THE EBB AND FLOW OF INVESTMENT VALUES

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THE EBB AND FLOW OF INVESTMENT VALUES

By EDWARD SHERWOOD MEAD

CORPORATION FINANCE (SEVENTH EDITION)

By JULIUS GRODINSKY

RAILROAD CONSOLIDATION

THE EBB AND FLOW OF INVESTMENT VALUES

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TO

THOMAS CONWAY, JR.

PREFACE

THIS study represents an effort to explain the movements of investment values in terms of the influences which produce changes in corporate profits. The changes come largely from fluctuations in demand. This volume, therefore, is primarily an examination of the effect of the demand factors upon corporate income and so upon investment values. The effects of the forces of supply upon earnings are also presented. In a surplus economy, the supply forces are less important, and in this study, they are subordinated to the forces of demand.

The authors realize that they have ventured into an unexplored field. To some extent they have departed from the accepted methods of investment analysis. The investment application of the concept of declining and expanding industries, upon which this study is based, is somewhat new. They believe it will be found helpful. They welcome criticisms of its application to the study of investment values.

The authors gratefully acknowledge the help received from a large number of corporations in supplying data not found in standard sources. The names of these corporations appear on page 103 and in Appendices II and III at the end of the book. Dr. Thomas Conway, Jr., President of the Philadelphia and Western Railway Company, has made numerous helpful suggestions and criticisms. Dr. Hugh Carter and Dr. E. Douglass Burdick of the Wharton School faculty have given valuable assistance in criticizing the statistical methods employed. Mr. R. W. Wilbraham of the United Engineers and Construction Company has supplied help throughout the preparation of the study. The charts at pages 204 and 205 were prepared by Margaret Snowden. With especial gratitude we acknowledge the assistance of Elizabeth Woodbridge Doak in statistical work and proof reading.

EDWARD SHERWOOD MEAD
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THE EBB AND FLOW OF INVESTMENT VALUES

CHAPTER I

INTRODUCTION

JULY 1, 1938, marks the formal close of an era. On that date the Superintendent of Banking of the State of New York, acting under a law passed by the legislature, struck from the list of legal investments for savings banks the bonds of 53 railroad companies which had, during the last fiscal year, failed to earn their fixed charges. The par value of these bonds, so excluded, was $3,134,000,000. In addition, the bonds of a large group of railroad companies, many of them in the first rank of importance, nad previously been automatically disqualified by the bankruptcy of the issuers. These railroad bonds are to-day found in large amounts in the portfolios of insurance companies, savings banks, and trustees. When purchased, they conformed to the standard of investment quality established by New York for savings banks. The issuing companies must have earned, during five of the last six fiscal years, and during the last fiscal year, one and one-half times their fixed charges. Nearly all these railroad-bond purchases were made before 1931. In that year most of the issuing companies failed to meet the legal requirements. *"C'est la guerre,"* said the bankers. The depression would pass. Depression always passes. The clouds would evaporate. The sun would shine. In three, or at the most five, years, the fall in railway earnings would be but a fading memory, a tale that is told.

The legislature agreed with the bankers. Within reason, on technical matters outside the legislators' knowledge, they usually agree with the experts. "For the letter killeth, the Spirit giveth life." There was no need to advertise the temporary plight of the railroads, to increase the panic fear which then gripped the country. But to avoid possible censure of the banking department, to regularize the failure to disqualify promptly these billions of investments, the legislature in 1932, and for five years thereafter, passed laws granting an annual moratorium on the enforcement

of the law, saying in effect, each year, that the past year did not count. The insurance commissioners also, in order to preserve the solvency of the companies committed to their charge, stipulated in 1932 that the value of investments in their reserves should not be current market values, but the market values of June 30, 1931, a date preceding the period of severe market decline.

Time went on. The situation of the railroads did not improve. It grew worse. Slight recoveries in traffic—the largest during 1936 and in the first months of 1937—revived the hopes of the railroad investor, but the trend of earnings was downward. The situation of the railroads in 1938 was worse than in the darkest year of 1932. Other industries—steel, chemicals, electric power, packaged foods—regained their position, but the railroads did not recover.

In 1938, the State of New York formally recognized that, from an investment standpoint, most of the railway companies could no longer meet the requirements of prudent investment. The legislature was humane in this latest condemnation. It softened the blow. It excepted from the provisions of the law such companies as the New York Central, the Pennsylvania, the Great Northern, and the Atchison. These companies in 1937 earned their fixed charges; so the new law, as a temporary measure, substituted as the test of legal investment quality *one hundred* for *one hundred and fifty* per cent of fixed charges earned.

In their selections of railroad bonds as investments for trust funds, the managers of financial institutions and trust estates stand convicted of serious errors of judgment. Policy-holders, depositors, and beneficiaries have lost heavily in the depreciation of railway bonds alone. To this must be added the losses in real-estate mortgages, mortgage bonds, and municipals. With few exceptions, the purchase of these securities was made in accordance not only with the laws of legal investment, but under the sanction of the larger group of rules which have taken form in the laws. These bonds were secured by mortgages, generally by first mortgages. These mortgages abounded in detailed stipulations to secure the bonds. The property pledged was valued well above the encumbrances which rested upon it. It included not only, as with the railroads, costly specialized properties, but also valuable city real estate.

Not only did the managements of the borrowing corporations measure up to the highest standards of ability, but the managements of the investment institutions were also of the first rank, skilled and experienced in every branch of the investment art. If the rules that govern the art of investment are correct, we could expect to find in our great trust institutions a record of soundness and stability corresponding to the general excellence of accomplishment in other fields of business endeavor. It is true that the commercial banks made a miserable showing of failure during the depression, and that even some of the largest banks are among the worst offenders. These failures, however, were due, not to obedience to the accepted rules of safe banking, but to flagrant violation of those rules. Few banks which followed accepted banking practice failed.

Private investors have also suffered disastrous losses by the collapse of foreign government bonds, real-estate mortgages and mortgage bonds, and speculative securities of various kinds. These unfortunates are, generally speaking, the victims of ignorance and cupidity. They did not know the rules of safe investment, and had they known them, they would not have followed them. Their confidence was misplaced and they have suffered the consequences.

These criticisms do not apply to the managers of other people's money who head the great savings banks and life-insurance companies. These men are well informed and conservative. Not for them is the allure of common stocks. They are experienced practitioners of the art of investment, having at their command all the information concerning the present condition and the history of the corporations into whose securities they put the funds of depositors and policy-holders. If these experts have made mistakes, and if, as a result, the institutions they manage have suffered losses, it is because of some factors beyond their control—some lack or omission in the body of investment knowledge of the rules and principles necessary for the safe selection of securities.

This deficiency does not relate to the mechanics of investment. These are thoroughly understood. The measurement of equities, the estimation of the significance of ratios, the principles and practices of valuation, the determination of depreciation, the field of investment mathematics, the determination of priorities as

defined in mortgage and instruments and derived from a study of capital structures—in all such matters the art of investment is well furnished. Where it fails to produce the expected results is in the determination of the *sources* of investment, the *industries* in which funds should be placed. Assuming a correct selection among sources, few mistakes will be made.

Before the work of Pasteur, Koch, Roux, Ehrlich, and Ross in bacteriology disclosed the causes of disease and opened the way to prevention and cure, the mortality from such diseases as childbed fever, hydrophobia, yellow fever, and diphtheria was high. The medical profession was not to blame. The most eminent practitioners did not know. Within the limits of their information they functioned well. But their information was inadequate. So with the practitioners of the art of investment. They can make wise selections among the securities of particular companies. Where they have failed is in the selection of the industries in which these companies operate.

If an industry is prosperous; if from one decade to another its profits increase, the chances of successful investment in the securities of corporations in this industry are good. On the other hand, if the industry is declining; if the demand shows progressive weakness; if sales stand still in periods of prosperity and if, in each depression, they sink to a lower level; if the members of the industry, even when favored by expanding demand, are not able to restrict production within the growth of the market, so that surplus stocks and price cutting do not eat away profits; or, finally, if management is not able to forecast the trends of demand and to make provision to shift production to take advantages of those trends—in any of these cases, the companies that operate in that industry, and the investors in the securities of these companies, will lose.

Beside the selection of the industry, other considerations of investment are unimportant. The securities issued (bonds or stock, preferred or common; mortgage bonds or debenture bonds); the term of the bonds; the powers of the trustee in the event of default; the provisions in the mortgage that aim to protect the property against dissipation or deterioration, or the stipulations in collateral-trust agreements for the protection of the collateral companies whose securities are pledged; the pro-

visions in the charter designed to protect the rights of the preferred stockholders; the penalties that aim to secure the stockholder in his preferred position; the voting and subscription rights of common stockholders—all dwindle into insignificance when compared with the supreme necessity that a sound investment be an investment in a prosperous industry.

The accepted body of investment opinion, if it recognizes this obvious truth, gives only lip service to it. Investment opinion is primarily concerned with the mechanics of securities, not with the sources of the profits upon which their values depend. In so far as these sources are recognized, and investment categories are based upon them, these categories assume stability in earnings. Some writers claim that the only true investment is a senior security. They favor a bond with real property or collateral security. They demand in an investment not only a claim to share in earnings, but also contracts of security which supplement and strengthen the obligation to pay money. This security must be a first lien on the property of the issuing company. The interest on bonds, if they are to qualify as an investment, must not only have been currently earned, but earned during a period long enough to establish a reputation for solvency. The longer the period during which this margin of safety for interest has been maintained, the sounder, other things being equal, is the investment considered. In the investment field, a hoary head, if it be found in the way of righteousness—continuous interest and dividend payments—is a crown of glory.

Granted these formal requirements in ratios, priorities, and margins of safety, the senior securities of certain industries secured by certain forms of property, and the bonds issued by political bodies, state or national, governments or municipal corporations, including "authorities" set up by the sovereign power to borrow money for certain public purposes, are recommended. These investment categories, favored by law and custom, include industries whose profits are protected and assured either by their "monopolistic" character—natural monopolies, large holdings of raw materials; and high cost of plant which acts as a deterrent to competitive duplication—or by exclusive legal grants to occupy public property or to condemn and occupy private property for profit Finally, investment authority gives

cordial approval to real-estate bonds if secured by first mortgage, and if the amount of the debt does not exceed two-thirds, or 60 per cent, of the "appraised" or "fair market value" of the property.

Beyond these approved categories of investment lies the field of "industrials," the stepchildren of the family, the ugly ducklings of the flock. While the savings-bank and insurance laws of New York, generally followed by other states, allow the purchase of bonds and, to a limited extent, preferred stocks of companies in any industry, the savings-bank laws and the laws governing the investment of trust funds are still holding the fort against the industrials. They refuse to surrender. Industrials are still largely taboo to them.[1]

In 1929 the investment pattern was settled. Bonds with a small amount of preferred stocks were held by institutional investors. Preferred and common stocks were held by individuals, property-insurance companies, and investment "trusts." Institutional investors and trust estates, in the field of private corporations, confined themselves to domestic government bonds, rails, real estate, and public utilities. The pattern was fixed. These industries were recognized as the best, the most permanent sources of investment, prescribed by law and approved by expert opinion.

Since 1929 this pattern of investment, sanctioned by long usage, firmly incorporated into the economic structure, supporting life-insurance companies, commercial and savings-bank deposits, private trusts, charitable and educational foundations, and building and loan associations, has been changed. Some of the industries and agencies whose profits and values have been capitalized in interest-bearing securities are being replaced by other industries, other methods of living, other forms of consumption. Al-

[1] A bit of significant evidence on this point is the amount of space given in leading investment texts to the different industries as sources of investment. A recent volume devotes 87 pages to utilities, 70 pages to railroads, and only 50 pages to the entire field of industrials. Another divides his space, 86 pages to railroads, 151 pages to utilities, and 26 pages to industrials. For 31 years Jos. H. Oliphant and Company have published a standard investment manual, *Mundy's Earning Power of Railroads.* For a number of years they have published *Studies in Securities,* mainly concerned with utilities and industrials. The 1937 issues of these publications measure 757 pages for the railroad manual and 206 pages for the *Studies.* One industrial, General Motors, occupies 6½ pages, although the amount distributed in a single year was more than half the combined dividends of all the railroad companies in the United States.

ready, heavy losses have been suffered by the investor. Other losses impend.

The art of investment, as it now appears, was formulated in a *scarcity economy,* where the problems of substitution and supercession were of minor importance, in which the secular trend of the major industries was upward, following the expansion of population and wealth. Revision of the investment art must take account of the problems of a *surplus economy* characterized by the "inordinate productivity of the modern technological system" and by rapid shifts of demand from one product or service to another. Not until this process of change is recognized, and the trends of value as influenced by obsolescence are established, can the theory of investment be placed on a sound basis, and an art of investment based on that theory be formulated.

Our first task is to determine the movements of profits in the leading production and consumption goods and service industries over a sufficient period of time to establish definite comparative trends. The results of this examination will produce a classification of industries into those whose profits have been increasing, and those whose profits have been decreasing. Between these two stages in any industry, there is an interval, long or short, a transitional or stationary stage, when the forces of expansion and decline balance, a stage from which, unless management succeeds in reëstablishing a balance on the side of renewed expansion, the industry will decline. During this transitional period the facts that indicate decline can be identified.

The corrective measures that may be and are taken by progressive managements to arrest declines in declining industries, to increase the rate of advance in expanding industries, and to anticipate and replace the losses in earnings due to the weakening of demand in existing lines of production, will be examined.

Our next task is the application of these trends to the art of investment, first to the purchase of securities and second to their sale. Purchase of securities involves selection of industry, selection of companies, and selection of security.

Sale of securities, otherwise known as escape from dangerous situations, or, more exactly, shifting the burden of impending loss to other investors, relates to the individual investor. It cannot

benefit the mass. For the body of investors there is no escape from their commitments when once made; for them the die is cast. There can be no turning back. For the individual, however, or even for the single institution, the investor who like a prudent man looketh well to his going can foresee the evil and escape the wrath to come. The study of the shifting of investments is concerned with this minority.

The analysis of the conditions where shifting is necessary involves two parts:

1. A recognition of the facts of latent obsolescence, that complex of forces operating upon the industry which *may* result in a reduction in demand. This introduces us, after the desirability of sale has been recognized, to the determination of the *time* when sales can be made.

2. The recognition, before the event of default or dividend suspension, of the symptoms of decay which, unless checked by the application of corrective factors, will in time lead to disaster.

Our final inquiry concerns the implications of the condition described in that significant term, the "paradox of investment." Since the investor, as a class, cannot escape the consequences of his commitments; since investment is permanent, general shifting impossible, and individual shifting difficult, what are the rules by which the investor can reduce investment risk to a minimum?

PART I

DECLINING AND EXPANDING INDUSTRIES

CHAPTER II

DEMAND IN CONSUMERS' GOODS

IN THE FOLLOWING chapters we outline the competitive forces that have influenced the movement of demand in consumers' goods and services and in producers' goods and services.

Perhaps the most significant change on the material side of civilized life during the last century has been the rise in the standard of living. Economic changes proceeded slowly prior to the development of mechanical power in the eighteenth century. The rapid economic changes in the latter part of the nineteenth and in the twentieth century have led to the descriptions of existing civilization in such terms as the "Power Age," the "Alloy Age," and the "Plastic Age."

The rise in living standards has expressed itself in food, clothing, and shelter, as well as in the cultural and spiritual phases of existence. Through the radio, music on a large scale has been brought into the home. Mass production of paper and of printing has reduced prices and paved the way for substantial increases in the output of newspapers, magazines, and books. The diet has been expanded, both in quantity and variety, although the effects have not all been favorable. The standard diet of salt and pickled meats, bread and other starches, has been enriched by fresh milk, fresh meat, fresh fruit and vegetables. The modern arts of refrigeration and efficient transportation have played a notable part in this dietary diversification.

The expansion in the quantity and variety of goods and services is reflected statistically in an increase in the quantity of goods and services produced. Various estimates have been made of the annual increase in production. Prior to 1930, manufacturing output was increasing at the rate of about four per cent annually, and the total production in all industries and services about two and one-half per cent annually.[1]

[1] *The Recovery Problem in the United States* (Brookings Institute, 1936), p. 159.

