterprises. There is also the problem of determining how credit can best be made available for instrumentalities of local government and for those quasi-public enterprises which must do the work which cannot be done by private enterprise.

We have developed several methods of connecting money with men and materials so as to get useful work done. We shall need to use all of these opportunities, or, if you choose to put it differently, we must meet all of the demands made on our system, if we are to have lasting prosperity. It is our task to find and energetically adopt those specific measures which will bring together idle men, machines, and money. In proportion as we succeed, we shall strengthen the structure of democratic economy.

Very sincerely yours,
(Signed) FRANKLIN D. ROOSEVELT.

13. TEMPORARY NATIONAL ECONOMIC COMMITTEE (B)

MEMORANDUM FOR A LARGE CORPORATION

In the latter part of 1938, anticipating that the industry in which their company was engaged might come under examination by the Temporary National Economic Committee, the executives of a large American corporation asked a group of economists to prepare a memorandum in regard to the underlying ideas and objectives of the T.N.E.C. inquiry. The following was the memorandum submitted:

INTRODUCTION

The purpose of this memorandum is to describe the main lines of attack on which we believe the T.N.E.C. investigation is likely to proceed.

This investigation differs from preceding investigations in certain important respects:

(1) The inquiry is not undertaken primarily to uncover wrongdoing.

(2) It is conducted largely by government bureaus and their attached economists; and the bureaus are interested in increasing their scope of

activity and the size of their appropriations in order that they may undertake to remold American economic life.

(3) It is based largely on an economic philosophy which is unfamiliar to most businessmen.

(4) The attack, being to a considerable degree theoretical, must be met principally upon ground of the attackers' choosing.

For these reasons, this memorandum undertakes to present the theories underlying the main lines of attack at considerable length. Another reason for a full treatment is that in one form or another the ideas which underlie the present T.N.E.C. investigation clearly will make their effect felt in American political life for some time to come, irrespective of the duration or outcome of the present investigation.

The monopoly inquiry embraces a variety of different lines of interest. To some extent, these different interests reflect the different objectives, opinions, and ideas of individuals in Washington connected directly with the T.N.E.C. and people associated generally with the New Deal. Also inevitably these different lines of interest and consequent different possible lines of investigation reflect various kinds of grievances, real or fancied, in regard to the workings of the business and industrial system of the United States—grievances many of which from time to time have been brought to the attention of various bodies in Washington, including the Department of Justice and the Federal Trade Commission.

These several lines of approach may be divided into four major groups:

I. Monopoly in the Old-Fashioned Economic Sense
II. Injury to Other Businesses
III. Monopolistic Competition
IV. Concentration of Economic Control

This classification should not be taken as implying that these groups are mutually exclusive. On the contrary, the border lines are frequently somewhat shadowy. Nevertheless these represent four possible spearheads of attack. Furthermore, it is worth bearing in mind that the points of view and the general theoretical considerations underlying these several groups are not in all instances mutually compatible. Of these four lines of attack, monopolistic competition is by all odds the most important and consequently receives major attention in this memorandum.

In the following pages each of these four groups is discussed under the headings: (A) Underlying Theory, (B) Possible Government Objectives. Generally, emphasis is placed principally on (A) Underlying Theory, and to a lesser extent on (B) Possible Government Objectives.

I. MONOPOLY IN THE OLD-FASHIONED ECONOMIC SENSE

A. Underlying Theory. The older use of the term "monopoly" by economists is to describe a situation where all or a very large part of the supply of a particular good is under single or unified control. This is the kind of monopoly against which the Sherman Antitrust Act and the Clayton Act were primarily directed. The prohibitions of these acts run in general against industrial combinations or collusive action on the part of a number of companies for the purpose of restricting production, maintaining prices, or keeping stocks of goods in strong hands. Many econ-

omists, particularly the so-called New Deal economists, at the present time, however, are not stressing this type of collusive action as the most important monopoly problem; and it is a fair statement that monopoly in this old-fashioned economic sense and in the existing legal sense is not the major objective of the inquiry conducted by the T.N.E.C. From a legal standpoint it is essential to show collusion in unreasonable restraint of trade in order successfully to prosecute monopoly under the Sherman Antitrust Act.

B. Possible Government Objectives. Since it is difficult to prove collusion, some persons in the Department of Justice, particularly in Thurman Arnold's division, would like to develop out of the monopoly investigation a strong case in favor of certain amendments to the Sherman Act, specifying price leadership, uniformity of price bids, the practice of rotating the lowest bidder, and possibly the use of basing point systems of price quotation, as prima facie evidence of the type of joint action forbidden under the present law.

It is reported also that the Federal Trade Commission desires to see the Clayton Act tightened up; and of course both the Department of Justice and the Federal Trade Commission have the objective of obtaining larger appropriations for the purpose of law enforcement. The Federal Trade Commission apparently would like to have legislation sharply restricting the percentage of an industry's business which any one firm may be allowed to obtain.

II. INJURY TO OTHER BUSINESSES

A. Underlying Theory. The files of the Federal Trade Commission and the Department of Justice contain numerous complaints, mostly lodged by individual business concerns, retailers, wholesalers, producers, and other businessmen who believe themselves to be injured by the policies and practices of certain companies. All this is thoroughly familiar ground; but in many respects this line of approach is quite inconsistent with some other parts of the monopoly investigation, notably III, below, Monopolistic Competition. The importance of this aspect of the monopoly inquiry arises from the fact that this concern with alleged injuries to competitors and other businesses is part of the general sentiment of protecting the "little fellow." It is in the same category as the antichain movement. These developments are emotional and political. They do not proceed from the theorizing of economists, many of whom, as a matter of fact, are thoroughly opposed to the point of view represented in most complaints of this type. It is also true that the Federal Trade Commission, being charged with the administration of the Federal Trade Commission Act, the Clayton Act, the Robinson-Patman Act, and the Wheeler-Lea Act, continues to explore the possibility of various kinds of additional restrictions in the interests of so-called "fair trade." Therefore the Federal Trade Commission, as part of the T.N.E.C. inquiry, may stress considerably this argument of injury to competitors and other businesses.