Since 1911, according to one computation, annual industrial production has shown a declining rate of growth. The Standard Statistics Index of Secular Trend for Industrial Production follows. It indicates the declining rate of growth since 1911:

Year	Per Cent Increase over Previous Year	Year	Per Cent Increase over Previous Year
1911	3.48	1924	2.80
1912	3.21	1925	3 01
1913	3.39	1926	2.74
1914	3.42	1927	2.57
1915	3.17	1928	2.60
1916	3.33	1929	2 46
1917	3.22	1930	2.39
1918	3.24	1931	2.24
1919	3.14	1932	2.04
1920	3.16	1933	1 91
1921	3 07	1934	1 65
1922	3 08	1935	1.52
1923	2.88		

Another authority estimates the increase in annual output of leading manufacturers at 6½ per cent until 1890, 5½ per cent until 1910, 5 per cent until 1920, and about 4½ per cent until 1930.[2]

Expressing the increased productivity of modern industry in a different way, attention may be called to the fact that from 1870 to 1930 the population of the country has doubled, while production has increased seven and one-half times.

This increase in physical production is a composite figure. It is not an average of the production of commodities, each with a uniform trend. It is a figure which conceals more than it reveals. It represents the result of many changes, both increases and decreases, in the production of particular goods and services.

Demand over a sufficiently long period corresponds with production. Discrepancies between production of, and demand for, particular articles and services are produced by changes in inventory. Some inventory changes result from variations in weather, which produce large or small supplies of annually grown raw materials: wheat, corn, cotton, tobacco, and sugar. Other changes result from rapid price fluctuations. The purchase of goods for

[2] Warren M. Persons, "The Growth of the Nation," in *Barron's*, March 2, 1931, p. 31.

inventory as a protection against rising prices is, over a sufficiently long period, balanced by corresponding declines in purchases, induced, usually, by declining prices.

Aside from such changes, increases in production are balanced by corresponding increases in demand. Exceptions to this rule occasionally occur. As a national economic policy, surpluses may be physically destroyed. The destruction of millions of bags of coffee by the Government of Brazil and the slaughter of hogs by the Government of the United States, to reduce supply and raise prices, are illustrations. These exceptions do not destroy the correlation of rising production and rising demand. Rising production is normally absorbed by the market.

The standard of living changes, and the relative importance of each human want changes. An increase in the demand for goods and services need not lead to a corresponding increase in the demand for each necessity. The expansion in living standards may call for a decrease, both relative and absolute, in the demand for some goods and services. The importance of food and clothing in the scheme of consumption has apparently decreased in the last quarter of a century. Between 1899 and 1929 the computations of one reliable authority indicate a reduction in the percentage of aggregate production represented by food and clothing from 57.9 per cent to 43.6 per cent. This change occurred largely between 1914 and 1929.[3]

The consumption of some foods has declined sharply. The per-capita consumption of meats has been reduced by the substitution of milk, vegetables, and cheese. These are economical foods, and better suited to the requirements of a population which has largely given up muscular work. Taking the figures from 1899 to 1931, beef showed a reduction from 67.8 to 49.6 pounds per capita; and dressed meats from 142.8 to 133.2. Consumption of pork, however, used largely by those in the lower income strata who still do manual work, increased from 64.7 to 69.6. Another computation reveals an annual per-capita meat consumption between 1901 and 1910 inclusive of 146 pounds. In 1937 this dropped to 120.[4] The consumption of wheat flour, the most im-

[3] Frederick C. Mills, *Economic Tendencies in the United States*, p. 288.

[4] Statement of Thomas E. Wilson, President of Wilson & Co., New York *Times*, February 2, 1938.

portant cereal food, showed a reduction in per-capita consumption from 223.9 pounds in 1889 to 162.2 pounds in 1932. Percentage-wise, the use of corn meal showed an even greater decrease, declining from 117 pounds in 1889 to 21.3 pounds in 1931. The decline in the demand for flour has been persistent, and has not been reversed by price declines. "Despite its relative cheapness compared with other staple foods," wrote a trade commentator in the spring of 1936, "one of the most puzzling things in recent years has been the failure of flour consumption to pick up in this country." [5]

This decline in the importance of food in the consumer's budget does not spell adversity for all food branches. The consumption of fresh fruits, for example, reflecting the tendency toward variety in diet, has increased at an astonishing rate: oranges from 6.69 pounds per capita in 1899 to 25.60 pounds in 1932; grapefruit from 0.92 pounds per capita in 1909 to 7.06 pounds in 1932.

Comparable data for fresh vegetables are available only for comparatively recent periods: carrots from 1.80 pounds in the period 1921-1925 to 4.35 for 1932; lettuce from 5.77 heads to 6.81 heads, and cantaloupes from 5.28 to 6.16, for the same period. Again revealing the trend, the consumption of that class of vegetables necessary for hard muscular labor has shown a decline: Irish potatoes, for example, from 176.40 in 1889 to 150.20 in 1932; sweet potatoes from 39.13 in 1899 to 34.58 in 1932.

The fruit- and vegetable-packing industry has benefited from rising per-capita consumption. Canned fruits has increased from 2.34 pounds in 1899 to 10.61 pounds in 1931; and canned vegetables from 10.29 in 1899 to 28.41 in 1931.[6]

Clothing represents another primary necessity which has diminished in importance. Before the war a woman's traveling outfit weighed twelve pounds. Now it weighs a scant three pounds. "With the shortening of women's skirts it was necessary to manufacture only half the amount of cloth to clothe the same number of women because the yardage per garment dropped from five or six yards to a matter of two and one-half to three yards." [7]

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[5] *Wall Street Journal*, May 19, 1936.

[6] "Summary of Estimated Per-Capita Consumption of Foodstuffs in the United States since 1889," by C. E. Montgomery and C. H. Kardell, U. S. Bureau of Foreign and Domestic Commerce.

[7] Annual report, Botany Worsted Mills, 1937.

Women's underwear shifted from cotton to silk and rayon, and the rising demand for silk hosiery in the twenties produced heavy increases in earnings for the hosiery manufacturers.

In the underwear industry there has been a shift from one-piece or union-suit type of underwear to the two-piece, or the short and shirt type. "That means, of course, that while in terms of business the output to-day is approximately the same as ten years ago, in terms of full body covering, the output is considerably less. As a matter of fact, the production per capita was 4.0 pieces, or 2.8 complete units of underwear in 1927, and 3.7 pieces, or 2.3 complete units in 1935. (Population change considered.)"[8] Accordingly, despite the growth of population within the last fifteen years, the production and use of underwear has remained relatively steady. The per-capita consumption has declined.

The closed automobile and superior domestic heating have stimulated the use of lightweight fabrics, although the loss in poundage has been partially overcome by the use of heavyweight overcoats. The clothing industry, therefore, faces the same problem of declining per-capita consumption. In 1929, for example, the number of suits per male over fifteen years of age had declined by 18 per cent from the 1926 level.[9]

Among other primary wants which have become less important is shelter. The provision for adequate housing is an indispensable part of the modern standard of living. The rising tide of metropolitan life has been characterized by an expansion in residential construction. This expansion has been irregular. Most of the building has been confined to periods of prosperity, characterized by easy money-rates and a plentiful supply of lendable funds. This has been followed by a sharp decline during periods of deflation when prospects of personal and corporate income are dim.

The last residential boom culminated in 1928. Since that time, despite efforts made by the Federal, state, and city governments, concessions made by lenders to borrowers, and reduction in interest rates, the expected building boom has not materialized. This trend has been attributed to a rapid rise in construction costs (both operating and capital) which have increased building prices

[8] "Business Building Notes," published by the Underwear Institute (November, 1936), p. 4.

[9] *Journal of Commerce*, July 8, 1937, statement of Frank B. Todd, Director of Men's Wear Promotion of the Associated Wool Industries.

to a point beyond the income of the consumer. There is some truth in this judgment, but there is evidence to indicate that the competition of other important industries, particularly the automobile industry, has been largely responsible. The consumer has accepted a lower standard of living in the form of fewer cubic feet of residential space in return for a higher standard of living in the form of other goods and services.

The last ten years have witnessed a change in housing expenditures. The expenditures for such goods as automobiles, electrically powered equipment, radios, and automobile tires have increased. The expenditures for rent, taxes and interest on funds invested in homes, have declined. Perhaps this is temporary. In this event, the normal expenditures for shelter may, in subsequent years, increase. To the extent that this diversion continues, however, the building and accessory industries will decline, while the automobile, radio, electrical-equipment, gasoline, rubber, and rubber-tire and other allied industries will expand.

The automobile industry has been unusually successful in attracting the consumer's dollar. This industry supports a part of the American business and investment structure. While it has destroyed large amounts of investment value, it has created more than it has destroyed. Automobile manufacture produces large disbursements in accessories and gasoline. A large part—25 per cent—of the demand for steel comes from the same source. Non-ferrous metals, chemicals, electrical equipment, instalment finance, cleaning compounds, containers, glass, textiles, publishing and distributing, and building materials and equipment, all depend partly upon the motor car. The automobile industry, while it has reduced transportation and central city real-estate values, has stimulated the growth of the suburbs and has also developed the truck and the bus to replace the values which it has destroyed. Into every department of our economic and social life the automobile has penetrated. Its continued use is intimately bound up with our national well-being.

If the habit of motor riding that sustains this great industry and the other industries that flourish in its shadow should decline; if the twenty-six million owners and the additional millions of non-owner riders should change their habits, American business would sustain a shock from which it would be hard to recover.

Is the automobile a permanent element in American consumption? The United States grew to 100,000,000 population without much aid from the automobile. The railroads handled a large volume of passengers and light freight without the passenger car and the truck. The transportation service could be performed without the automobile. The economic advantages of the automobile may be easily exaggerated. Doctors can see more patients in a given time. Farmers "run into town" after a spare part or a bag of cement. Salesmen can visit more customers, contractors can supervise more jobs. In the social field, car owners can keep up a wider circle of friends; suburbanites can commute to the city at high speed and can usually save time over a suburban train. Travel about the city in an automobile is faster than in the trolleys. In closed cars families are independent of the weather. They can go into the country. They can descend upon friends and relatives for week-end visits. All these arguments for the use of the motor car are familiar.

On the other hand, there are certain well known facts which, if considered by themselves, would point to the conclusion that the automobile, aside from business and professional use, is a costly luxury which the public will one day desert when they compare its advantages with its costs and disabilities. Consider the alternatives to the automobile. The annual cost of operation will accumulate in forty years, the span of a working life, to a sum on which, in his declining years, the thrifty saver can live. For fifteen years he can enjoy a dignified and independent old age, or if he wishes, a fuller life than he has enjoyed. In short, the annual cost of running a small car, purchased new, if saved for forty years, will probably make a workman, if he continues to work, secure and prosperous in his old age. It will protect him against disability in the meantime, and will secure his dependents from want in the event of his death.

Furthermore, if he keeps in mind the uncertainty of employment, these savings will make him independent of lay-offs, or shutdowns. It will enable him to range widely in search of a new job. It will lift from his mind the harassing worry of unemployment from which the American workman is never free. Before he is thirty years old he will normally have three children whom he wishes to educate. He can arrange his savings so as to send

them through high school and even through college, while still leaving enough for the maintenance of the parents in their old age. No one will contend, when this contrast is presented, that the material benefits from a car, swell them as expansively as credulity will tolerate, can equal the benefits of saving the cost of the car. If we assume that economic pressure, education of the present generation to the advantage of thrift and insurance, not only in the public schools, but by the massive propaganda of the insurance companies and savings banks, will convert the American people to the saving habit, the future of the automobile, as a form of consumption, is black. It will have difficulty in surviving in the face of mass saving.

Again, dismiss saving from consideration, and consider the alternative forms of spending which are now open—the number of movie or theater tickets, rugs, household furniture and conveniences, books and magazines, the demand for higher education, the greater abundance of clothing, the trained nurse, the specialist, the private room in the hospital, the visits to distant relatives and friends, the vacation trips, the greater variety of food, grade "A" milk for the baby, ice cream as a staple of diet, turkeys on state occasions, and expensive candy and good cigars for evening gatherings of friends. All these things do the nations of the world seek after, and the annual cost of the automobile will pay for them.

The national preference for the motor car cannot be explained by the effective merchandising and advertising methods of the industry. All consumers' goods are advertised as effectively as the automobile.

Neither can social prestige fully account for the supremacy of the automobile. The automobile is conspicuous, it is true, and a serious loss of "face" is involved in its repossession by the finance company when a suspension of instalment payments makes this necessary. A house is sacrificed before a car, because the neighbors do not know who owns the house; the owner can continue as a tenant, and no one is the wiser, while the loss of a car is an open advertisement of failure. Prestige is a complex thing. Its most common origin is the ability to spend. It may be seriously questioned, however, whether expenditure on a car gives more prestige than proven ability to meet the emergencies and responsi-

bilities of life. Consider the serious illness or operation, for example. Mrs. Jones may suffer acutely when she sees Mrs. Smith's new Hudson, and especially when Mrs. Smith takes her to ride. But when Mrs. Smith's daughter goes to the clinic and the ward for operation and care, while Susie Jones has a private room and a private nurse; or even better, when Susie is cared for in her home by the eminent specialist at $10 a visit, with a trained nurse in charge of the patient, surely there is balm in Gilead. Prestige comes from expenditure for higher education, from a well-furnished home entirely paid for, from an independent business started with savings, from the possession of reserve funds when positions are lost. The saving workman sits on his front porch during a lay-off. The spending workman looks, usually in vain, for temporary employment. Automobile operation cuts into the clothing fund. Much prestige accrues from a fur coat or an evening gown. The automobile, especially in these days when so many people own one, cannot rely upon prestige to maintain its position as the largest manufacturing industry.

On a purely economic basis, we cannot explain the mass use of the automobile. Aside from the expense, it is dangerous, increasingly dangerous. In 1938, more than thirty thousand persons died and about one million were injured in the United States in or by motor cars. Traffic congestion grows constantly worse, and the nerve strain of driving or riding more severe. The automobile has greatly reduced walking except for formal exercise. The automobile has facilitated violent crime. It affords an easy "getaway." Aside from its direct cost, the automobile has contributed to extravagant living. The cost of entertainment, both terminal and en route, has grown to large figures. The honking of automobile horns has become a nuisance, even ranked as a menace to health.

And yet, the automobile is here. The world is on wheels. To remove the wheels would dislocate and seriously damage the business structure. If the automobile owner gave up his car in favor of other forms of expenditure, the damage would be incalculable. Condemn it as we may, it is an organic feature of our living, one of the foundation piers upon which the structure of American economic life rests, which cannot be removed or weakened without great and general injury. It is important to discover

some underlying motive, some fundamental trait or trend of the mind, some instinct or enduring emotion which explains the growth of this institution to its position of commanding importance, and which will operate to support and increase it.

The dominant motives which explain human conduct, aside from the primary motives of self-preservation, sex, and the parental instinct, have been classified as: response to the applause of our neighbors, arising out of the herd instinct; security; the desire for new experiences; and freedom. Of these, the first and the fourth are more important than the second and third, although all four blend and overlap in their influence upon behavior. And in the freedom motive we find the explanation of the automobile. Human beings have always struggled to be free from the "fell clutch of circumstance," from the constant pressure of the conditions in which they live. Political freedom is the most familiar. "No man is good enough to govern another man without his consent." It is true that the common man has little to say about his governors. He does not always select them nor direct their actions, but he thinks he does both, and he is satisfied. For this political freedom, the right to govern himself, the common man is willing to risk his life. Every war is waged for the freedom of all parties to the controversy. Economic freedom is the object of saving. Personal freedom holds us to the paths of righteousness and orderly conduct. It holds the poverty-stricken farmer on his land. He is his own boss. The desire for freedom draws workmen into the labor unions, which stand between them and the feared oppression of the boss, which protects them in their wages and working conditions. Freedom is the chief motive of ambition. The higher a man goes the fewer are his bosses, the more secure his place, the more considerate his treatment. The desire for freedom for the children from the hard pressure of working-class life explains the unanimous support of the public schools. An educated man has a chance for freedom.

This universal desire for liberty explains the automobile. The motor car pushes back the confining barriers of time and space. Its owner and his family with him can go anywhere at almost any time. He is independent of timetables. He goes when he pleases. In the car, he is, for the hour, master of his destiny. He travels at high speed, faster than any but the fastest express

trains. His home may be, and usually is, small and crowded. His table may not be well furnished. His clothing may be cheap and insufficient. His job may be insecure. He is bound fast to the treadmill of daily life, to the performance of routine tasks, endlessly repeated. He feeds blanks into a machine, or sets screws, or tests material for hardness—always the same blanks, the same screws, the same material. He runs an adding machine or a billing machine—always the same figures, the same entries. In the car, the monotony of his dull, humdrum existence drops away. He is, if only for a little while, free, and for those brief intervals of freedom he is willing to make great sacrifices. In *Middletown* the investigators encountered such expressions as: "We'd rather do without clothes than give up the car."... "I'll go without food before I'll give up the car."... "The car is the only pleasure we have." The car, to at least sixty million Americans, is the symbol of liberty, the means of emancipation, for themselves and for their children, from the monotonous pressure of their lives.

The pressure of children's desires is also largely responsible for the vogue of the automobile. A boy, and in less measure a girl, without the use of a car is "out of it." His social life is limited. The girls expect the boys to take them about in cars. Without a car, the adolescent male is likely to meet great difficulty in his search for happiness. A girl is also much limited and humiliated if her parents do not possess a car. Children's pressure, with the natural desire to gratify their wishes, is responsible for the two-car family.[10]

Added to liberty, there is the motive of new experiences. Every ride is an adventure, and if it is a dangerous adventure, that is no reason for not enjoying it. New scenes, new people, fresh emergencies successfully met—all these make life worth living, expand the horizon, develop the personality.

There is no prospect, as long as the industrial machine continues to pour out its present volume, unless maladjustment brings the income of the American people to the bare subsistence level, that the automobile will lose its popularity until and unless it is supplanted by some more rapid and enjoyable means of transportation. The automobile ministers to fundamental traits of human nature. Its enjoyment is immediate and continuous.

[10] *Middletown*, pp. 256-257.

The enjoyment of savings lies far in the future. Sufficient unto the day is the evil thereof. We may never live to spend our money. A home of your own, that is fine, but the home must have a garage. Furniture, insurance, conveniences, fuel, even variety and cost of food, all must give place to the automobile. The economic man, that pale abstraction of the economists, rejects the automobile in favor of more rational forms of expenditure. The real man, very far removed from the economic man, puts the automobile first, and clings to it, it may be, at heavy sacrifice. As a form of consumption, the automobile, we may conclude, is permanent.

Another record of expansion is revealed by industries that respond to the demand for stimulants and sedatives. The rapid pace of modern industrial and domestic life has placed a premium upon the use of stimulants. The increasing use of stimulants has been balanced by the increasing use of sedatives. Strange as it may be, however, demand for cigarettes has expanded; while the demand for cigars has declined. The demand for manufactured tobacco and snuff has remained stable. Chewing gum and soft drinks are two other industries favored by rising trends of demand. The returns to stockholders of the William Wrigley Company in the chewing-gum industry and of the Coca-Cola Company in the soft-drink industry give their common stocks high investment rating.

The decrease in the working day, combined with the rapid expansion in the use of the electric motor, has created much leisure time. The demand for services to be utilized in leisure moments has stimulated the growth of many industries. A controlling factor in the development of the institution of leisure is the electric motor. From the tiny fraction of a horsepower used in the dentist's drill, and grading upward by fractions and whole-numbered horsepower to the powerful motors used for the movement, transmission, and the elevation of huge tonnages of steel ingots in the modern steel mill, the electric motor has made it possible to utilize applied power in any quantity. It is used to produce heat in the toaster, electric iron, electric range, hot-water heater, and for space heating. It is employed to drive the sewing machine, the vacuum cleaner, the washer, and the oil burner. It functions in the compressing of liquids and gasses and thus serves

in the production of refrigeration and air-conditioning devices. The electric motor has thus reduced the time required to discharge the standard domestic chores—heating, cooking, refrigeration, sewing, repairing, rug cleaning. The resulting reduction in the number of hours per day required to complete the routine domestic work has produced a substantial increase of leisure time.

The same result has been accomplished in industry. Here, as in the home, the electric motor has increased hourly labor output. It has reduced the number of hours per day necessary to turn out a given output of goods and services. The efficiency of electrical power exceeds that of steam power. In chemistry, sheet steel, rayon, porcelain, in pulp and paper, the principle of continuous production is rapidly spreading. Electrical power has standardized output and increased production.

In the increase of leisure time, numerous other forces are important. Electric power, however, has been the primary influence The resulting increase of leisure has laid the foundation for the growth of the mass amusement and recreation industries. The moving-picture industry in 1936 grossed approximately $1,000,000,000, an increase of about one-third over 1935. Motion-picture attendance for 1936 approximated a weekly average of 81,000,000, in comparison with 71,000,000 in 1935, and 54,000,000 in 1933.[11]

The increased use of the electrical motor, which has contributed to the growth of the leisure industries, has increased the demand for industrial, commercial, and residential electricity. Capacity and output of electricity in the twenties grew "at the astonishing average rate of about 10 per cent annually." [12] New sales records were reached in 1935, and again in 1936 and 1937. The sales of electricity for residential purposes, the most stable and profitable end of the business, advanced steadily in the depression. The accessory industries benefited through the sale of domestic appliances, and many other allied industries paid handsome returns in dividends and interest.

These major shifts in demand have elevated or depressed the fortunes of major classes of industry. Transportation, food, clothing, building, and shelter have assumed a diminishing relative

[11] *Journal of Commerce,* December 29, 1936.

[12] "The Recovery Problem in the United States" (Brookings Institute, 1936), p. 206.

importance. The primary wants, which these industries serve, are as essential as ever. Perhaps, in absolute figures, the absorption in consumer channels of the goods and services produced is as great as ever. The per-capita consumption, however, has declined.

This sketch of the fluctuations in the demand for the primary necessities is suggestive of financial and investment consequences. Modern industry is not organized on the basis of supplying a primary need. There is no modern industry that serves all forms of transportation. One part produces a decentralized and short-haul service through the use of the internal combustion engine, and another a centralized and long-haul movement through the use of the steam locomotive. The one moves largely finished products in small quantities, and the other raw materials in large quantities. The pipe-line industry moves fluids over long distances at a minimum cost, and the modern sea-going tanker moves the fluid commodity at a small fraction of the competitive cost of pipe line and railroad tank car. In passenger transportation the railroad furnishes one class of service, the bus another, the private automobile another, and the airplane still another.

The divisions and subdivisions of the food industry are far reaching: packaged foods, foods in tin, glass, and fiber packages; frozen foods, canned foods, and fresh foods. Each food industry sells one class of food, although occasionally one company or group of companies performs a composite service. Competition between the divisions of the food industry prevails. Packaged rice competes with bulk-rice; starches in the form of spaghetti and potatoes compete with elaborately fabricated cereals which because of superior service and high cost of fabrication are available at higher prices. In dairies, fresh milk competes with evaporated and condensed milk; tub butter with packaged butter, and so on in great variety.

The fluctuations in the demand from one primary want to another, therefore, do not directly affect the fortunes of a particular industry. Corporations serve specific needs. They respond to the demand for *particular* kinds of food, clothing, shelter, amusement, power, and transportation.

In foods, the decline in the demand for starches and the increase in the demand for vitamins have been the distinguishing features

in the last quarter of a century. Increases in consumption of fruit and vegetables, butter, milk, and cheese have gone hand and hand with decreases in demand for bread and flour, potatoes and spaghetti. The following table shows the increase in consumption of vitamin-bearing foods:

AVERAGE ANNUAL PER-CAPITA CONSUMPTION OF VITAMIN-BEARING FOODS IN POUNDS [13]

	Period 1920-1924	*Period 1930-1933*
Dairy Products: Milk and Cream	315	349
Manufactured Dairy Products	43	45
Fresh fruit	173	176
Vegetables	142	158
Eggs	23	27

This mass shifting from meats, cereals, and potatoes to dairy products, fresh fruit, and vegetables has exerted profound effects upon the fortunes of the food industry. The growth of the meat-packing industry has been halted. Declining per-capita consumption has slowed up expansion. The industry has reduced the amount paid out in dividends and interest to stockholders and bondholders.

This does not mean that all branches of the meat-packing, cereal, and potato industries have become stagnant. Some branches have prospered. The form in which cereals and starches are offered has changed. The conversion of bulky raw materials into flour, bread, and biscuit is the declining branch. The consumption of bread, biscuits, and baking products has been declining. Such concerns as Continental Baking, General Baking, Purity Bakeries, and Ward Baking have suffered reverses. Few common dividends are paid, and arrearages of preferred dividends are large.

On the other hand, the demand for cereals in the form of crisp, carefully packaged, and well advertised breakfast foods has increased. Wheat, corn, and rice in the form of Wheatena, Wheaties, Shredded Wheat, Kellogg's Cornflakes and Puffed Rice have shown sales increases in a restricted food market.

Advertising has contributed to the increased demand for pack-

[13] These figures are taken from the "Consumer's Guide," September 30, 1935, issued by the Consumer's Council of the Agricultural Adjustment Administration in coöperation with the Bureau of Agricultural Economics, Bureau of Home Economics, Bureau of Labor Statistics, Washington, D. C.

aged foods. The cost of a nationally advertised package may be greater than the cost of an unpackaged article. The former foods, however, have shown greater increases in sales.

That part of the food industry known as packaged foods represented by Cream of Wheat, Standard Brands, General Foods, and Beech-Nut Packing have prospered. Earnings of these companies have increased and dividend distributions have shown substantial expansion, while competitors—the processers and distributors of food in unpackaged form—have languished.

More recently the demand for frozen foods has laid the foundation for the growth of a new branch of the food industry. Edwin T. Gibson, president of the Frosted Foods Sales, states that frozen foods are "changing the food habits of the nation." [14] And Clarence Francis, president of General Foods, presents a picture of future expansion characteristic of industrial pioneering in its earliest stage of most rapid growth. The development of the frosted-food business will mark a new era in the history of food packaging. There are at least 50,000 retail outlets which are patented frozen food distributors. The growth of this industry is limited only by the growth of adequate production and distribution facilities.[15]

The textile industry reveals the operation of the same competitive forces. The primary fibers that enter into the production of all forms of clothing compete with each other. The primacy of cotton, established late in the eighteenth century, continued unchallenged for more than a century. The rivalry of wool and silk was at no time serious. These fibers were complementary. The spinning and weaving of cotton in the United States until recent years was profitable. From 1885 to 1900 cotton textiles in the United States grew at the rate of about 4 per cent annually; and from 1915 to 1925 about 2 per cent.[16] Thereafter the annual expansion almost stopped. During its period of steady growth the industry produced many financially noteworthy enterprises. Fall River featured such mills as the Union Cotton Manufacturing Company and the King Philip Mills. The dividend records of these mills is sufficiently typical of the well-managed cotton mill to warrant their reproduction (pages 28 and 29).

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[14] *Journal of Commerce,* June 15, 1938.
[15] *Ibid.*
[16] Carl Snyder, *Business Cycles and Business Measurements,* p. 31.

The Union Cotton Manufacturing Company was finally liquidated in 1932 at a price which gave the stockholders $55.35 a share. The King Philip Mill was sold to the Berkshire Fine Spinning Associates in 1930. The stockholders received a liquidating dividend of $59.00 per share, and ½ share preferred and 2 1/7 shares common of Berkshire for each share of originally held King Philip common.

A well-managed mill in New Bedford, the Dartmouth Manufacturing Company, presented a similar record. The original shareholders received an average income of 60 per cent a year for 25 years.[17] In 1932 and 1933 the company passed its dividends, and in the latter year it sold the mill and paid stockholders a substantial liquidating dividend.

Leading wool companies also showed handsome dividend returns. Since the early twenties, however, the woolen and worsteds and cotton industries have fallen on evil days. Both industries reached an all time peak in 1923.[18] But the per-capita consumption of both textiles has since declined.[19] A new textile giant has arisen—rayon. The production of this new fiber in the United States started in 1912, and by 1920 amounted to 8,100,000 pounds. By 1927 it had reached 75,500,000 pounds. Except for a decline from 1931 to 1932, rayon production has increased steadily each year. It reached a record production of 332,336,000 pounds in 1937, more than four times the output for 1927. Rayon has "virtually eliminated silk from the dress-goods field and had (has) captured the better-grade lining outlets." [20]

Indeed, reliable authority does not hesitate to anticipate that "the time will come when all textile materials for wearing apparel, home furnishings and industrial use will have their origin in the laboratory test-tube." [21]

The increasing per-capita consumption of rayon has accom-

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[17] *Journal of Commerce*, Feb. 27, 1937.

[18] Edwin G. Nourse and associates, *America's Capacity to Produce*, p 204.

[19] Arthur Besse, President, National Association of Wool Manufacturers, referred early in 1939 "to a gradually decreasing per-capita use of woven fabrics for apparel purposes," *Journal of Commerce*, January 18, 1939. For evidence of declining cotton consumption, see pp. 28, 29.

[20] *Journal of Commerce*, October 27, 1938, statement of Charles Whitney Dall, President, National Rayon Weavers Association, Inc.

[21] Statement by Theodore Wood, Director of Advertising, American Bemberg Corporation and North American Rayon Corporation, in *Journal of Commerce*, Nov. 2, 1938.

DIVIDEND RECORD OF TWO

UNION COTTON MANUFACTURING COMPANY,[22] *1882-1929*

Year	Dividend Per Cent	Amount of Dividend	Capitalization	Year	Dividend Per Cent	Amount of Dividend	Capitalization
1882	20	$150,000	$ 750,000	1906	18½	222,000	1,200,000
1883	20	150,000	750,000	1907	35½	426,000	1,200,000
1884	16	120,000	750,000	1908	6	72,000	1,200,000
1885	12	90,000	750,000	1909	29½	354,000	1,200,000
1886	16	120,000	750,000	1910	6	72,000	1,200,000
1887	21	157,500	750,000	1911	6	72,000	1,200,000
1888	30	225,000	750,000	1912	6	72,000	1,200,000
1889	20	150,000	750,000	1913	56	672,000	1,200,000
1890	14	105,000	750,000	1914	6	72,000	1,200,000
1891	12	90,000	750,000	1915	6	72,000	1,200,000
1892	12	90,000	750,000	1916	36	432,000	1,200,000
1893‡	12	90,000	750,000	1917	16	192,000	1,200,000
1894	10	75,000	750,000	1918	40	480,000	1,200,000
1895	12	90,000	750,000	1919	14	168,000	1,200,000
1896	9	67,500	750,000	1920	54	648,000	1,200,000
1897	6½	48,750	750,000	1921	12	144,000	1,200,000
1898	6	45,000	750,000	*1922**	41	492,000	1,200,000
1899	8½	63,750	750,000	1923	6	108,000	1,800,000
1900	10	120,000	1,200,000	1924	6	108,000	1,800,000
1901	6½	78,000	1,200,000	1925†	6	99,000	1,200,000
1902	5¾	69,000	1,200,000	1926	6	72,000	1,200,000
1903	6	72,000	1,200,000	1927	6	72,000	1,200,000
1904	4½	54,000	1,200,000	1928	6	72,000	1,200,000
1905	6	72,000	1,200,000	1929	6	72,000	1,200,000
				Total dividends		$7,657,500	

* In addition, stock dividends of 50 per cent declared December 29, 1922.

† In addition, capitalization reduced September 2, 1925, to $1,200,000 by payment of 33⅓ per cent in cash.

‡ Italics mean depression years.

panied a declining per-capita consumption of cotton. "The evidence is unmistakable," states the president of the Cotton Textile Institute, Inc., "that the per-capita consumption of cotton in the United States appears definitely to be on the wane." [23] Cotton is still a vital necessity and is indispensable in the production of many fabrics. Nevertheless, the decline in per-capita consumption

[22] *Journal of Commerce*, May 30, 1935.

[23] *Journal of Commerce*, May 2, 1938.