Probably the chief dangers arising in this area are to be apprehended from the fact that this movement to protect the little fellow has strong political appeal. Congressional members of the committee who may quite frankly fail to understand what some of the government economists

are driving at in other sections of the investigation are likely to become genuinely excited about supposed injuries to small businesses.

B. Possible Government Objectives. As mentioned above, there are already several Federal statutes designed to promote "fair trade." To these may also be added the Tydings-Miller Act, the various price maintenance, or so-called "fair trade," acts now on the books in 44 states, and the unfair trade practice acts which have been enacted by some 20 states. Quite conceivably, however, some members of the Federal Trade Commission may hope to develop from the T.N.E.C. investigation evidence in support of the enactment of additional measures further restricting competition in the interests of greater protection for small businessmen.

It should be noted also that there is a cross-link between this approach from the angle of injury to other businesses and the approach (IV, below) from the angle of concentration of economic control. Government economists and others who are apprehensive about the possible dangers of concentration of economic control may easily be led to support some legislation hampering the competitive practices of large companies in order to discourage the growth of large business units and insure the continued existence of small business concerns.

III. MONOPOLISTIC COMPETITION

A. Underlying Theory. Generally speaking, so-called monopolistic competition is much more in the minds of the New Deal economists than is old-fashioned monopoly. One reason for the importance of this concept is that monopolistic competition is a rather definitely coordinated and elaborate system of thought which its adherents believe is capable of explaining a great many of the things that have happened to American business in recent years. Monopolistic competition is the principal line of attack of the T.N.E.C. It is also a line of thought quite likely to persist for some time beyond the duration of the T.N.E.C. And it is for the most part a type of thinking quite unfamiliar to the businessman.

A basic reason for the present strong interest of the government economists in this line of attack is that monopolistic competition is alleged to produce many of the same restrictive effects on business and economic life as does old-fashioned monopoly of the type forbidden under the Sherman Act; and yet since it does not involve any collusion, but is on the contrary a natural consequence of the pursuit of individual self-interest by several large competitors each acting singly, monopolistic competition is entirely beyond the reach of the Sherman Act as ordinarily construed by the courts. Interest in this line of attack is re-enforced also by the fact that for a fairly long period of years one of the results flowing from the Sherman Act has been a tendency for competitors to merge in order to carry out practices and policies which if undertaken by collusive agreement would have subjected them to prosecution.

Some explanation of the origin of the term "monopolistic competition" may be helpful to an understanding of the concept itself. Before the theories of monopolistic competition were developed, the economic theorists, in their discussions, made a sharp contrast between pure competition on the one hand and monopoly on the other. The monopolistic competition theorists have pointed out that pure competition, or atomistic

competition, as they sometimes call it, presupposes a homogeneous or standardized product and a large number of sellers and buyers. No increases or decreases in the output of any one producer can affect the total output sufficiently to exert any result on the price; and similarly on the demand side of the picture no one purchaser buys enough so that his entrance into or withdrawal from the market has any real effect on the price.

The seller under these conditions finds that the price is presented to him impersonally by the market. He simply decides whether or how much to produce at that price. For instance, the largest wheat farmer in the state of Kansas is unable to influence the price of wheat by withholding his infinitesimal part of the total supply of wheat from the market. All he can do as a businessman is to decide, in view of the current price of wheat and his estimate of the prospective price, whether or not he will produce wheat this year or produce corn or some other alternative crop. Similarly, the large flour millers and cereal manufacturers, important as they are, are still too small factors in the world market for wheat for the decision of any one of them regarding changes in the quantity bought to have any effect on the price of wheat.

It is important to the understanding of the theory of pure competition to realize that the economist is talking about a standardized product. The large flour miller may require a particular grade of wheat for milling purposes, but he is wholly indifferent as to whether his wheat comes from Farmer Jones, Farmer Smith, or Farmer Brown; and equally they are indifferent as to whether the wheat they grow is bought eventually by Mill X, Mill Y, or Exporter Z. When products are thus standardized, a producer seldom spends large sums in advertising, for the simple reason that there is nothing to distinguish his product from that of any other supplier. There is no assurance of reaping any return from advertising or other sales promotion expenditures. Competition, therefore, is on a price basis.

Contrasted with the concept of pure competition is the concept of monopoly. As already indicated under I, above, the concept of monopoly (there designated as monopoly in the old-fashioned economic sense) embraces situations where all or a very large part of the supply of a particular good is under a single or unified control. This control of supply makes it possible to control price. A monopolist, because of his control of supply, can set his price at the point which will yield the maximum net return. In theory, at least, the true monopolist calculates the quantities that will be taken at each of several possible prices, determines the costs of supplying the demands at these several prices, and then chooses as the most desirable price the one which gives him the biggest difference between aggregate revenue and aggregate cost. This concept of monopoly is quite definite and thoroughly understandable. It is at the opposite end of the scale from *pure competition;* in fact, it is sometimes termed *pure monopoly.*

Most of the 19th century economic theorists who discussed competition and monopoly were well aware that they were discussing economic concepts and not describing in detail the real world of business. Sometimes they were criticized because their concepts seemed too abstract

and too far from reality; and partly out of this criticism there came an effort by some economists to develop new concepts more appropriate to the world of today. One of the chief of these new concepts, which during recent years has aroused keen intellectual interest both in England and in the United States, has been given the name "monopolistic competition."[1] One has only to look at the world around him to see that neither the concept of pure competition nor the concept of pure monopoly fits any very large number of cases. Manifestly there are numerous products which are not homogeneous and standardized; in numerous industries competitors are few rather than many, and the behavior of one affects the fortunes of the others; marketing and promotional efforts are thought of special importance by businessmen; and competition frequently takes other forms than price reduction. On the other hand, instances where the entire control of a particular product is in the hands of a single concern are comparatively rare.