FALL RIVER COTTON MILLS

KING PHILIP MILLS,[24] *1886-1930*

Year	Dividend Per Cent	Amount of Dividend	Capitalization
1886	6	$ 60,000	$1,000,000
1887	6	60,000	1,000,000
1888	6	60,000	1,000,000
1889	6	60,000	1,000,000
1890	6	60,000	1,000,000
1891	6	60,000	1,000,000
1892	7	70,000	1,000,000
1893 ‡	7	70,000	1,000,000
1894	6	60,000	1,000,000
1895	6	60,000	1,000,000
1896	6	60,000	1,000,000
1897	6	60,000	1,000,000
1898	4½	45,000	1,000,000
1899	7½	75,000	1,000,000
1900	6	60,000	1,000,000
1901	6	60,000	1,000,000
1902	16	160,000	1,000,000
1903	6	60,000	1,000,000
1904	6	60,000	1,000,000
1905	6	60,000	1,000,000
1906 *	6	90,000	1,500,000
1907	6	90,000	1,500,000
1908	6	90,000	1,500,000
1909	6	90,000	1,500,000
1910	6	90,000	1,500,000
1911	6	90,000	1,500,000
1912	6	90,000	1,500,000
1913	6	90,000	1,500,000
1914	6	90,000	1,500,000
1915	6	90,000	1,500,000
1916	9½	142,500	1,500,000
1917	19	285,000	1,500,000
1918	16	240,000	1,500,000
1919	13	195,000	1,500,000
1920 §	23	345,000	1,500,000
1921	6½	146,250	2,250,000
1922	31	697,500	2,250,000
1923	31	697,500	2,250,000
1924	6	135,000	2,250,000
1925	26	585,000	2,250,000
1926	16	360,000	2,250,000
1927	16	360,000	2,250,000
1928	16	360,000	2,250,000
1929	11	247,500	2,250,000
1930 §	3	67,500	2,250,000
Total dividends		$7,083,750	

* In addition, 50 per cent stock dividend.

† In addition, 50 per cent stock dividend and an extra 50 per cent dividend in form of Liberty Bonds.

‡ Italics mean depression years.

§ In addition, $45 per share paid in partial liquidation of quick assets, the plant being acquired by the Berkshire Fine Spinning Co. this year.

In 1931, 14 per cent liquidating dividend was paid. Each share of King Philip Mills also received one-half a share of Berkshire, preferred, and two and one-seventh shares of Berkshire, common stock.

has reduced earnings and dividends. The increased per-capita consumption of rayon, on the other hand, has set the background for increased earnings and dividends in that industry.

One branch of the textile industry has grown rapidly, the other has declined rapidly. The one is prosperous and profitable; the other is unprosperous and unprofitable.

[24] *Ibid.*, January 28, 1935.

Declining cotton consumption is due also to competition from the paper industry. Many branches of that industry are busy meeting needs formerly served by cotton. Every year approximately 1,000,000,000 pounds of kraft paper are made into bags; more than 200,000,000 pounds of tissue paper are converted into napkins. "There are scores of other competitive items whose volume in pounds has not been reported.... It is a matter of current trade knowledge that the 500,000,000 yards of business still left to us in the manufacture of cotton bags is now hanging in the balance. In addition to paper towels, napkins, and bags, there have recently come into the stores paper curtains, draperies, wash cloths, sheets, and pillowcases." [25]

The consumer paper specialty business, which has thus increased its sales, has been profitable. Companies like Scott Paper, Sutherland Paper, and Lily Tulip Cup have displayed excellent dividend records.

Cotton is thus giving way to paper and rayon. Declining cotton demand has proceeded apace during a period which has seen a rapid expansion in demand for women's full-fashioned hosiery. Between 1919 and 1929 the full-fashioned industry grew 400 per cent,[26] and in 1937 it shipped a record total of 39,678,000 dozens.[27] The comparable figure for 1929 was 30,000,000 dozens.

Similar distinctions of growth and decline appear in other fields of primary necessities. In amusements, motion pictures have progressed in a period characterized by the collapse of the animate drama. The Shubert Theatre Circuit which for many years paid heavy dividends—and during its declining days heavy interest—has all but disappeared. It is still engaged in the production of the legitimate drama, but financially it is gone. Its securities have been largely stricken from the New York Stock Exchange and its distributions to the stock and bondholders have dwindled to an insignificant figure. The investors in the company have suffered heavy losses.

In domestic heating, similar differences between expansion and decay prevail. The rising standard of domestic heating in the last

[25] *Ibid.*, May 2, 1938. Statement of president of the Cotton Textile Institute, Inc.

[26] Edwin G. Nourse and associates, *America's Capacity to Produce*, p. 212.

[27] Statement of Earl Constantine, President, National Association of Hosiery Manufacturers, *Journal of Commerce*, April 27, 1938.

twenty years has not produced a favorable demand in the fuel industry as a whole. Prior to 1920 the anthracite coal industry enjoyed a favorable market. By 1921, 21,500 domestic oil-burners had already been introduced into the American home. Increasing use continued without interruption from year to year. In the depression the demand continued, and by the end of 1936, 1,352,700 domestic burners were in operation. Heating-oil for domestic consumption showed the same tendency. From 765,000 barrels in 1921, a steady expansion culminated in the use of 60,178,000 barrels in 1936.[28]

This increase was accomplished, in part, at the expense of the once prosperous anthracite industry. The breaker shipments in net tons of Pennsylvania anthracite declined from 77,603,037 in 1923 to 41,780,739 in 1933; recovered to 49,435,764 in 1934; and then resumed its secular decline.

Competition has played havoc with the fortunes of the industry. The industry still sells coal; it still pays heavy sums in wages and taxes. In fact, its wage scales are higher than twenty years ago in the hey-day of its prosperity. But the bondholders and the stockholders, as well as the tax collecting units, have suffered losses. The decline in demand has impinged upon the net income available for security-holders. The decline in gross revenue has not been matched by a decline in wages, taxes, depreciation, and cost of materials and supplies. The leading unit in the industry, The Philadelphia and Reading Coal and Iron, is in bankruptcy; Hudson Coal has been saved from the same fate by advances made by the controlling Delaware and Hudson which, in order to save the traffic originated by the Hudson Coal, has advanced funds to enable the latter to pay interest. The once prosperous Lehigh Valley Coal has also fallen on evil days.

The oil-producing and refining companies are the financial beneficiaries of the trend of demand which has victimized the anthracite companies.

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[28] "Petroleum Facts and Figures," published by the American Petroleum Institute.

CHAPTER III

DEMAND IN PRODUCERS' GOODS

ATTEMPTS have been made to explain trends in the demand for consumers' goods and services. Some of these explanations have been suggested in Chapter II. High-protein and high-energy foods have lost ground as power-driven machinery takes the place of muscle in industrial operations. Clothing fashions have been influenced by changes in consumers' environment. The universal automobile habit, for example, is partly responsible for the perpetration of the close-fitting hat and the short skirt. Heated rooms have reduced the weight and scope of women's wear. The increase of leisure has influenced the sales of amusement enterprises, and the automobile again has reduced expenditure on clothing and housing. Apartment-house living has reduced the demand for furniture and increased the consumption of packaged foods. These are familiar illustrations of the influence of changes in environment upon consumption trends. The buyers' preference is, however, largely unpredictable. It is only to a limited extent governed by reason.

Instead of the groping quest of the *consumer* for maximum satisfaction, a search which is made under the influence of inherited tastes and aptitudes in a bewildering maze of instincts and emotions, we have with the producer a definite standard of efficiency and performance. In the field of consumers' goods and services, a product or service is established by trial and error. A new product, such as a new velvet for women's wear, or a cigarette lighter for the automobile, or frozen meat in cuts ready for cooking, may meet the public taste, or may fail, at great cost to the experimenter. The consumer's taste can be, to some extent, directed by lavish advertising, preceded by elaborate surveys, based on thousands of questionnaires. If the new product or service is in line with the prevailing trend of consumption in that field, it may yield a rich harvest of profits. If, on the other hand,

the new product or service is opposed to the prevailing trend, or too far in advance of it, it will fail, and heavy losses will result.

In Producers' Goods and Services, designed, not for purchase by those who wish to consume them, but for use in making other goods and services, there is one standard—the standard of cost. The vast machinery of production is operated with only one object—profit to be attained by efficient production at the lowest cost. As a consumer, the manufacturer may buy his clothes in London and pay a heavy duty on them. It is possible that they may cost him twice as much as equally serviceable garments produced at home. His satisfaction is in the realm of the spirit. The devout believer may spend his substance on costly altar-pieces, lecterns, and memorial windows. He may reproduce an ancient temple to house his mortal remains. He may spend a large sum on a custom-built car without regard to cost or service-ability. He may spend great sums on rare stamps, or first editions, or ancient and ugly paintings or carvings. He may acquire rare and costly articles that serve no better purpose than to gratify his vanity by demonstrating to an admiring world his ability to spend. This same man, however, in his business, in order to produce the profits which he spends so lavishly, of necessity follows closely the standard of utility. His factory, his railroad, his mine, the fuel burned under his boilers, the looms which weave his textiles, the machines which speed up his bookkeeping, are judged by the standard of performance.

These production industries, sometimes known as capital-goods industries, produce goods and services which are sold to other producers. They are used for further production. With the exception of a limited number of industries (for example, cigarette or cigar machines or canning apparatus), they cannot be classified on the basis of their adaptation to a particular consumer's demand, such as food, shelter, clothing, and amusement. Steam and electric power, non-ferrous and ferrous metals, railroad, water, pipe-line and air transportation, conveying, transmitting, hoisting, and lifting machinery, metal-cutting and wood-cutting machinery, and the chemical products cannot be classified in terms of serving particular primary necessities. The classification must be worked out along different lines.

Groupings in the capital-goods industries begin with the indus-

trial raw materials. The mining industry extracts the ore. The smelting industry refines the ore and removes the non-metallic elements. Another branch converts the smelted product into the semi-finished metal. A variety of complicated fabrication and manufacturing processes follow. One branch manufactures machinery. Machinery includes excavating machinery, machine tools, pneumatic tools, precision tools, pumps, compressors, steam engines, and gas engines. These machines may have similar mechanical characteristics. They do not, for that reason, exhibit similar trends in demand, nor do the industries producing them show similar financial results. Because of these economic and financial dissimilarities it is necessary to classify the capital-goods industries so far as possible according to trends of demands. The differences in demand trends produce differences in financial results; they are the most important factor in producing prosperity and profits in one group and poverty and losses in another.

The classification of Capital Goods and Services is as follows:

1. *Metallic raw materials*—ferrous and non-ferrous ores, such as iron, nickel, aluminum, copper, lead, zinc, etc.
2. *Industrial fuels*—bituminous coal, crude oil, and natural gas.
3. *Synthetic materials*—products produced by chemical analysis and synthesis from the so-called "natural" raw materials; the latter consisting largely, although not exclusively, of salt, coal, lumber, limestone, sulphur, air, and water.
4. *Materials of construction*—comprising glass, wood, steel, ferrous and non-ferrous metals, plastics, gypsum, asbestos, etc.
5. *Machinery and machine tools*—including, among others, metal-cutting, metal-transmitting, conveying machinery; machines for specific industries, such as railway equipment, petroleum and natural-gas equipment, steel-mill equipment, textile equipment, printing and paper equipment; blast and electric furnaces for the separation of ores from their impurities.
6. *Mechanical power,* subdivided into steam, oil, gas, and electrical power, and including the equipment necessary to produce this power.
7. The *services* required to make these operations possible. These include railroad transportation, marine transportation, electricity, telephone, telegraph, building construction, and others.

This classification is by no means comprehensive. It is questionable whether any classification can be sufficiently air-tight to

include every form of capital activity and to produce no twilight cases. The classification, however, is sufficiently suggestive and inclusive to make it suitable for financial and economic discussion and to furnish a basis for the examination of trends of demand.

Undertaking first the examination of metallic raw materials, we find that the nineteenth century witnessed a large expansion in the demand for minerals. "Over the hundred years from Waterloo to the Marne, the world's consumption of metal and fuel increased like a sum at combined interest, drawing 5 to 7 per cent a year." [1] The most important metallic raw material is iron ore, the basic raw material for steel. In mechanical civilization iron and steel have played a most important part. The railroads, bridges, tunnels, factories, buildings, city skyscrapers, the steamships that ply the seas and the inland waterways, the pipe lines built underground that carry crude oil and natural gas, were all (to within recent times) based upon iron ore. Until the early part of the twentieth century the consumption of iron ore increased rapidly. The last two decades have, however, witnessed a decline in its relative importance.

This is due to two factors. First is the competition of scrap with the iron ore. Steel can be made from either scrap or pig iron. Pig iron, which is an unfinished product made from the iron ore, carries a heavy fabrication and transportation expense. The movement of iron ore, coal or coke, and limestone to the blast furnace involves a heavy expenditure, not carried by the scrap. Scrap, therefore, under normal conditions sells at somewhat lower prices than pig iron; and the consumption of scrap has been steadily increasing.

The second factor has assumed importance only within the last few years. Iron is a relatively heavy metal. Its density in grams per cubic centimeter is 7.88. For magnesium and aluminum the corresponding figures are respectively 1.74 and 2.70. Iron structures are therefore heavy. This extra weight means extra waste. The weight of a freight car is an excessive percentage of the weight of a loaded car. In addition to the dead weight of the car, the locomotive pulls an excessive load in the form of its own dead weight. The urban heavy-weight trolley car is an extravagant consumer of electricity. It is a slow mover. Its car-miles per

[1] Goodrich and others, *Migration and Economic Opportunity*, p. 423.

unit of labor and power is high. Its maintenance cost is excessive. Metallurgical research has, within the last quarter century, devised methods of lightening metals without any sacrifice of strength by mixing the iron with aluminum, magnesium, etc. The weight of a freight car, a trolley car, an automobile, a gas or Diesel engine has been reduced with no sacrifice of strength.

Iron is not only heavy. It is the most easily corroded of the metals. Many millions of dollars are lost annually from corrosion. Some metals, particularly chromium and nickel, do not corrode easily. The introduction of these metals as alloys into steel has reduced the losses from corrosion; the life of the metallic structure has been lengthened.

These forces have diminished the importance of iron ore. The tons of ore consumed per ton of iron and steel produced have declined from 1.20 in 1917 to a low of 0.68 pounds in 1932; although in 1936 the figure increased to 0.835 pounds.[2] This rise in the ratio in 1936 was due in part to a shortage of scrap occasioned by the increase of scrap exports to Japan, Italy, and Germany.

The annual increase in pig-iron production, which approximated 6 per cent in 1900,[3] has been gradually reduced. It was replaced by a decline in the thirties. The iron-ore and pig-iron industries have encountered a declining demand. Dividends have been small. Sloss-Sheffield Steel and Iron, Interlake Iron, and Great Northern Iron Ore have within recent years paid little to their stockholders.

The use of scrap, which has contributed to the declining fortunes of iron, has exerted varying influences on other metals. For many years prior to 1929 the percentage of scrap used in such industries as paper, lead, zinc, copper, and aluminum had gradually increased. Since 1929 the increased importance of scrap has continued to take its toll of the virgin raw materials. For copper, from 1929 to 1934, the trend is shown in the table on the following page.

In 1934,[4] 46,400 short tons of secondary aluminum, including

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[2] Exhibit No. 878 before the Interstate Commerce Commission in Ex Parte 115. Filed on behalf of the Lake Superior Iron Ore Association, March 1937, p. 10.

[3] Carl Snyder, *Business Cycles and Business Measurements*, p. 37.

[4] *Minerals Year Book*, p. 426.

the aluminum content of casting alloys, were recovered. This exceeded by 25 per cent the domestic production of virgin aluminum produced in 1930. In 1934 the domestic production of virgin aluminum and all secondary aluminum recovered as metal and in alloys totaled 83,488 tons, 44.4 per cent of the total being new metal and 55.5 per cent recovered metal.

SECONDARY COPPER PRODUCED IN THE UNITED STATES, 1929-34 [5]
(*Short Tons*)

	1929	*1930*	*1931*	*1932*	*1933*	*1934*
Copper as metal	297,600	244,800	188,300	140,500	193,100	220,400
Copper in alloys	328,950	222,400	158,700	107,680	145,000	157,000
Total secondary copper	626,550	467,200	347,000	248,180	338,100	377,400
From new scrap	222,200	125,000	85,700	67,200	77,800	66,500
From old scrap	404,350	342,200	261,300	180,980	260,300	310,900
Per cent of domestic mine output	63	66	66	104	177	159

Important recoveries of scrap zinc were also made in 1934. Recovery of secondary zinc amounted to 18 per cent of the output of primary slab zinc. In addition, large quantities of zinc dust, zinc chloride, and other compounds were made from the drosses and residues.[6]

Other metals, particularly nickel and chromium, because of certain qualities, enjoy a competitive advantage. Their corrosion-resistant properties tend to increase demand. Other non-ferrous metals resist high temperatures in electric furnaces and chemical pressure vessels. Still others resist the corrosive effects of acids and gases. These qualities, which are not possessed by the relatively heavy carbon steel, have increased the demand for many non-ferrous ores and semi-finished products. Thus the favorable trend of demand for nickel, chromium, and aluminum steadily continues.

This favorable trend of demand is responsible for the increase in production of *alloy* steel ingots and castings at a more rapid rate than for steel as a whole. The tabulation on page 38 shows this tendency.

[5] *Ibid.*, p. 59.
[6] *Ibid.*, p. 366.

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS IN UNITED STATES[7]

Gross Tons

	Total Alloy Steel	*Total Steel*	*Per Cent Alloy Steel*	*Tons of Total Steel to One Ton of Alloy Steel*
1909	181,980	23,955,021	0.75	131.6
1910	567,819	26,094,919	2.17	45.9
1911	481,459	23,676,106	2.03	49 1
1912	792,501	31,251,303	2.53	39.4
1913	714,357	31,300,874	2.28	43.8
1914	646,953	23,573,030	2.75	36.3
1915	1,021,147	32,151,036	3.17	31.4
1916	1,362,615	42,773,680	3.18	31 3
1917	1,644,335	45,060,607	3 65	27.4
1918	1,787,852	44,462,432	4.02	24.8
1919	1,481,188	34,671,232	4.27	23.4
1920	1,660,292	42,132,934	3 94	25.3
1921	809,548	19,783,797	4 10	24.3
1922	1,673,406	35,602,926	4.70	21 3
1923	2,106,489	44,943,696	4.70	21 3
1924	2,026,409	37,931,939	5 35	18 7
1925	2,432,973	45,393,524	5.36	18 6
1926	2,463,414	48,293,763	5.10	19.6
1927	2,531,748	44,935,185	5.59	17 7
1928	3,214,909	51,544,180	6.23	16.0
1929	3,957,207	56,433,473	7 01	14.2
1930	2,443,311	40,699,483	6 00	16.7
1931	1,455,913	25,945,501	5 61	17 8
1932	798,604	13,681,162	5 84	17.1
1933	1,547,183	23,232,347	6 65	15.0
1934	*1,673,900*	*26,417,620*	*6 31*	*15.7*
1935	*2,184,300*	*34,438,868*	*6.35*	*15.7*
1936	*3,017,600*	*48,442,030*	*6 23*	*16.0*

We may now conclude our discussion of the trends of demand in the metallic raw materials. An increase in the average annual per-capita use of steel from 2,600 pounds in 1900 to 15,940 pounds in 1930,[8] has been accompanied by a decrease in the production of the most important metallic ore, iron, and by a rapid increase in the production of the less important metallic ores,

[7] *Metals and Alloys*, July, 1937.
[8] *Steel Facts*, April, 1936, p. 5.

nickel, aluminum, magnesium, copper, molybdenum. This has laid the foundation for the prosperity of the International Nickel Company, Aluminum Company of America, Climax-Molybdenum, and the leading copper companies; and is responsible for the steadily decreasing prosperity of the iron-ore and pig-iron companies.

Equally as important as the metal is the fuel which supplies both heat and energy. The age of steam that characterized nineteenth-century civilization was built upon coal. Mass production of steel, dating from the middle of the nineteenth century, required heavy consumption of coal. The blast furnace for the production of pig iron, the Bessemer furnace and later the open-hearth furnace for the production of steel, were based upon the use of coal. Coal was also needed to raise steam to supply power to drive pumps, engines, and other mechanisms. Coal production expanded rapidly until 1920. Coal production showed an annual increase of 5 per cent from 1900 to 1910, of 4 per cent from 1910 to 1920, and "an almost negligible rate of increase," [9] since.

These forces, it would seem, should have made the coal industry prosperous. Until the third decade of the twentieth century, this expectation was borne out by industrial and financial experience. The earnings of bituminous coal companies were responsible for many a fortune. The stocks and the bonds of the industry filled a well-deserved niche in the portfolio of the careful investor.

The last fifteen years, however, have witnessed a steady deterioration in the financial prospects of the coal industry. Interest and dividends have been reduced. With only a few exceptions, the leading companies have passed their dividends. A number have gone through bankruptcy and receivership.

These results are not accidental. As with iron ore and pig iron, they can be attributed to competitive and technological developments. The steam age was wasteful of raw materials. For years, fears had been expressed of the approaching exhaustion of the nation's natural resources. Many books, private and public reports, addresses of scientists and statesmen, advocated the adoption of legislative proposals designed to ward off the evil day of exhaustion. In no important industry have these fears been confirmed by recorded facts. On the contrary, compared with the

[9] Carl Snyder, *Business Cycles and Business Measurements*, p. 31.

absorptive ability of the market, almost every natural-resource industry has created an excessive capacity. Bituminous coal, anthracite, nitrate of soda, phosphate rock, crude oil, lumber, natural gas, and sulphur are examples. Government and private efforts have combined to save tottering raw material industries, not because of their inability to produce what the market required, but because of their inability to sell what they could easily produce.

This reversal of academic and political prophecies is due to two factors. The first is scientific and technological. The waste with which coal, lumber, pig iron, and steel were produced in the heyday of the steam age served as a shining target for the engineering profession. In coal consumption, for example, combustion economies and devices were introduced on a large scale. Superheaters, waste-heat boilers, fuel injectors, high-pressure boilers, boilers built with metals capable of withstanding severe temperature and high pressures, are some illustrations of improved technology.

The results were startling. In iron and steel, for example, the number of pounds of coking coal required per ton of pig iron was reduced from 287 (the average for the period 1917-1921) to 188, and to 126 for the period from 1921-1926 and for the period 1926-1931, respectively.[10]

In electricity the amount of coal used (and the fuel oil and gas equivalent) per K.W.H. was reduced by 45 per cent from 1919 to 1935. An increase in the production of electrical energy in this period of 147 per cent was accomplished by an increase in coal-equivalent consumption of only 11 per cent.[11]

In steam railroads, the most important consumer of bituminous coal, each ton of coal has performed greater and greater service. In 1920 one ton of coal moved 1,000 tons of freight a distance of 11½ miles. In 1935 the same ton moved the same quantity 16 2/3 miles.[12]

In marine transportation, per unit fuel consumption has been almost halved since 1920. The fuel rate in pounds per shaft horsepower-hour in the geared turbine had been reduced from 1.05 in

[10] *Minerals Yearbook*, 1934, p. 575.
[11] *Electrical World*, April 25, 1936, p. 40.
[12] *Journal of Commerce*, December 30, 1936, statement of J. T. Battle, Executive Secretary of the National Coal Association.

1920 to 0.577 in 1936.[13] A ton of fuel does the same work in a modern steamship to-day that about two tons did only twenty years ago.

In oil refining the number of B.t.u.'s of heat required to refine a barrel of crude oil has declined from about 820,000 in 1925 to 597,000 in 1936.[14] Improvements have also been made in the art of extracting raw materials from mother nature.

Technological improvements have been supplemented by another factor. In the competitive fuel market, bituminous coal has relinquished an ever increasing portion to fuel oil, natural gas, and water power. Serious competition of fuel oil with coal began twenty years ago.

Fuel oil has many advantages over bituminous coal. There is no problem of ash disposal. The transportation cost is less. Crude oil—from which fuel oil is derived—is moved largely through pipe lines, whereas coal is carried over the steel rails. The cost of transportation by pipe line is lower than by rail. The average rate per ton-mile of Class I steam railroads in the United States approximates a cent per ton-mile. The average rate for pipe-line movement is probably less than three and one-half mills per ton-mile, a reduction in cost, which makes effective competition by the steam rail practically impossible.

Crude and refined petroleum are also carried in increasing quantities by ocean-going tankers. The ton-mile rate by tankers is one and one-quarter mills. From the West Coast and the Gulf Coast refineries the tonnage of petroleum and its products moving by water is steadily increasing. Bulk terminals are located at seaboard points, and inland distribution from these markets is effected to an increasing degree by the less expensive and more convenient truck-haul.

It therefore costs less to move liquid fuel by pipe line and tanker than it costs to move coal by rail. Coal is also more expensive to produce. From 60 to 70 per cent of the unit-cost of coal, as compared with 15 to 20 per cent for the competitive liquid fuel, represent labor. Costs of labor have been advanc-

[13] Letter of W. W. Smith, Chief Engineer, Federal Shipbuilding and Dry Dock Company, Kearny, N. J., November 30, 1936.

[14] Report of Investigations, United States Department of The Interior, "Survey of Fuel Consumption at Refineries in 1936," G. R. Hopkins, Report of Investigations 3367 (January, 1938).

ing in the last twenty years. Increased labor cost is an essential element of the rising standard of living. A particular increase in wage costs increases the cost of bituminous coal much more than the cost of its competitor, fuel oil. Irrespective of cost, fuel oil has advantages. It is better adapted for domestic automatic heating. It takes up less storage room per unit of heating output. This is an important factor—particularly on steamships. Bituminous coal has one point in its favor. For steam generation on a large scale in the populous East and Middle West, it is the cheapest fuel. In industries requiring steam for process work—chemical, paints, varnishes, sugar, pulp, and paper—coal is most economical. In most of metal-smelting operations, coal is still indispensable.

In this solid-liquid fuel competitive battle, bituminous coal has been a loser. According to figures published by the U. S. Bureau of Mines, 64.7 per cent of the total energy requirements of the country were produced by bituminous coal in 1919, and only 46.1 per cent in 1934—a net relative-percentage decrease of 29 per cent. During the same period, oil increased from 13.7 per cent of the total energy produced to 27.7 per cent—a net increase of 102 per cent.

Some of this increase in competitive strength does not represent a diversion from bituminous coal. Oil is used, not only for power requirements—primarily competitive with coal—but also for non-competitive purposes. Refined-oil products—lubricants, kerosene, gasoline, and road oil—are not competitive with bituminous coal. Computations have been made reducing the competitive strength of oil by eliminating the so-called non-competitive consumption. On such a basis the relative decline in the energy produced by bituminous coal from 1919 to 1934 was only 11 per cent instead of 29 per cent.[15]

In the marine field, the change from coal to fuel oil has been extensive. New ships are fuel-oil burners. In the merchant marine the fuel-oil tonnage has increased from approximately 18 per cent in 1920 to somewhat over 50 per cent in 1937. The fuel oil consumed for the heating of buildings is also rapidly increasing,

[15] Article by A. T. Shurick, "King Coal still Rules 75 Per Cent of his Domain, though Credited with but 54 Per Cent." *Annalist*, 49 (1,246), 516 (1937).

amounting, in 1935, to 21 per cent of total fuel-oil consumption. In oil refining, the relative importance of coal as a fuel dropped from 26.1 per cent to 5.4 per cent from 1925 to 1936, respectively. Refinery gas, in the same period, increased from 8.0 per cent to 46.2 per cent.[16] Other important fuel-oil users are the gas and electric plants, railroads, smelters and mines, and iron and steel.

Two forces are thus operating to reduce the consumption of coal—technological improvements, and diversion from bituminous coal to fuel oil (and to a lesser extent natural gas). In chemical synthetics, bituminous coal is an essential raw material. The value of bituminous coal to the chemical industry is undoubtedly much greater than the price paid. The consumer's rent (the difference between the asking price and what the buyer would pay rather than to go without the product), in chemical utilization of coal, is high. In chemistry, as in steam power, cement and process industries (pulp and paper, paint and varnish, sugar, leather and tanning), coal is an essential element. A higher price for coal could be paid by these industries.

Nevertheless, the consumption of coal due to these forces is declining. The consumption of petroleum, natural gas, and water power is expanding. The table[17] on page 44 shows the relative rate of growth of coal, oil, natural gas, and water power in the United States from 1889 to 1936. The figures for the year 1918 are represented by the number 100, and the figures for all other years are expressed as a percentage of the 1918 rate.

From a peak of 573,367,000 net tons reached in 1926, bituminous coal production dropped to 309,710,000 in 1932, and recovered to 442,455,000 in 1937. Diminishing gross revenue has left the industry with a relatively high overhead cost which cannot be met out of the remaining volume of business. High labor costs, taxes, costs of supplies, and railroad rates, have combined with declining gross to impair the competitive status of the industry. Stockholders and bondholders have absorbed most of the losses. Tax collectors have lost a little, the wage earners—not in wage rates, but in annual income—have lost more. The bondholders have lost

[16] Report of Investigations, United States Department of The Interior, "Survey of Fuel Consumption at Refineries in 1936," by G. R. Hopkins; Report of Investigation 3367, (January, 1938).

[17] *Minerals Year Book*, 1937, p. 809.

RELATIVE RATE OF GROWTH OF COAL, OIL, NATURAL GAS, AND WATER POWER IN THE UNITED STATES

Year	Pennsylvania Anthracite	Bituminous Coal	Total Coal	Petroleum (Total Crude)		Natural Gas (Total Production)	Total Oil and Gas	Water Power (at Constant Fuel Equivalent)	Grand Total	
				Domestic Production	Imports				With Water Power at Constant Fuel Equivalent	With Water Power at Prevailing Central Station Equivalent
1889	46	17	21	10	...	35	15	11	20	(1)
1899	61	33	37	16	....	31	19	16	34	35
1904	74	48	52	33	...	43	33	28	48	49
1909	82	66	68	51	(2)	67	52	49	65	66
1913	93	83	84	70	45	81	71	70	82	82
1918	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1919	89	80	81	106	140	103	108	107	86	86
1920	91	98	97	124	282	111	132	116	103	102
1921	92	72	74	132	333	92	137	109	85	84
1922	55	73	70	156	338	106	157	122	85	83
1923	94	97	97	206	218	140	191	136	112	110
1924	89	83	84	201	207	158	191	139	102	100
1925	63	90	86	215	164	165	199	154	105	102
1926	85	99	97	217	160	182	204	178	115	113
1927	81	89	88	253	155	201	233	202	113	110
1928	76	86	85	253	212	218	241	232	113	109
1929	75	92	90	283	210	266	274	230	121	117
1930	70	81	79	252	165	270	250	222	109	105
1931	60	66	65	239	126	234	230	206	94	90
1932	50	53	53	221	119	216	212	227	83	78
1933	50	57	56	252	90	205	229	231	87	83
1934	58	62	61	255	94	246	241	227	94	89
1935	53[3]	64	63	280	85	266	262	264	99	93
1936[4]	55[3]	75	72	309	86	288	287	270	110	105

[1] Not available. [2] Imports negligible

[3] If illicit or bootleg anthracite were included, the index for 1935 would be 57 and that for 1936, 59. [4] Preliminary.

much more. The stockholders, with few exceptions, have lost everything.

The increased efficiency which has reduced the tonnage of bituminous coal required to turn out given amounts of finished goods and services is a principle of general application. It applies to many other raw materials: sulphur, cotton and cottonseed oil, crude petroleum, iron, lumber for conversion into pulp. Economies have been achieved by engineering and chemistry. Chemical science has efficiently utilized both virgin raw materials, wastes, and by-products.

Increasing labor and taxation costs in the production of raw materials have stimulated the diversion from the so-called "nattural" to the chemical or synthetic materials. By means of expensive capital equipment the chemical industry utilizes cheap raw materials. It produces a heavy tonnage of chemicals with a small tonnage of raw material. A classical illustration is the conversion of coal tar, a nuisance article, wasted for many years, into a galaxy of coal-tar dyes. These dyes have almost entirely replaced the natural dyes—an industry that for many years employed thousands of people.

The pace of chemical progress has quickened in the last twenty years as one raw material after another has been brought into the field of chemical service. Petroleum has been added to coal tar as a base for the production of organic compounds. Oil refinery gases, for many years either wasted or used as a source of cheap fuel, are now built up into solvents, alcohols, acids, and other products. These are made also by synthesis from raw materials other than crude petroleum. Coal and limestone, through manipulations in the electric furnace, also participate in the extraction of these valuable products.

The competition of chemical equipment of high capital and low operating costs with mechanical equipment of relatively low capital and high operating costs is well illustrated in the nitrogen industry. The technique of nitrogen production has been revolutionized within the last fifteen years. Prior to 1925, the nitrogen industry was dominated by the "naturally" produced Chilean article. A heavy export tax increased the government revenues, stabilized its credit, and facilitated the sale of government bonds abroad. The construction of the synthetic nitrate plants by

Du Pont and Allied Chemical and Dye, among others, in the middle twenties, undermined the prosperity of Chilean nitrate. The production of Chilean nitrate, which in 1913 approximated 472,000 short tons and which in 1929 reached a maximum of 554,000 short tons, dropped to 144,000 short tons in 1934. The world production of synthetic nitrogen in 1913 amounted to 24,200 in short tons. By 1929 it had reached 1,102,000, and in 1934, 1,332,000 short tons. Chilean nitrate in 1913 supplied about 55 per cent of the world output of nitrogen, as compared with 10.6 per cent in 1933. During the same period the production of nitrogen from air—by chemical synthesis—advanced from 7.3 per cent in 1913 to 74.5 per cent in 1934.