Thus without there being very many instances of either pure competition or pure monopoly, the actual situation in which a vast majority of business concerns find themselves is one which exhibits elements both of competition and of monopoly. The existence of competition cannot be denied, but it is a different form of competition. Instead of one producer with a standardized product—cigarettes, for example—competing strictly on a price basis with another producer of the same product equally standardized and undifferentiated, we find both producers selling at the same price but each trying to introduce special qualities and features into his product in order to have an opportunity to assert, by advertising, the superiority of his particular brand. Each producer has the control of his own particular differentiated product or brand. Having such control, he has the possibility of restricting his output in order to affect prices. He has established enough control of the demand for his particular product so that he may elect to sell at a higher price and still retain a substantial part of his clientele, instead of being in the situation of the wheat farmer who, if he undertook to dispose of his crop at a figure above the going market price, would be unable to sell any at all. It is in this control over the supply and the price of his particular differentiated product that the modern businessman frequently exhibits behavior analogous to that of the pure monopolist. It is competition, but it is a different form of competition —competition which emphasizes individual controls of differentiated segments of supply. It is to describe this mixed situation that the term "monopolistic competition" has been invented. The businessman engaged in monopolistic competition is not in the position of having to take or reject a price offered to him impersonally by the market, but because of his control of the supply of his differentiated product he has control

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[1] It should not be supposed that the older economists were unaware of the phenomena which this term "monopolistic competition" is now used to designate. On the contrary, they made many references to the imperfections of economic behavior in the real world. But there are fashions in economics as well as in many other things; and among some present-day economists who are enamored of this new intellectual concept for which they have found such an apt name it is fashionable both to disparage the works of the previous generation of scholars and to exaggerate the significance of the supposedly new discovery.

over the price. He may, if he wishes, restrict production and hold up price. To use the term which Gardiner Means has coined, he is able to "administer" his own prices.

Product differentiation is thus one of the earmarks of monopolistic competition. Each producer attempts, in so far as he can, to make a product which differs from that of his competitors. From what has just been said it may readily be seen that brands, trade-marks, and advertising constitute an important aspect of monopolistic competition. The brand or trade-mark itself serves as a basis of product differentiation. The advertising is essential in order that the particular differentiated product may be "puffed," that is, built up in the minds of consumers as possessing superior qualities. Advertising is a means of trying to develop a separate demand for the particular brand of product. People are urged to believe that Camels and Luckies differ in several important respects. It is the ambition of almost everyone who trade-marks and advertises his product to be able to develop a preference for his brand. He is delighted when he is able to obtain an attitude of virtual insistence by the consumer for his product, because then he is essentially in the position of the true monopolist. Businessmen seldom obtain this result, but many of them do succeed in building up a measure of separate demand that permits them to ignore to some extent certain activities of their competitors. When the public believes, for instance, that one brand of sheet is not the same as another brand, it is possible for the one manufacturer to ignore (to a degree) price competition created by the other manufacturer. To the extent that advertising succeeds in differentiating a particular manufacturer's product in the minds of the public, it tends to place that manufacturer in a monopolistic position. Competition by means of product differentiation, advertising, and other forms of sales promotion is manifestly not price competition. When one speaks of stabilizing price in order to base competition on quality, or special features, or advertising, he is essentially talking about monopolistic competition as many present-day economists use the term.

In addition to the use of product differentiation and advertising to create a separate demand, there are also present in monopolistic competition the twin factors of large size of individual enterprise and fewness of competitors. Whereas in the growing of grain many thousands of producers are engaged, each of whom is unimportant in the total supply, in the case of the oil industry, for instance, some twenty major companies are estimated to control 80% of the supply; in the automobile industry three concerns dominate the field; in the tobacco industry, four; in the sugar industry, perhaps a dozen. The list of industries in which a small number of firms control more than 50% of the supply is a long one. Under such conditions each competitor takes into account what the other fellow is likely to do. Each is anxious to obtain a larger share of the total market; and they compete vigorously by means of product differentiation, advertising, and personal salesmanship, to obtain this larger share. But to a very considerable extent they consciously refrain from using price reductions as a means of accomplishing that result. A monopolistic competitor realizes that a change in his own price will affect his output and also will affect the actions of his competitors.

Monopolistic competition may thus be defined as "a degree of jurisdiction or control over price in combination with a very keen desire to compete for sales." Thus by definition the term "monopolistic competition" characterizes the greater part of everyday business enterprise. Many present-day economists who cherish the idea of price competition are seriously disturbed by the consequences which they apprehend from the prevalence of monopolistic competition. In the T.N.E.C. hearing on March 7, 1939, the Federal Trade Commission is reported to have testified that about all that remained of competition in the steel industry was "a gentlemanly emulation in the art of making friends and influencing people," and the industry was described as "a focal point of monopolistic infection which, if not eradicated, may well cause the death of free capitalistic industry in the United States."

Some of the undesirable results of monopolistic competition, according to the economists who adhere to this school of thought, may be described as follows:

(1) *Because of wasteful competitive practices, monopolistic competition results in too high prices to consumers.* The reasoning is that under monopolistic competition prices are kept higher than they would be under pure competition because the competition tends predominantly to take other forms than price reduction—for instance, high advertising and selling expenses, brands and special features of commodities, large margins for distributors, and so on.