Competition between chemical and natural raw-material industries is based mainly on price. There is no quality differential which, in the case of some consumers' products, enables an existing industry to preserve some of its market. No considerations of prestige, of style or special skill, made possible by the adaptability and flexibility of the human hand, prevail. Indeed, the quality of the chemical product is frequently more consistent and reliable than the competitive "natural" article. For example, the exact strength and length of a rayon staple fiber is assured by standardized machine production. Corresponding qualities for the competitive cotton can be secured only after an extensive process of careful grading, carding, and combing.

In the chemical industry, as in so many others, increased demand for chemical products does not necessarily mean an increase for all parts of the industry. The demand for nitrogen has increased steadily; but a major nitrogen-producing industry has fallen upon evil days and its credit has been all but destroyed. A new nitrogen industry has supplanted it, and within the last ten years this branch of the nitrogen industry has reported high profits and made satisfactory distributions to its security holders. The Allied Chemical and Dye and Du Pont have prospered largely at the expense of the Chilean industry. American wage earners and American security-holders have gained; Chilean wage earners and Chilean Government bondholders and Chilean nitrate security-holders have lost.

The past quarter-century, to take another illustration, has been featured by a rapid increase in the demand for alcohols and

solvents. Wood alcohol for fifty years was produced by destructive distillation of hard wood. The industry was prosperous, and although not capitalized on an extensive scale, nevertheless paid handsome profits. The prosperity of this industry has been reversed by synthetic competition. Wood alcohol (methanol) is now produced chemically by a union of hydrogen and carbon monoxide. Hydrogen is needed also for the manufacture of synthetic ammonia. The process which makes hydrogen also makes carbon monoxide. Thus, methanol and ammonia—to some extent—are produced jointly, and the resultant reduction in cost has paved the way for extensive price reductions of both products. The hardwood distillation process has been unable to withstand the competitive forces unleashed by insistent price reductions of the synthetic producers.

Chemical and engineering science have also stimulated competitive forces in construction materials. The relative competitive status of construction materials has been standardized for many years. In the nineteenth and perhaps in the first decade of the twentieth century, brick, wood, cement, carbon steel, wrought and cast iron, were standard construction materials. Wood was the most important material in the construction of farm and city homes. Wood is a flexible article and can be sawed, planed, and shaped into many forms. Its extensive use in the manufacture of homes, furniture, fencing, toys, and a variety of other uses can therefore be understood.

Among the metals, cast iron was cheap and most easily cast into final shape. Casting was less expensive than forging or machining. Stoves, radiators, and other forms of domestic building equipment were made from cast iron. In industry, cast iron found extensive use in heavy machinery and bulky castings, where low ductility and low tensile strength were not objectionable. Steel, because of its strength, was used for rails, bridges, skyscrapers, apartment houses, barges, ships, tank cars, and pipes. The nineteenth century witnessed a steady increase in the demand for each of these construction materials.

The last quarter-century evolved a set of competitive forces that destroyed this nice inter-industrial adjustment. Lumber, pig and cast iron, and heavy steel have encountered reversals in the trend of demand. Securities of these industries are no longer

stable. The earnings of leading corporations have declined. The reduced market values of their stocks and bonds have inflicted heavy losses upon the investors.

The declining prosperity of the lumber industry is especially significant. Lumber no longer holds the dominant position in residential building. Wood now competes with brick, stone, stucco, gypsum, asphalt, asbestos, and a variety of composition materials. The universally employed wooden shingle of a half-century ago is now no longer universal. In the cheaper homes it has been superseded by asphalt roofing. This product is another tribute to the ingenuity of the chemical profession. The fibers from waste rags are extracted and saturated with another waste product—asphalt —a derivative of the crude petroleum industry. The dominant position still held by wood in wallboard has been weakened by competition with other products, notably gypsum. Other products also compete with lumber.

Another large user of lumber is the automobile industry. In 1930 the hardwood-lumber industry shipped 15 to 17 per cent of its product to automobile plants, and in 1933 to 1935 only about 8 to 10 per cent. This market has been lost to steel. The trend from wood toward steel automobile bodies has been all but complete.

The wooden-box industry, another important outlet for lumber, has been threatened by competition of paper. Container board has been growing at an average rate of six per cent per annum for 25 years.[18]

To some extent the supercession of wooden by paper boxes is not a net loss to the lumber industry. The pulp, as well as the wooden boxes, are made from timber. However, the conversion of the wood into the pulp and paper, because of the chemical process involved, is a more efficient and raw-material-saving process than the conversion of the timber into the wooden box. The sawing and planing of the wood and the finishing of the crate involve considerable waste. A lower percentage of waste is encountered in the cooking of the wood, which is the chemical step in the conversion of timber into pulp and paper.

In consequence of this competition, the lumber industry has

[18] *Wall Street Journal*, June, 1936, statement of Walter P. Paepcke, President, Container Corporation.

suffered. Its financial strength has deteriorated. The competitive synthetic material industries have prospered.

The field formerly occupied by the pig- and cast-iron industry has been invaded by sheet steel. The continuous rolling mill has reduced the price of sheet steel and has facilitated the making of sheets of superior finishes. Additional qualities such as resistance to heat and corrosion, lightness in weight, have been added by introduction of suitable alloys. The old kitchen and living-room stove, made of heavy cast iron, is giving way to modern central-heating systems and automatic gas and electric ranges. These products are made of sheet steel. A large variety of new markets has been opened to sheet steel.

Demand for heavy steel and pig iron has therefore declined, and demand for the lighter forms of steel has increased. These trends explain, in part, the prosperity of the light steel companies and the adversities of the heavy steel companies. In the former group, National Steel, Inland Steel (which in 1930 developed a substantial capacity in light steel), Granite City Steel, Wheeling Steel, Keystone Steel and Wire, and Acme Steel have increased dividends. In the latter group, United States Steel, Bethlehem Steel, Jones and Laughlin, Colorado Steel and Iron, among many others, retain only a fraction of their former earning and dividend-paying power.

Into this competitive picture of construction materials has now come a new element. The glass industry has devised a glass suitable for building purposes. Glass blocks have come to be an accepted feature of a modern factory. The modern building can no longer ignore glass. Owens-Illinois Glass, for example, has erected a building in Newark, Ohio, made of glass blocks. The same company, the leader in this field, is actively engaged in research and in advertising to popularize the use of glass; and the demand for glass for building purposes is increasing.

Other materials are also playing a prominent part in the competitive battle in the construction industry. The use of aluminum in railroad and trolley equipment, in chemical and process industries, among others, is rapidly increasing. Production attained a new record in 1937, and exceeded the previous peak of 1930 by 28 per cent.[19] A government bureau in 1938 refers "to the tre-

[19] "Mineral Market Reports," Bureau of Mines, February 22, 1938.

mendous industrial demand." [20] The same source indicates additional uses for aluminum—bulkheads for dams; for protection of buildings from flood waters; for excavating and loading equipment; for grab buckets because of the superior resistance to corrosion from sulphur in sulphur-bearing tar; for a dredge boom, for cables, for railroad and aviation equipment, etc.[21]

An even lighter metal than aluminum is magnesium. The metal was first introduced in 1915. Ten years later only ten thousand pounds were produced. By 1936, production had mounted to 792,000 pounds.[22] Its strength, lightness, and machinability are important advantages for structural products. One of the large domestic vacuum-cleaner companies completed a new plant in 1936 for the manufacture of magnesium alloy die castings for use in vacuum cleaners. Bohn Aluminum and Brass fabricates magnesium into castings and sheets. This country is behind the rest of the world in the use of magnesium, according to the president of this company. England's production of fabricated magnesium products is from 220,000 to 300,000 pounds monthly as compared with production in this country of less than 25,000 pounds.[23]

Extensive uses of aluminum and magnesium have set the stage for the increasing prosperity of Aluminum Company of America and Dow Chemical. The former is the most important unit in the aluminum business, controlling most of the supply of bauxite which, in the present stage of the arts, is the most economical ore for the extraction of aluminum. Dow Chemical is the only concern engaged in the production of metallic magnesium from fused magnesium chloride. However, it should be noted that this company still receives only a relatively small percentage of its earnings from the manufacture of magnesium.

Another metal whose secular growth has been rapid is nickel. Nickel, in combination with chromium, has provided industry with a means of combating corrosion and of increasing strength. A diversified demand from a large cross section of the industrial life of the country has laid the foundation for the prosperity of the nickel industry. In chemical and process work, in food and dairy, in commercial furniture and fixtures, domestic equipment,

[20] *Ibid.*
[21] *Ibid.*
[22] "The Wonder Metal," Bohn Aluminum and Brass Corp., p. 5.
[23] *Wall Street Journal,* April 1, 1938.

in passenger and freight equipment, in busses and heavy trucks, in agricultural machinery, in marine installations, nickel has become increasingly important. The consumption of nickel has therefore attained new records.

The demand for two other important alloys—molybdenum and vanadium—has also increased.

Discussion thus far has been confined to the materials used by industry—metals, the natural and chemically produced raw materials, and the numerous non-metallic raw materials. Attention is now directed to the machines, tools, and the mechanisms which are built from these raw materials and used in the production of finished articles. This branch of the industry is complex. It covers a variety of tools, machinery, and equipment. A classification based on mechanical lines would not only be impossible but almost useless for economic and financial analysis. Many pieces of equipment made in the same way and with the same degree of efficiency reveal different trends of demand. One equipment industry is prosperous and another is not. Yet they use the same processes, the same kind of machine tools, the same kind of stamping equipment. Industries manufacturing machinery for coal mining, spinning and weaving rayon, pulp and paper, chemical processing, show different trends. Earnings and dividends are different. For purposes of investment analysis it is, therefore, essential to use a classification which can be interpreted in terms of financial values. The classification should be capable of adaptation to favorable and unfavorable trends of demand. Only in this way can any financial conclusions be drawn.

Fundamental to all the machine and equipment industries is the machine-tool industry. Modern mechanisms are made of metal. The production of gas, Diesel, and steam engines, of electrical equipment, of specialized machines, is dependent upon the accuracy and the speed with which the metal can be cut into proper sizes and shapes. This service is performed by machine tools—lathes, reamers, twist drills, tool bits, forming tools, milling cutters, etc. To the machine-tool industry, continuous cost reduction is indispensable. The industry lives in an atmosphere of increasing efficiency. To this movement there is no practical limit, although in theory a point can be, and perhaps eventually will be, reached at which no further improvement, no increase in

efficiency, and no further reduction in costs is possible. This theoretical ideal, however, is not yet an important problem for the machine-tool industry. Extensive reductions in the number of hours per operation or in the number of units of output per hour or per operation have been achieved. Improvements in production records in the industries using machine tools stimulate further research and improvements.

The expansion in the demand for machine tools is reflected in the earning power of the industry. The financial record must be interpreted in terms of the nature of the demand for machine tools. Demand can easily be postponed; it rises rapidly only in the face of rising profits by the machine-tool-using industries, and falls as rapidly in the face of declining profits.

Perhaps the instability of the machine-tool industry is based upon even more fundamental considerations than that of the steel and other capital-goods industries. Steel is used not only in industry but also in the home. A heavy demand of the final consumer is derived from the demand for motor cars, tin plate, domestic appliances, stoves and furniture, wire fencing, etc. This demand, although subject to considerable irregularity, is more stable than the industrial demand. This relative stability of consumers' demand does not support the machine-tool industry. The demand for machine tools comes from businessmen, from producers, from manufacturers who are actuated by profit motives. Expansion and improvement in machines and mechanisms takes place in periods of expanding profits. There is little incentive, as a practical matter, to spend money to reduce costs at a time when profits are diminishing and when prospects for future profits are slight.

A period of expansion is usually accompanied by a rising trend of profits and investment distributions. It is a sustained-capital boom, therefore, based upon the expansion of industrial plants and facilities which brings out the earnings of machine-tool companies.

Power equipment is also essential to the manufacture of machinery in modern industry. In the latter eighteenth and in the nineteenth centuries, steam-power equipment monopolized this field. The Diesel engine had been perfected in the laboratory in the last decade of the nineteenth century, but its commercial application had to wait the passing of another score of years.

Electric power had also been introduced on a small scale in the eighties of the nineteenth century. Large electrical enterprises had already been established by the turn of the century. The sensational expansion of the industry accompanying the advent of the electrical age was not, however, a practical business and financial problem until the second decade of the twentieth century.

The last twenty years, however, have witnessed an intense competitive struggle between steam, electrical, and internal-combustion-engine equipment. Steam has gradually given way, first to electrical, and, within the last fifteen years, to the internal-combustion engine. The steam engine still holds its place in a number of industries. For other uses it is falling behind. In railroad switching, the steam engine began to give ground in the early twenties. The Diesel-electric switcher manufactured by Ingersoll Rand, General Electric, Cooper-Bessemer, among others, is superseding the old steam switcher. In light, flexible transportation, the passenger automobile, the gasoline, and now the Diesel truck and the motor-bus are supplanting steam.

In this competitive frame, the electric-equipment industry is emerging as the dominant factor. The flexibility of the electric motor and its wide range of application have led to its introduction into almost every form of domestic and industrial activity. Much of the steam equipment is useful only so far as it is complementary to electrical equipment. In industrial process-work, steam and electric power are a joint product. Steam is used in many industries such as sugar, pulp and paper, paint and varnish, and vegetable oil because of the economies arising from the joint production of steam for processing and for power generation.

The electric industry, therefore, grows with its competitors, and also against them. The electrical industry has its own specialized field, the result of new and diverse uses for electricity. The fractional electric motor, in residential and commercial consumption, and in a large segment of the industrial market, has no competitor. In other fields, like electric heating and electric cooking, it supplants some competitor.

The electrical age has laid the basis for the prosperity of the companies that generate, transmit, and distribute energy, and also for the companies that manufacture the complicated generat-

ing, transforming, transmitting, and distributing equipment. The investors in General Electric and Westinghouse Electric and Manufacturing have been the major beneficiaries of the electrical age. Dividends paid to the common stockholders represent a substantial return on an original investment made at any time within the past twenty years.

The specialized-equipment industries reveal a trend of demand derived from the trend of demand for the products and services of the industries to which they sell. There is little that an equipment industry can do to reverse the trend of demand for its mechanisms if the demand for the products of the equipment-using industry is unfavorable.

The fortunes of a specialized-equipment industry are therefore tied up with the fortunes of the equipment-using industry. The railroad-equipment, coal-equipment, and cotton- and woolen-equipment industries reflect the earnings of the corresponding users—railroads, anthracite and bituminous coal, cotton and woolen industries. The railroad-equipment industry is publicly capitalized. The stocks and bonds are distributed among investors, and its accounts are open for public examination. The securities are mostly listed on the New York Stock Exchange. Of the listed companies included in this study,[24] every company with a bonded debt outstanding in 1929 has encountered financial difficulties. Baldwin Locomotive Works, Gould Coupler, and Pressed Steel Car are thus involved. Well-managed, non-borrowing companies in most cases passed their dividends, both common and preferred. A few companies continue to pay.

An apparent paradox confronts the equipment industry in the declining fields of industrial activity. Improvements in product, reduction in costs, increases in efficiency, and the proved necessity for the utilization of these improvements by the equipment-using industries do not lead to increased sales. The declining equipment-using industries are saddled, ordinarily, with obsolete plant. More than 60 per cent of steam-railroad engines are more than twenty years old, and less than one per cent were purchased within the five years preceding 1937. Yet it is generally recognized

[24] Since they receive such a large part of their earnings from the lease of tank cars, General American Transportation and Union Tank Car are not considered as part of the railway-equipment industry.

that locomotives of more than twenty years, in the cost sense, are obsolete. For example, the steam pressure in pounds per square inch of a 1930-34 locomotive is 250 as compared with 200 to 210 of the 1918 engine. The steam quality, in Fahrenheit temperature, is 700° as compared with 590° for the same periods; the combustion rates in pounds of coal per hour per square foot of grate-area is 100 as compared with 120 for the same periods; the potential horsepower in per cent of rated horsepower is 4,500 as compared with 2,300 for the same period.[25]

Still the demand for steam locomotives lags, and, except for a brief period from 1936 to 1937, the locomotive companies, since the spring of 1931, have received almost no orders worthy of the name.