For example, a food manufacturer gets an idea for a new type of cocktail cracker. He sets a fairly high price for his product, which consumers pay because the product appeals to their taste. The entire spread between the cost to manufacture and the final sales price enables the producer to make a large profit, and the wholesalers and retailers likewise are well rewarded for handling the merchandise. Seeing the success of this manufacturer, other concerns enter the field. At this point the economist who believes in the advantages of pure competition thinks that the price of cocktail crackers ought to come down. But the newcomers see that a demand has been developed at a certain price level and each perceives an opportunity for profits for himself if he can find a place in the market at that level. Also each new competitor knows that it is easier to lower price than to raise it. Therefore each tends to start his new product at the existing high price. In the meantime the market for cocktail crackers is found to be an expanding one, and it is not difficult for the newcomers to find a place. To each of them it appears to be to his own best interest to seek a share of the market by differentiating his product from the products of the others and to make all sorts of advertising claims for the merits of his particular cocktail cracker. Other newcomers appear, and soon the limit to the expansibility of the market is reached; that is, there are now plenty of cocktail crackers available to all who desire to buy them at the prevailing prices. Do the old-timers then reduce their prices in order to hold their share of the business? Ordinarily they do not. Instead they resort to product improvements to retain their hold on the market, or they increase advertising, or put on more salesmen, or offer wider margins to distributors. Thus the public has to pay high prices to cover all these wasteful competitive practices.

Under conditions of pure competition, price reductions would have taken place which would have lowered the average retail price of cocktail crackers to the final consumer.

It is to be noted that although prices do not come down, profits often do fall, because of higher selling and advertising expenses or longer margins to distributors. Therefore low profits and poor return on investment cannot be alleged as evidence of the absence of monopolistic competition. Low profits may result from overcapacity in an industry, from wasteful competitive practices in distribution, from the high costs of breaking into the market, and from extensive development costs undertaken to introduce new products or to keep old ones abreast of the market; these low profits therefore do not flow from the competitive reduction of price which is visualized by the economist as taking place under conditions more nearly approaching pure competition.

A recent book on monopolistic competition applies some of the foregoing reasoning to the oil industry:

" . . . In almost all parts of the country it is possible at a given moment to stabilize the retail price of gasoline with fair success. On the other hand it is impossible to prevent new individuals or concerns from entering the business of retailing gasoline. The filling station is a more than normally attractive field for small enterprise since it requires only a small capital outlay and comparatively little business acumen; many people have sought to escape unemployment by acquiring station sites and starting in business. The result is an investment in gasoline retailing establishments grossly in excess of need or even of convenience. For all or a large part of this the consumer pays in the price of gasoline, while at the same time little or no net return is earned by the retailers. . . . "[1]

The businessman's reluctance to resort to price competition in many instances may be ascribed to a tacit assumption that the total demand for the particular product is inelastic. By "inelasticity" is meant a condition under which in the event of a price reduction *the increased physical volume of sales would not be great enough to cause an increase in the total dollar volume of sales.* Conversely, "elasticity" is a situation in which *the increased physical volume of goods sold at a lower price would be great enough to cause an increase in the total dollar receipts.* If the businessman were sure that a price reduction would result in increased aggregate income for the industry as a whole, he might be more willing to inaugurate price reductions, provided, of course, that increased costs applicable to the increased volume did not reduce his aggregate profits. In an industry where there are only a few competitors, naturally each of them looks to the total demand, because he knows that if the total demand is inelastic there is nothing to be gained from a price reduction which will be met promptly by his competitors. Nevertheless every now and then a competitor does resort to a price reduction even under the circumstances described above. He does this perhaps because he hopes to gain a temporary advantage, perhaps because with a low percentage of utilization of plant capacity he knows that he can cut his total costs sharply if he can

[1] H. S. DENNISON and J. K. GALBRAITH, *Modern Competition and Business Policy* (New York, Oxford, 1938), p. 45.

increase his output. Then ensues the price war, or breakdown, phase of monopolistic competition. If the total demand proves to be inelastic and if each of the companies, being large, has relatively high fixed costs, the price competition while it continues is very intense. Because of the low variable costs, prices can go down a long way before any producer will withdraw his output from the market. (It is to be noted that this situation is due in considerable part to technological developments which have tended to increase the size of the fixed costs in ratio to the variable costs. These technological developments are not, of course, a part of monopolistic competition, but they are a part of the general business and industrial situation under which monopolistic competition arises.) Therefore the resulting injuries to all the companies concerned are so great that soon they are glad to return to a "stable price," and for some time thereafter they sedulously devote themselves to forms of competition other than price reduction.

Since, under the conditions described above, each competitor knows, or thinks he knows, in advance that a price reduction may have the consequence of spoiling the market for everybody, there is a strong incentive to the practice of monopolistic competition rather than price competition. Furthermore, each time there is an episode of price cutting, the reaction in favor of a return to nonprice competition is strong. Hence it must be borne in mind that the economists of the monopolistic competition school, far from regarding occasional price wars as evidence of the existence of something approaching pure competition, actually see in such episodes evidence of monopolistic competition; these economists are looking primarily at the conditions *before* and *after*.

It is argued that the sum total result of this kind of business competition is to impose a high burden of cost on the consuming public and to make the standard of living lower than it would be under conditions more nearly approaching the cherished ideal of pure competition.

(2) *Monopolistic competition is not automatically self-regulating but results in underutilization of productive capacity and improper allocation of capital investment to meet the community's real demands.* It is one of the favorite arguments of some present-day economists that, whereas a system of pure competition tends to be automatically self-regulating, a system of monopolistic competition does not have this tendency. The term "regulation" as here used does not imply a conscious collective effort as does the term "industrial self-government"; rather it implies an unconscious and automatic process whereby businessmen, each seeking his own best interest, are nevertheless guided by competitive forces in such a way that they best serve the community's needs and requirements as expressed in demands for goods and services. In a famous statement of this assumption in regard to the automatically self-regulating character of competition, Adam Smith discussed how, under the competitive system, individual businessmen, each seeking his own gain, were "led by an invisible hand" to promote the general interest of society.[1]

The argument, in modern terms, may be boiled down to the following: Consumers express their desires by the way in which they spend their

[1] ADAM SMITH, *Wealth of Nations* (Everyman's Library Edition, New York, Dutton, 1924), Vol. I, pp. 399–401.

dollars. If they wish to buy fewer silk shirts and drink more beer, sales decline in the silk shirt business, prices are reduced, profits drop, and the less efficient companies, unable to meet their costs, go out of production; on the other hand, the sales of beer increase, prices advance, profits rise, and new concerns enter the brewing business. Thus, in response to the decline in demand for silk shirts and the increase in demand for beer, both labor and capital move from one industry to the other. Competition, through the price system, allocates the particular goods in the appropriate quantities to those who want them and allocates labor and capital to the uses that are consonant with the community's desires. And, throughout all this process, since it is the most efficient firms which survive, there is a tendency continuously to improve the standard of living by means of better goods and services and lower prices.

Now all this is just what quite a number of present-day economists say emphatically does not happen under conditions of monopolistic competition. In preceding pages we have sketched the argument that under monopolistic competition there are many competitive wastes for which the consumer pays. A corollary of this same argument is that this kind of competition is not automatically self-regulating to anything remotely approaching the extent visualized by Adam Smith when he wrote the famous "invisible hand" statement. Under monopolistic competition when a greater demand appears for beer, more breweries are established, but they do not compete on a price basis. The apparent wide spread between cost and selling price attracts additional competitors until there is excess capacity in the industry. In the meantime, capital does not get out of the silk shirt industry. It hangs on, reorganizes, merges, tries by means of various forms of sales promotion to stem the decline in demand for silk shirts; hence excessive productive capacity remains in the industry. In the meantime there may be other crying consumer needs in the satisfaction of which inadequate capital resources are employed. The restriction of opportunities for the employment of natural resources, capital, and labor in the industries ruled by monopolistic competition forces employment to be devoted to ventures socially less productive.

And so in many lines of business there is a general tendency toward underutilization of plant capacity; readjustments are very difficult; and capital investment is not allocated to the socially most productive uses. Therefore it is argued that under these conditions, because monopolistic competition dominates so much of the scene and because monopolistic competition is not automatically self-regulating, capitalism is doomed unless there is (*a*) a return to smaller units of business enterprise in order more nearly to approach conditions of pure competition or (*b*) a drastic increase in social control, that is, governmental interference. (At this point, the monopolistic competition line of attack begins to merge with the attack on concentration of economic control discussed under IV, below.) With reference to these two alternatives, although more will be said later on this point, it may be remarked that most of the economists connected with the T.N.E.C. apparently are not now thinking so much in terms of breaking business up into smaller units as they are in terms of extending government control of large business enterprise.

Before leaving this topic of the alleged nonself-regulating character of monopolistic competition, we may offer a few passing comments. In

the first place, the determination of just what constitutes overcapacity in an industry, in the light of the complicated interrelationships of technical processes and the various types of fluctuations in demand—seasonal, cyclical, and fashional—is a matter of the utmost difficulty. In the second place, a rich community may well find it socially advantageous to have plenty of capital facilities available, even though they are not in use all the time.

In the third place, the difficulties of readjustment, that is, the failure of capital to move readily from one industry to another, are tremendously aggravated by the technological developments which cause so high a proportion of costs in modern industry to be fixed rather than variable. In days when industrial units were smaller and technological processes far simpler, variable costs were high in proportion to fixed costs; and when prices declined, the limits set by the variable costs were soon reached for the less efficient firms, who then dropped out of production. But a large concern of the present day, with a huge aggregation of "sunk" capital, has low variable costs and high fixed costs. Although prices may go down far, it is still worth while for the company to produce, so long as something is being contributed to the fixed costs. This relative change in the proportions of fixed and variable costs is a substantial part of the explanation why nowadays the readjustment of capital investment among industries takes place so sluggishly. As remarked in an earlier connection, this changed technological aspect of the modern business world is not, of course, a consequence of monopolistic competition. It is rather part of the environment in which monopolistic competition flourishes.[1] Of course, this explanation of the sluggish readjustment of capital investment is only part of the story. The pace of technical change has increased enormously. In earlier periods, the readjustments were not easy even with the smaller percentage of fixed costs, because labor and capital were far from completely mobile and were handicapped by greater ignorance of other opportunities at a distance.

In the fourth place, there is a shrewd suspicion that some of the economists who talk so feelingly about the failure of monopolistic competition to direct capital investment into socially productive channels are not so much interested in the functioning of a business system which undertakes to give to consumers what the consumers *actually* want, as they are in the establishment of some form of economic order which will give to consumers what the consumers *ought* to want, that is, what these economists think will be good for them.