Similar comparisons can be made in other declining equipment-using and equipment-producing industries. The shipping and shipbuilding industry has been decadent since 1921. The war-time boom was followed by a prolonged slump from which the industry has not yet recovered. This declining, non-profit-making industry is also characterized by obsolescence. Few freighters were built in this country from 1922 to 1937. An investigation by the United States Shipbuilding Board revealed that most of the vessels engaged in the intercoastal trade are obsolete. Economies in fuel consumption, in carrying capacity, and cost of operation can be effected with the modern steamship. Nevertheless, the shipyards, which may be considered as the equipment-producing industry in the shipping business, have languished for many years. Except for the construction of some oil tankers, the shipyards, prior to 1937, had no orders for freight carriers.

The same parallel can be developed in other industries—coal, textiles, leather, and street-railway.

The demand for machines and equipment specialized for use in one industry is therefore derivative. The investor, in his desire to preserve his capital, must look toward the fortunes of the consuming industry. The prosperity of the railroads is most important to the railroad-equipment companies; the railroad-equipment companies cannot rise above their source of earnings—the earnings of the railway industry. The same line of analysis must

[25] These figures are taken from "The Motive Power Situation," published by Baldwin Locomotive Works.

necessarily be used in all equipment industries. Only a selected few have been cited in this discussion.

The expanding equipment-using industries contribute directly to the prosperity of equipment-producing companies. The light steel industry, for example, has been characterized by an era of steady and sustained prosperity, punctuated by periods of recession due to cyclical fluctuations. The art of rolling steel sheets was for many years standardized. It consisted of a series of reverse rolling operations done largely by hand. For many years experiments were conducted in an effort to develop a mechanically controlled continuous operation. These efforts had succeeded by 1926 to such an extent as to make the commercial exploitation of this research work practicable. Since 1926 the continuous mills have been extensively introduced into the steel business. By 1936, 21 continuous strip-sheet hot mills were in operation. These are listed in the following table:

CONTINUOUS ROLLING MILLS IN OPERATION IN FEBRUARY, 1936

Company	*Location*	*First Operated*
Allegheny Steel Company	Brackenridge, Pa.	June, 1932
American Rolling Mill Company	Butler, Pa.	1926
	Middletown, Ohio	1928
Bethlehem Steel Company	Buffalo, N. Y.	Dec 30, 1935
Ford Motor Company	Dearborn, Mich.	November, 1935
Granite City Steel Company	Granite City, Ill.	July, 1936
Inland Steel Company	Indiana Harbor, Ind.	March, 1932
Jones & Laughlin Steel Corporation	Pittsburgh, Pa.	Contemplated
Laclede Steel Company	Alton, Ill.	April 15, 1927
National Steel Corporation	Weirton, West Va.	Aug. 11, 1927
	Ecorse, Mich.	September, 1930
	Ecorse, Mich.	March 15, 1936
Otis Steel Company	Cleveland, Ohio	January, 1932
Republic Steel Corporation	Warren, Ohio	1927
Sharon Steel Hoop Company	Sharon, Pa.	April 4, 1929
United States Steel Corporation	Gary, Ind.	November, 1927
	Gary, Ind.	August, 1935
	McDonald, Ohio	December, 1935
	Gary, Ind.	Under construction
Wheeling Steel Corporation	Steubenville, Ohio	February, 1929
Youngstown Sheet and Tube Company	Campbell, Ohio	March 11, 1935

This expansion in the steel-sheet industry led to the prosperity of the companies producing the equipment. The United Engineering and Foundry Company and the Mesta Machine Company

benefited handsomely and paid large dividends in the decade of 1926-36.

The increase in the efficiency of the transportation mechanism through the use of the steel rail was a significant phase in the industrial revolution of the nineteenth century. In the movement of fuel and raw materials, ferrous and non-ferrous ores, anthracite and bituminous coal, forest and lumber products, the railroads were essential. The industrial development of the nineteenth century was based upon the utilization of steam. Both fuel and the other raw materials were extravagantly exploited. Judged by present-day technology, the costs were high. Modern technology has reduced the volume of raw materials required to produce a given output of finished products and services. Less coal is needed to produce a given volume of steam, and less steam is needed to produce a given volume of pulp. Less coal is now needed to produce a K.W.H. of electricity or a thousand locomotive-miles of railroad service.

These forces, together with such factors as industrial and geographical decentralization, the production of electricity by water-power instead of by steam, the transmission of energy long distances over wire, thus replacing movement of coal in railroad cars, have aided in reducing the importance of transportation in the industrial structure. These are some of the factors that have reduced the importance of the service of transportation in modern society. All forms of freight transportation have been affected. The railroad—the premier carrier of raw material—has taken severe punishment. Ton-miles of freight moved by railroad increased from 147,000,000,000 in 1901, to 302,000,000,000 to 1913, and to 413,700,000,000 in 1920; while in the period of rapidly expanding industrial production from 1920 to 1929, ton-miles increased only to 447,260,000,000. In the depression, the revenue ton-miles per mile of road dropped from the 1929 high by 47 per cent to the 1932 low. The earnings of the industry showed an even greater collapse.

In communications, the telephone industry has demonstrated considerable strength. The rising standard of living expresses itself in a rising demand for telephone service. It is also an indispensable business tool.

The telegraph branch of the communications industry is not so

fortunate. The competition of other forms of service has seriously handicapped its growth. The telephone industry, with a heavy backlog of earnings assured by a profitable residential business, has found it profitable to reduce prices for long-distance service. It has thus successfully competed with the telegraph. Other factors bearing on expenses have affected more seriously the operating ratio of the telegraph industry. Its dividend-paying power has almost disappeared.

CHAPTER IV

TRENDS IN DEMAND

WE NOW summarize this discussion of demand-expanding and demand-declining industries. Production of all goods and services over a series of years increases at an annual rate which has been variously approximated. The relative importance of the primary goods and services industries changes from time to time. In each primary division the relative importance of particular industries changes.

The annual production of *all* goods and services is computed by a number of available indices. None of these are statistically perfect. None are comprehensive. Some are more important for one purpose and some for another.

We assume that what is produced is consumed; that production is the measure of demand. Expansion and decline may be statistically measured. These industries, the demand for whose goods and services increases at a rate more rapid than the increase in physical production, are expanding. Those industries, the demand for whose goods and services increases at a lower rate, may be called declining.

This concept is helpful. It may, however, lead to wrong conclusions. The comprehensive index of physical production (the Federal Reserve Index, for example,) embraces Capital and Consumers'-Goods and Service industries. The trend of demand for Capital Goods and Services is less stable than for Consumers' Goods and Services. In depression, a prosperous Capital-Goods industry may show a sharper drop in demand than an unprosperous Consumers'-Goods industry. The sharp drop in nickel production during the depression compared with the slight decline in meat production during the same period is not a measure of the soundness of the two industries. A five per cent depression drop in the latter may be more significant than a fifty per cent drop in the former. Industries with like demand trends must, as far as pos-

sible, be compared with each other. Again, industries must, as far as possible, be compared with industries which compete with each other. Food industries may be compared. For example: packaged-foods, fresh fruits, meats, fruit- and vegetable-canning. Equipment industries also have a common demand trend, and they compete with each other. In this group are found: farm equipment, electrical equipment, steam-power equipment, Diesel engines, moving-material equipment. Frequently the industries are not strictly competitive. A close approximation is the practicable ideal. But similarity in demand trends is essential.

These considerations lead to another concept of expanding and declining demand. An expanding industry increases its demand in a group of industries that compete with each other, and that show a similar demand trend. Packaged foods, in the food industry, are increasing their sales compared with bread or meats. Alloys in the metal group, are increasing their sales compared with iron and/or heavy steel. In retail distribution, variety chains compared with department stores show more rapid expansion. An expanding industry may be, therefore, one which captures an increasing share of a competitive market, a market in which the demand trends are comparable.

These expanding and declining industries, in terms of production and demand, do not always produce corresponding movements in investment values. The coincidence of increasing production and increasing demand does not always mean increasing income and increasing interest and dividends. Increasing production does, however, lay the foundation for increasing profits. The rise in gross volume dilutes the increasing overhead. An industry whose goods and services encounter an increase of demand is swimming with the tide. The declining industry is swimming against the tide. The overhead, largely fixed in a declining industry, is increasing per unit of output. In such a competitive battle, the expanding industry has an advantage. As will be shown in later chapters, the handicaps confronting the declining industry are serious. With a few exceptions, the expanding industry is successful in modern industrial, commercial, and market competition.

Change is normal. This process of change is through expansion to decay. It does not often reverse itself. It does not often develop

from decay to expansion. This is a significant financial phenomenon. Here, the familiar cycle of action and reaction does not apply. In a period of business expansion, the declining industry may experience an increase in demand. This increase is usually small. It is less than the increase in demand for goods and services of all industries. It is less than the increase in the demand for the goods and services of an expanding industry which is competing with the declining industry. In the decade of the twenties, the demand for railroad ton-miles increased slightly. The demand for automobile passenger-miles and bus- and truck-miles increased at a much more rapid rate. Relatively, the demand for the former decreased; and the demand for the latter increased.

In almost every field of demand, expansion in one industry and contraction in another industry prevails. In consumption goods and services; in capital goods and services; in food, clothing, shelter, and amusement; in raw materials and in finished goods; in tools and machines, this contrast exists. One industry continues to expand. Its annual rate of growth exceeds the normal rate for all goods and services. In prosperity, its growth is more rapid than that of its declining-industry competitors. In depression, its decline is less rapid. During the twenties, light steel expanded more rapidly than heavy steel; in the depression which followed light steel declined less rapidly than heavy steel. Light steel is an expanding industry. Heavy steel is a declining industry. During the period, synthetic methanol expanded; hardwood alcohol declined. Fuel oil and domestic-heating oil expanded; bituminous coal and anthracite declined. Citrus fruit expanded. Wheat declined. Agricultural mechanical equipment expanded. Horses, and horse-drawn equipment declined. Paper containers expanded. Lumber containers declined.

An expanding industry is growing. A declining industry is going back. The *extent* of this growth or decline cannot be anticipated. The investor in an expanding industry cannot, with regard for the safety of his invested funds, project past lines of growth into the future. In each industry and in each business cycle, rates of growth differ. Expansion of synthetic organics during the twenties bore no relationship to expansion in electrical energy. And who can foretell the effect of rising wages upon expansion in the use of labor-saving mechanisms? Who can anticipate the margin of future

expansion in the demand for newsprint by the newspaper-conscious American people?

Observation of existing trends, with due regard to fundamentals, is the only safe rule in judging the *rate* of growth in an expanding industry. In a declining industry, the rule is simpler and easier to apply than in an expanding industry. A declining industry *rarely* reverses its secular trend. The companies in declining industries whose securities were listed on the New York Stock Exchange in the period from 1923 to 1936 afford no exceptions to the rule of persistent decay. Once the expansion has been replaced by decline, the decline usually continues. Sometimes the decline is temporarily interrupted. A rapid increase in prices may lead to speculative buying and inventory accumulations. Demand may increase. Production may mount. The annual rate of growth may show a heavy rise over the previous year. This occurred in the declining cotton- and woolen-textile industries in 1936 and 1937. But the spurt in production was not balanced by a spurt in consumption. What was produced rapidly in a few months was consumed slowly over a longer period. Sometimes a rise in production may come from labor troubles. The British strike in 1926 enabled the American bituminous-coal industry to increase production rapidly.

These are passing incidents. The rhythm of change sweeps across declining as well as expanding industries. At the top of each wave of business expansion, the production of the declining industry compared with that of its expanding competitors is lower than in the previous boom. Production of petroleum in 1937 was substantially more than in 1929. Bituminous-coal and anthracite production was substantially below. In 1937, rayon was ahead of 1929. Cotton, woolen, and silk were below. Passenger-automobile mileage in 1937 exceeded by a wide margin the figure of 1929. Railroad and electric passenger mileage dropped, by a wide margin, below that figure.

To management and investors this pressure of decline may appear inexplicable. "Rebirths" of the industry are hailed with enthusiasm. Additional streams of investors' funds are attracted and transformed into fixed forms. The metropolitan electric-railway industry, after the war-time collapse in earnings, passed through this stage in the early twenties. Many properties—the

Detroit United, the Philadelphia Rapid Transit, the Chicago, North Shore & Milwaukee, the Grand Rapids Railway, and the Market Street Railway, among others—floated security issues. "In the comparatively short period since the close of the World War," in 1926, wrote Britton I. Budd, president of a number of trolley properties in the Chicago area, "we have witnessed a virtual rebirth of the electric-railway industry." [1] The service is indispensable. It still is. It is as true now as it was in 1926, "that for mass transportation nothing has yet been devised that can take the place of the electric car running on the rails." [2] Improvements in service and better equipment stopped momentarily the secular decline. The decline was soon renewed, and the depression in the thirties brought on additional bankruptcies—Philadelphia Rapid Transit, Interborough Rapid Transit, and Pittsburgh Railways. Similar "rebirths" feature the career of such impoverished industries as cotton, woolen, and silk, railroads, and manufactured ice. Yet the decline in the per-capita consumption defeats the plans of the best men in the industry. Merchandising and advertising plans that flourish in fertile soil in expanding industries fall upon stony ground in the declining industries. Appeals to eat more meat and bread bring little response. Supplies continue to accumulate. The same campaigns to increase consumption of oranges and grapefruit bring results. A price decline in anthracite adds few consumers. A decline in the price of domestic-heating oil adds additional thousands to the army of satisfied users. Other measures are adopted by the declining industries. The protection of the government is not overlooked. Plans of price and production control are legalized and enforced by law. These measures are of no avail. The decline continues, and the death knell of investment distribution finally sounds. Long before it loses its demand, the declining industry loses its profits. Under present conditions of rising wages and taxes, a decline of 50 per cent in sales is usually sufficient to eliminate profits. After this stage is passed, the industry becomes a non-profit industry.

The industry remains indispensable. It is essential to the life

[1] Britton I. Budd, "The Present and Future of Electric Railways," distributed with the *News Bulletin*, Illinois Committee on Public Utility Information, April 12, 1926.

[2] *Ibid.*, p. 9.

of many communities. It pays high wages. It pays high taxes. Many communities are railroad or coal towns. Schools, hospitals, churches, and cultural institutions are supported by taxes levied upon the ruins of a declining industry. The large city would be helpless, paralyzed, without transit service, yet transit companies in almost all large cities pay no dividends, and a majority pay no interest. A declining industry normally pays no dividends, and in the course of time, pays no interest.

The railroads are still essential. Yet, about 30 per cent of their mileage is under the protection of the court. Many other railroads operating an extensive mileage pay interest either from borrowed funds, from the sale of assets, or from savings realized from inadequate maintenance.

The declining industry continues to decline. There is little help for it. Succeeding chapters will reveal in detail the measures taken to reverse the decline and the inability of the managements to solve the problem. They will reveal the successful competition of the expanding with the declining industries. "We are fortunate in the oil business that we always have demand," Mr. T. Rieber, Chairman, Texas Corporation, told his stockholders at an annual meeting.[3] This statement is eloquent in its simplicity. It reveals the truth in a flash. This overwhelming advantage of demand gives the expanding industry the opportunity to earn profits. Rising demand gives the expanding industry, whether or not particular companies may succeed, an advantage over the competitive declining industry. This is an advantage which the declining industry rarely overcomes. Recognition of this truth is the primary essential to investment success. With demand, industry has the foundation for earnings. Without demand, earnings cannot be created. The investor in an industry with rising demand has a chance to succeed. The investor in an industry with declining demand is handicapped. The investor in the former may succeed. The investor in the latter rarely avoids a loss.

[3] New York *Times*, April 27, 1938.

CHAPTER V

INVESTMENT TESTS

THE INVESTMENT value of securities is the capitalization at current money rates of the income of the issuing corporations. That industry is most valuable whose capitalized income is the largest.

For purposes of investment analysis, data must be comparable, that is, uniform, for the industries and companies compared. Various tests have been used to determine comparable income trends—gross dollar revenues, sales of physical units, net earnings, net earnings as a percentage of capital investment, net income per share of stock. Gross earnings and physical sales show the trend of demand. Net earnings show profits.

These tests are not wholly satisfactory. In some industries, especially the utility group, physical sales and gross earnings are available in comparable form. Raw-material industries in general also furnish these figures. In other industries—manufactured tobacco, electrical equipment, retail stores, machinery, containers, and chemicals, to name only a few, the figures of business volume are either not given, or, if furnished, are not comparable. As a general standard by which to determine the trend of business profits, these figures are not satisfactory.