(3) *Monopolistic competition, because it results in price rigidity, is an important cause of business depressions.* The inclination to stabilize and maintain price leads, it is asserted, to fluctuations in output and employment. Producers who have some control over their prices tend to keep those prices up, for the reasons discussed previously; that is to say, monopolistic competition causes price rigidity, which, in turn, results in decreased demand. Then when sales fall off, these producers frequently find it more profitable to maintain prices, accept a smaller volume of

[1] To the extent that monopolistic competition causes mergers and to the extent that merged companies, being large, may tend to have proportionately high fixed costs, a possible causal relationship may be discerned.

business, and discharge workers. In a fully competitive market, sellers would not have this option, because the price would be dictated to them by the market; and if they tried to maintain a higher price they would lose all their business. But since, under monopolistic competition, prices are not allowed to move with the same freedom as in a fully competitive market, output and employment have to absorb the shocks. Gardiner C. Means, in his document entitled *Industrial Prices and Their Relative Inflexibility* (Document No. 13, U. S. Senate, Seventy-fourth Congress, First Session), tried to trace the damning relationship between rigid prices and employment as follows:

"While exactly corresponding production figures are not available, the relation of price drop and production drop for 10 major industries from 1929 to the spring of 1933 is shown below:

	Per Cent Drop in Prices	Per Cent Drop in Production
Agricultural implements	6	80
Motor vehicles	16	80
Cement	18	65
Iron and steel	20	83
Auto tires	33	70
Textile products	45	30
Food products	49	14
Leather	50	20
Petroleum	56	20
Agricultural commodities	63	6

"One can make the broad generalization, having of course many exceptions, that for industries in which prices dropped most during the depression production tended to drop least, while for those in which prices were maintained the drop in production was usually greatest. Indeed, the whole depression might be described as a general dropping of prices at the flexible end of the price scale and a dropping of production at the rigid end with intermediate effects between.

. . . . . .

"The shift from market to administered prices . . . is the development which has destroyed the effective functioning of the American economy and produced the pressures which culminated in the new economic agencies of government."

Thus Dr. Means argues that the 80% decline in the production of farm implements was largely caused by the fact that the prices of these goods declined only 6%. Obviously a farmer whose income had declined roughly 60% could not buy implements the price of which had changed so little. Since farmers did not buy tools and implements, the workers in those industries were thrown out of employment. Thus Dr. Means and many other economists contend that depressions are caused, or certainly made more severe, by the failure of prices of different commodities to be balanced relative to each other more quickly. It is their belief that if

monopolistic competitors did not have control of the prices of so many types of goods, these prices would be brought into line more promptly, with the result that output would not be reduced so much and employment would be better maintained. They say that under existing conditions price change does not take the shock of the ebb and flow of business; instead, employment and output absorb the shocks.

If it is pointed out, as it has been,[1] that these variations in price behavior for different types of goods over the business cycle are not new but have in fact been observed in earlier periods before so many industries had become dominated by large units, then the monopolistic competition economists are likely to argue that in earlier years of the nation's history the economic system was sufficiently resilient to absorb the price rigidities arising from this type of competition, because new continents and territories were being developed, population was increasing rapidly, and transition from handicraft to factory production was proceeding apace. Now, however, it is pointed out that the possibilities of expansion in the industrial system are far more limited. We do not have any more free land in this country, and the rate of population growth is decreasing sharply. Also the transition to the capitalistic form of production is essentially complete. The methods of capitalism—the corporate form of organization and the technique of large-scale production—have been extended to almost all the industries where the economic advantages are manifest. This means that we do not have the same safety valves that we formerly had in the way of ready-made opportunities for employment and investment in new developments; or at least the opportunities are far less obvious than they were in the days of the open frontier.

In passing, it may be remarked that these economists who stress the price rigidities of monopolistic competition as a prime cause of the business cycle are venturing on distinctly controversial ground. There are almost innumerable theories of the business cycle, and the most plausible ones today are those which envisage a variety of causes acting with different intensities at different times, rather than those which ascribe business ups and downs to the operation of some single cause. Furthermore, it is not very clear just what is meant by "rigid" prices. Are they prices which change at relatively infrequent intervals over long periods of time? Are they prices which, while perhaps changing frequently, exhibit relatively narrow amplitude of fluctuation? Are they prices which respond only sluggishly to changes in the supply and demand situation? Or are they simply prices which do not change to the extent and in the direction that the social-minded economist thinks they ought ideally to change? Also there are numerous well-recognized causes other than monopolistic competition for the widely varying behavior of different groups of prices.[2]

[1] See, for example, the article by Rufus Tucker in *The Annalist* for February 4, 1938, entitled "The Essential Historical Facts about 'Sensitive' and 'Administered' Prices."

[2] A study of "Price Flexibility and Changes in Production" published by the National Industrial Conference Board in *The Conference Board Bulletin*, Vol. XIII, No. 5, February 20, 1939, casts considerable doubt on the Means hypothesis. Analysis of the price and production relationship of 264 commodities suggests that such a sweeping generalization as that of Means quoted on p. 640 above is based on inadequate evidence.

It is entirely understandable why railroads do not buy locomotives during depressions. It is equally understandable why consumers continue to buy food in practically unchanged quantities during bad times, and why motorists whose automobiles are in running order continue to buy large quantities of gasoline in such periods. It is understandable also why a cotton farmer who has no alternative use for his land and labor (that is, whose costs are essentially all fixed costs) should continue to produce cotton for whatever price he can get rather than not to produce any cotton at all.

But however debatable this relationship of monopolistic competition to the business cycle may be, it must not be forgotten that this is the line of argument which, as developed by Messrs. Means, Henderson, Jackson, Arnold, and others, was principally responsible for the creation of the T.N.E.C.

B. Possible Government Objectives. When one starts to look for the objective which the monopolistic competition economists have in mind, he is shortly struck by the curious fact that it is practically impossible to isolate and define these objectives. These economists do not say exactly what kind of price policies business should be forced to adopt; they do not say exactly what they would do if they had the power of control; they do not undertake to specify just how business really ought to be managed. In fact, it appears at the present time that they are more interested in the methods and procedures by which government can obtain control of industry than they are in the question of how to use the control once it is achieved.

Of the various possible methods by which government might obtain greater control of industry in order to deal appropriately (whatever that may mean) with the alleged evils of monopolistic competition, there are three approaches that may be mentioned.

(1) *Thurman Arnold evidently thinks that either by some amendments or by a series of court decisions the Sherman Act can be made to apply to monopolistic competition.* He has declared, "Our ideal is already well stated in the Sherman Act. It only requires particular application."[1] Professor Mason of Harvard comments, "The policy of the antitrust division under his [Mr. Arnold's] administration would appear to be gradually, by the continual pressure of particular cases, to expand the meaning of restraint of trade in the Sherman Act until it can be made to cover among other issues price and production policies of large enterprise.[2] To this end the Department of Justice is earnestly requesting larger appropriations and plans to open regional offices.

(2) *Rather closely allied to this approach is the effort to widen the scope of administrative law and administrative procedure in such a way as to accomplish the desired control of big business without the necessity for any new legislation by Congress or even for any new decisions by the courts.* An instance of this development is the present use of consent decrees. The consent decree has been said by the Department of Justice to be "a prac-

[1] Speech, April 28, 1938, before the Trade and Commerce Bar Association of New York.

[2] EDWARD S. MASON, "Methods of Developing a Proper Control of Big Business," *Proceedings of the Academy of Political Science*, Vol. XVIII, No. 2, January, 1939, p. 42.

tical solution which is of major and immediate benefit to the industry, to competitors, and to the public, and which goes beyond any results which can be expected from a criminal proceeding." This point of view is clearly set forth in Mr. Arnold's press release of November 7, 1938, in regard to the Ford-Chrysler consent decree, and in his release of October 15, 1938, on the investigation of the milk industry in Detroit. These documents constitute announcement of a clear intention to use the Department of Justice as an instrument to reform American economic life; that is, by threatening prosecution and distasteful publicity, Mr. Arnold hopes to make many large businesses give up "monopolistically competitive" practices which do not contravene existing laws and which could therefore not be successfully prosecuted in the courts. In order to carry out this program Mr. Arnold desires to have a separate consent decree division established in the Department of Justice.

(3) *There is also in the background a definite desire, not clearly formulated in terms of mechanisms and procedures, for government representatives actively to participate in the management and direction of large corporations.* This intention is not yet fully out in the open, but is undoubtedly in the minds of a number of people concerned with the T.N.E.C. This prospective channel of approach is discussed at greater length under IV, below, Concentration of Economic Control.

IV. CONCENTRATION OF ECONOMIC CONTROL

A. Underlying Theory. Partly similar to and partly contrasted with some of the foregoing angles of approach is the line of attack taken by people who are primarily worried about sheer bigness and the multiplication of financial power. These people are apprehensive about the concentration of economic control in the hands of a relatively small number of individuals and institutions. This point of view is reached by a number of different routes.

There are those who make primarily a sentimental attack on mere bigness, looking back regretfully to the good old days of small business units. In somewhat the same category are those for whom competition (as nearly as possible, pure competition) is an end in itself, something to be preserved even though some other system might be more efficient. These critics do not measure social values merely by efficiency—in fact, some of them are perhaps afraid of too much efficiency. Professor Fetter of Princeton, testifying before the T.N.E.C. on February 28, 1939, said:

"I urge upon you, at the danger of being considered sentimental in this matter, that happiness does not consist of the things that we buy with our work as much as it consists of the feeling we have while we are at work. It is the whole twenty-four hours a day that have to be considered, and it is the task of statesmen not to consider the economic welfare in terms of tons and yards and bushels, but in terms of human happiness."

More sharply pointed is the attack of those who simply on general principles distrust the concentration of economic power in a few hands. For the most part, they do not inquire whether such power is used wisely or unwisely; it is enough for them that a power exists that *might* be abused. They point to the great corporations as constituting essentially feudal states that have reared themselves unchecked within, but outside the con-

trol of, our political democracy. A quarter of a century ago, Woodrow Wilson, before he entered the presidency, described the large corporation as follows:

"A modern corporation is an economic society, a little economic state—and not always little, even as compared with states. Many modern corporations wield revenues and command resources which no ancient state possessed. . . . Society, in short, has discovered a new way of massing its resources and its power of enterprise in building up *bodies economic outside its bodies politic* which may, if we do not find the means to prevent them, the means of disclosing the responsibilities of the men who compose them, *dominate bodies politic* themselves. . . . Modern democratic society, in particular, cannot afford to constitute its economic undertaking upon the monarchical or aristocratic principle and adopt the fiction that the kings and great men thus set up can do no wrong which makes them personally amenable to the law which restrains smaller men. . . . It does not redeem the situation that these kings and chiefs of industry are not chosen upon the hereditary principle (sometimes, alas! they are) but are men who have risen by their own capacity. . . . "[1]

The current interest in this concentration of economic power dates largely from the publication of a study by Messrs. Berle and Means[2] showing that, in 1931, 2,000 men, in turn controlled by a far lesser number, controlled 200 corporations which owned 55% of the corporate assets of the country. The owners of stock in these large corporations, it is maintained, have no real control. The assets, that is, the property of the stockholders, are managed by a small group of men who are only vaguely and theoretically subjected to any control by the stockholders. This is the situation in which not merely the minority stockholders find themselves, but, in fact, the entire body of stockholders. The small inside controlling groups are essentially operating with "other people's money"; their procedures are cloaked with secrecy (except for what little light has been admitted through the registration requirements of the S.E.C.); executives who may have little or no stake in the business are rewarded with enormous salaries and bonuses; manipulation of securities for the personal profit of those who are "in the know" is all too common. In arguing with one who holds these views, it is not conclusive to point out that a particular corporation has a record which is free from these practices. The inquisitor will return each time to the question, "But it could happen, couldn't it?"

Another approach is that frequently identified with the name of Mr. Justice Brandeis. The adherents of the Brandeis school of thought are skeptical about the real efficiency of big corporations. They point to the enormously complicated organizations, the endless routine, the administrative tangle of red tape, the dry rot of bureaucracy, the nepotism, the "stuffed shirts" in high places. Too often, they contend, it is the power of financial resources which determines who shall survive, rather than

[1] Quoted from Jerome Frank, *Save America First*, 3d ed. (New York, Harper, 1938), p. 281.

[2] Adolf A. Berle, Jr., and Gardiner C. Means, *The Modern Corporation and Private Property* (New York, Macmillan, 1933).

the real efficiency of operation. Patents and brands backed up with large legal war chests and huge expenditures for advertising are likely to be insuperable obstacles to newcomers in the field who might actually be able to serve the public more efficiently. In support of these contentions, figures are cited showing that large combinations are frequently less profitable than smaller concerns. Arthur Stone Dewing found in a study of the consolidation period around 1900 that "the earnings of the separate plants before consolidation were greater than the earnings of the same plants after consolidation."[1] The Federal Trade Commission in its *Study of the Petroleum Industry, Prices, Profits, and Competition* (Document No. 61, U. S. Senate, Seventieth Congress, First Session) found that, when companies were grouped according to amount of capital investment, the largest companies exhibited the lowest average rate of return for the four years 1922–1925. On the basis of such data as these, it is often argued that industry, by and large, actually would be more profitable if large combinations were broken up. This point of view was expressed in an editorial in *Fortune* for March, 1938.

Then there is also the point of view of those who look specifically at the political aspects of concentration of economic control and say that big business threatens freedom.[2] The argument is that when business units become so large, they tend to control government. According to the New Deal economists, this is what was happening in the days of Calvin Coolidge, Herbert Hoover, and Andrew Mellon. To prevent big business from controlling government, the obvious remedy is that government must control big business. There is, however, at least one group which presses its thinking farther and says that if government must control business, then government itself will become oppressively bureaucratic and antidemocratic. For political reasons, if for no other, this group urges the necessity of return to a business structure composed of smaller and simpler units.

B. Possible Government Objectives. With regard to objectives, it is clear that those economists and others who fear the "curse of bigness" and who, as indicated above, have arrived at that view by a diversity of routes, separate quite definitely into two camps: (*a*) the "trust busters" and (*b*) the "social reorganizers."

The first camp wishes to encourage the breakup of large business units into smaller ones. Among the various methods which may be proposed are the following: (*a*) stricter enforcement of amended antitrust laws; (*b*) further legislation abolishing holding companies; (*c*) laws limiting the operation of any one corporation to a single function of business (in order to break up integrated companies); (*d*) discriminatory taxes; (*e*) changes in the patent and trade-mark laws to make it more difficult for

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[1] "A Statistical Test of the Success of Consolidations," *Quarterly Journal of Economics*, Vol. XXXVI, No. 1, November, 1921, p. 84.

[2] Apparently this general point of view was stressed at the T.N.E.C. hearings by the witnesses who testified for the Federal Trade Commission on Tuesday, February 28. The headline in the *New York Times* of March 1 read, "Monopoly Called Peril to Freedom. Ballinger of FTC Demands Recovery Program Restore 'Healthy Competition.'"

the first arrivals, especially if the first arrivals are big corporations, to entrench themselves against competition; (*f*) laws restricting the competitive methods used by large companies.

On balance at the present time, the trust busters do not dominate the scene; it is the social reorganizers, the government control advocates, who appear to be in a majority. With respect to objectives and methods, this group is not particularly distinguishable from the monopolistic competition group discussed under III, above. There is the same lack of clear specification of objectives. The proposed uses of the desired controls are not set forth beyond such general statements as that large corporations should be "made to adopt intelligent monopoly prices" and that the guiding principle should be "increase of production and concomitant lowering of prices." On the score of methods, some at least of the social reorganizers do not believe in the same medicine for all businesses. They would even say, along the lines of the Berle memorandum, that some monopolies are good, that integration is socially useful in certain industries. These are the industries which they would seek to control. Says Jerome Frank, "No solution can be found that will not involve the exercise of power by some small number of men. What is needed is to see to it that that power is used wisely by those who hold it, is used with a proper sense of the fact that it is held in trust for society, and that the discharge of that trust is exercised in cooperation with and under the scrutiny of agents of a democratic government."[1]

Elsewhere real competition is to be enforced; but for these large key industries there is proposed a new type of public utility, not to be regulated on the basis of fair return on investment but rather to be regulated on whatever basis will provide increased production and lower prices. In the great integrated companies present managements must be replaced with public spirited and democratic managements, or definitely subordinated to semipublic bodies. In place of the autocratic and irresponsible control now exercised by those small groups in whom is concentrated enormous economic power, there is to be a democratization of management. Control of an integrated industry might be vested, for example, in a sort of Code Authority, made up of representatives of the stockholders, the organized employees, the distributors, possibly the consumers, and, of course, the government. Jerome Frank also suggests that above these groups should be a sort of "Super Code Authority" or "Inter-Industry Council."

Naturally if the large integrated companies prove to be recalcitrant, it will be necessary for the government to take them over, or at least to buy a controlling interest. Some of the more radical social reorganizers, of course, would like to take this step initially.

For either the trust busters or the social reorganizers, passage of the Borah-O'Mahoney Bill for Federal licensing of corporations might well be an entering wedge.

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[1] *Save America First*, p. 395.

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