In the attempt to apply the tests of net earnings and returns on invested capital, the lack of comparable data is more serious. So great are the variations in statements that comparisons of investment value, based on these statements, are frequently unreliable.

The most widely used standard is net income, the amount available for interest and dividends. For interest, the yardstick is known as the margin of safety. This measures the percentage by which net income can drop before interest is endangered. For example, a corporation has $1,000,000 in annual interest charges. Its net income is $3,000,000. The margin of safety is $2,000,000

divided by $3,000,000 or 66 2-3 per cent. The margin by which the net income can drop is $2,000,000, or 66 2-3 per cent of the net, before the company (in the absence of other sources of financial strength) is obliged to default. The $3,000,000 of net income can decline 66 2-3 per cent without making the company insolvent.

The margin by which net income protects preferred and common dividends is conventionally expressed in another way. Net income, after the payment of interest, is spread over the number of preferred shares outstanding. If net income over interest payments is $100,000, and if there are outstanding 10,000 shares of $6 preferred stock, it is customary to express the earnings on the preferred dividend as $10 per share. It is not customary to express the margin of protection as a percentage.

No specific margin is computed for the common stock, since the common stock does not carry a rate of distribution fixed by contract. Net income available for the payment of common dividends, after the deduction of all prior payments, is spread over the number of shares. If net income is $10,000,000, and 10,000,000 shares of common stock are outstanding, the company has earned $1.00 per share. The computaton of net income, therefore, ignores the par value of common shares.

This simple standard by which to measure the comparative earnings of corporations and industries over a period of time is not free from objections. In theory, the standard is sound. In practice, the defects are serious.

Net income is a complex term. It is a final summation of the relationship between aggregations of income and expense items. The net income available for the investor, even though the investor is a prior lien bondholder, is subordinate to the claim upon the gross revenue of numerous other claims. Wages are the first charge. The custom is to pay the wage earned at stated intervals. Unpaid wages, in some instances, do accumulate, but the exceptions emphasize the rule. If men are not paid they will not work. If they do not work, the plant closes. The tax collector can sometimes be warded off. Unpaid tax bills sometimes pile up, particularly in industries in which taxes represent a substantial percentage of the total expenditures. In hotels, apartment houses, and office buildings, in recent years, real-estate taxes often remain unpaid. From the standpoint of security-holders, however,

the tax obligation cannot be escaped. It must be liquidated before any payments can be made on bonds.

The expenditures for raw materials and supplies, unfinished and finished goods in progress, replacement of parts, building up of inventories, and maintenance of idle-plant capacity are prior charges upon gross revenue.

The relationships between the costs and selling prices; between physical volume of production and gross dollar sales, are variable. They defy formal classification. They cannot be set down in categories. In periods of expansion, the rise of prices usually precedes the rise of wages and taxes. Costs of production usually lag behind sales. Rising prices, therefore, result in rising profits. Conversely, the decline in prices in deflation produces a reduction in dollar sales which is not matched by a decrease in costs. A reduction in commodity prices often falls upon a heavy inventory. As the inventory is sold in the form of finished products at current replacement prices, the loss may be serious.

In industries subject to public control, efforts have been made for many years to remedy accounting deficiencies—steam railroads, for example. In 1908 their accounts were first subjected to regulation by the Interstate Commerce Commission. Six years after receiving this authority the Commission published a uniform system of accounts. Since that time, steam railroads engaged in interstate commerce have filed their financial statements with the Interstate Commerce Commission in accordance with this system. Elaborate rules and regulations have been devised for the standardization of accounts. Operating expenses have been divided into a limited number of primary, and a large number of secondary, accounts. Rule books on the interpretation and classification of the terminology, and handbooks containing hypothetical questions and answers have been issued. Questions and answers bearing on the meaning of numerous rules have been prepared. The Interstate Commerce Commission has not been inflexible in its interpretation of the law. Many modifications have been issued. Recommendations for revisions of the accounting sections of the law have been made to Congress.

Here is an industry whose operations are standardized; whose business is subjected to uniform regulation; and whose costs, selling prices, finances, business practices, standards of services,

as well as its accounts, have been, for many years, supervised by one Federal body. The Commission has made hundreds of accounting rules. And yet, from the standpoint of the investor interested in accurate statements of particular companies for purpose of comparison, progress has been slow and halting.

The handling of depreciation allowances by the Commission illustrates the difficulty in securing uniformity in railway accounts. The Hepburn Act of 1906 gave the Interstate Commerce Commission, for the first time, control over the accounting practices of the steam railroads. The Interstate Commerce Commission early decided to enforce a system of depreciation charges for railroad equipment. It instructed the carriers to set up depreciation-reserve accounts. It was assumed that the life expectancy of the equipment could be accurately estimated and that at the end of this assumed period the equipment would be retired from service. Starting from this assumption, the Commission instructed the railroads to credit amounts annually to the depreciation reserve and to charge the operating expenses for that year. The allowance was computed for each item of equipment.

This system broke down. At the end of the life-expectancy period, the equipment was not retired. Instead it was retained in service, and the repair costs were charged to operating expenses. Credits to depreciation reserves had been built up from annual charges to operating expenses. Debits to the reserve were small. The annual depreciation credits to the reserve account proved to be only a bookkeeping accrual and without financial significance.

The Commission, recognizing the defects in its former ruling, then instructed the railroads to deduct their depreciation reserves from investment in road and equipment. The account then represented the amount by which, by the lapse of time, the equipment had been reduced in value. This depreciation-reserve account remains only a bookkeeping entry. It throws no light on the current value of the equipment. By December 31, *1937,* the accrued depreciation on road and equipment (Class I roads) had reached $2,627,745,786. If it is sound accounting for the railroads to charge to operating expenses the cost of maintaining and retiring their equipment, as they had apparently done during their entire history, then the depreciation reserve is unnecessary. As the Commission stated in one case, it represents an understate-

ment of the income of the steam-railroad industry. The depreciation reserve was therefore, in the Commission's opinion, a part of corporate surplus.

The difficulties which the Commission encountered in its efforts to standardize depreciation-accounting practice led to the insertion of a new section into the Interstate Commerce Act. This directed the Commission to prescribe the classes of property "for which depreciation charges may properly be included under operating expenses, and the percentages of depreciation which shall be charged with respect to each of such classes of properties, classifying the carriers as it may deem proper for this purpose."

Under this authority, the Commission held hearings preliminary to the preparation of regulations by which accounting for depreciation could be standardized. In November, 1926, the Commission issued a report prescribing a new system of depreciation accounting which, in some respects, constituted a departure from existing practices. The railroad companies, however, convinced the Commission that the new system could not be adopted. They sought a further hearing. The petition of the railroads was granted, and the application of the new plan of accounting was indefinitely postponed. The Commission then built up another record of evidence, and, five years later, in July, 1931, issued a modified report. Numerous detailed findings for the handling of depreciation allowances were prescribed. To the date of writing, however, little change has been recorded in railroad accounts. The handling of specific difficulties in the interpretation of the rulings of the Commission is still the subject of negotiations between the Commission and individual railroad companies. After thirty-three years, the oldest and most experienced Federal regulatory body has been unable to standardize the treatment of an important factor in the operating-expense account.

In other respects, the uniformity of railroad accounts cannot be safely accepted by the investor. Serious deficiencies in the published statements have appeared. Railroad investors question the extent to which the published accounts can be safely accepted as an accurate revelation of earnings of particular corporations. A notable illustration is found in the accounts of the Chesapeake and Ohio Railway Company from July 29, 1926 to August 21, 1928. During this period the company rebuilt 2,390 gondola cars origi-

nally manufactured in 1916 and 1917. They were sent to the shops. Bodies and underframes were removed and cut up for scrap. The trucks were reconditioned by the replacement of all defective parts. New bodies and underframes were then applied to the repaired trucks. This involved a total cost to the railroad of $1,697,527. The railroad charged the cost of this renewal to an operating-expense account entitled "Freight-Train Cars—Repairs." The Commission insisted that this expenditure should be capitalized. The cars, in reality, according to the view of the Commission, had been retired from service and replaced with property of like purpose. Under a form of accounting pursued by the Chesapeake and Ohio Railway, the Commission insisted, "it would be possible for a carrier to replace units of equipment by rebuilding through operating expenses, retaining in capital investments only the pre-war cost of the original units, whereas another carrier which elects, or is compelled, to replace by purchases of new equipment would include in its capital investment a much greater sum for property of the same description and service life."[1] The Commission, therefore, ordered the Chesapeake and Ohio to recast its income accounts for 1925, 1926, 1927, and 1928, reduce its operating expenses, increase its reported income available for the payment of interest and dividends, and to increase its reported balance-sheet assets by a corresponding amount.

Maintenance is an important part of railway-operating expenses. These expenses need not be uniform from year to year. In practice, they vary widely, fluctuating with the volume of traffic. They are also reduced below normal requirements in periods of low earnings to maintain the balance available for interest and dividends. The law does not authorize the Interstate Commerce Commission to compel a railroad company to equalize its maintenance expenditures from year to year, nor to adhere to a given standard of maintenance. The Commission does, however, publish certain information which reveals, in part, the standard of physical maintenance from year to year. This, however, is only a small fraction of the total physical items of maintenance. Railroads, therefore, increase their expenditures for main-

[1] Accounting for Rebuilding Freight Cars by Chesapeake and Ohio Railway Company, 153, I. C. C., 9, 10.

tenance when earnings rise, and contract their expenditures when earnings drop. For example, the St. Louis Southwestern Railway, a road which filed a petition in bankruptcy in December, 1935, spent in 1936 (according to its president) $691,887 less for maintenance of way and structures than normally should have been spent. The actual expenditures for this account in 1936 amounted to $2,461,053. They should have totaled $3,152,940. The President of the Company declared that this deficiency was in ballast, rail, and other track materials, bridges, trestles, and culverts. The condition of the rails was worse at the end of 1936 than at the beginning.[2]

On the other hand, a rise in the standard of maintenance, resulting in increased "normal" expenditures to maintain this new standard, a fact not revealed to the investor, is a commonplace in the history of railroad finance. Occasionally the true condition is not reported to the investing public until a proposal is made to acquire control of one road by another. These changes in corporate control require approval by the Interstate Commerce Commission. That body makes its decision upon a record of evidence. The facts of maintenance are then brought out, usually through the insistence of a minority interest upon better treatment. In one case, the Louisville, Henderson and St. Louis Railroad, during a six-year period spent $2,697,127 in additions and betterments, of which $1,236,653 was chargeable to road, and $1,460,474 to equipment. The railroad was improved by increasing the weight of rail, substituting treated for untreated ties on most of the line, renewing ballast, rebuilding certain bridges, and other changes. A large part of the cost of these improvements was charged to maintenance. The rail laid totaled 27,992 tons which cost $666,590 net, of which $448,356 was charged to operation (maintenance). The total charges to maintenance of way and structures averaged $746,440 a year. A statistician and analyst familiar with railway matters testified "that the normal maintenance should not have exceeded $630,000 a year, that is, $3,000 per equated track-mile, and introduced several statistical exhibits tending to support his conclusion. According to this analysis, the excess over normal maintenance expenditures amounted

[2] Statement of F. W. Green, President, St. Louis Southwestern Ry. Co., as reported in the *Wall Street Journal*, April 23, 1937.

to $698,640 in the six-year period, and the earnings on the common would have ranged from $18 a share in 1922 to $32.25 in 1925, or an average of $25.78 a year if the maintenance had been normal." [3] The reported earnings ranged from $14.65 a share in 1924 to $25.74 a share in 1927, and averaged $19.95 a year for this period. On another road, the Chicago and Eastern Illinois, "excessive charges for maintenance of equipment during the period 1922 to 1929 was one of the principal contributing factors to the relatively poor showing of net earnings in that period." [4] and the "better showing in net railway operating income for 1936 resulted primarily from reduction in operating expenses, accomplished largely by reduction in the cost of maintenance of equipment in recent years without impairment of operating efficiency." [5]

Both under-maintained and over-maintained railroads exist. The over-maintained railroads have an unreported asset upon which they can draw in depression. When earning power declines they can drop their maintenance expenditures without serious harm to the property. Conversely, an under-maintained railroad enters a depression with unreported deficiencies of maintenance. It cannot divert its earnings from physical maintenance to the payment of unearned interest. The failure to reproduce accurately the equipment depreciation-reserve account contributed to a misstatement of the corporate-income account of Chicago Great Western from 1930 to 1935. In that period, the equipment-depreciation reserve and service loss on obsolete equipment was charged to the profit and loss account instead of to operating expenses. For 1930 the net income was shown at $1,309,205. Had these items been charged to operating income, the net for 1930 would have been $56,772. For 1931 the net income of $900,884 would have been transformed into a deficit of $3,528,099. Similar deficiencies led to the same discrepancies in the reported accounts for 1932, 1933, and 1935.[6]

In the accounting of non-utility industries whose selling prices are not regulated by public authority, there is a riot of confusion. One industry reports more information than another; others re-

[3] 150, Interstate Commerce Commission, p. 744.
[4] 230, Interstate Commerce Commission, p. 215.
[5] *Loc. cit.*
[6] New York *Times*, June 9, 1937.

port the same information in different forms; others change their accounting standards between two fiscal periods.

As a minimum, one would expect every corporation to state its gross earnings. But many companies do not. In oil refining, the Standard Oil Company of California and the Standard Oil Company of New Jersey report their gross operating income and itemize various costs. The Texas Corporation begins its income account with "net sales." This may or may not correspond to the item of gross operating income as reported by the Standard Oil Company of New Jersey and the Standard Oil Company of California.

The major cigarette companies (prior to 1936) did not state their gross revenues. American Tobacco, Lorillard, and Reynolds began their consolidated income accounts with the term operating profit. Philip Morris prior to 1935, however, began with an item called "Profits from Operations." In the cigarette industry, therefore, it was not possible to compare gross operating revenues, to relate operating expenses to gross revenues, or to determine the operating profit.

One of the important items in determining "net income" is the inventory. Many industries must carry heavy inventories, either because of seasonal necessities, as in the food-packing and cotton-seed-oil business; or because of the long time required for the conversion of the raw material into the finished product, as in the rubber and rubber-tire industry; or, in general, because of the necessity of maintaining continuous operations.

In periods of unstable commodity prices, inventory gain or loss exerts an important influence upon profits. From 1920 to 1937, there have been three major swings of commodity prices. From 1920 to 1922, there was a sharp drop followed by a long period of stabilization to 1929. From 1930 to 1933 there was another downward swing. This was followed by another rise in prices from 1933 to the spring of 1937.

In the first period, a number of important corporations reported severe inventory losses, reflected in most cases by reductions in profits. The following tabulations[7] for the first period bring out this point.

The first table is the dollar valuation placed upon the in-

[7] *Wall Street Journal*, November 1, 1924.

ventory in the annual report of each company. The second table gives the net income available for dividends.

RELATION OF NET INCOME TO INVENTORY, 1919-1922

MOVEMENT OF INVENTORY VALUES

(*ooo omitted*)

	1919	*1920*	*1921*	*1922*
American Beet Sugar	$5,315	$4,269	$7,591	$3,282
American Smelting	55,543	61,321	48,527	46,603
Armour	159,108	136,723	83,320	78,900
Central Leather	74,937	60,586	48,403	48,000
Cluett Peabody	13,465	15,885	6,650	9,908
Goodrich Tire	54,184	72,631	29,618	22,812
Republic Iron & Steel	15,943	18,751	15,231	13,831
Pressed Steel Car	3,595	11,237	2,939	6,171
United States Rubber	87,633	123,502	76,941	63,666
Worthington Pump	12,850	13,249	8,648	7,989

NET INCOME AVAILABLE FOR STOCK

(*ooo omitted*)

	1919	*1920*	*1921*	*1922*
American Beet Sugar	$2,425	$133	$3,134*	$686
American Smelting	6,045	6,674	1,710	5,918
Armour	14,306	5,320	31,709*	7,628*
Central Leather	14,288	22,428*	11,068*	1,528
Cluett Peabody	5,153	1,938	275	2,751
Goodrich Tire	17,304	921	8,983*	3,047
Pressed Steel Car	4,265	2,531	682	341*
Republic Iron & Steel	2,141	7,616	5,665*	418
United States Rubber	17,730	21,221	492	7,692
Worthington Pump	3,257	2,030	188*	879

* Loss.

With the exception of Worthington Pump and Pressed Steel Car, these companies process raw materials with an international market. It is difficult to control the supply of these materials, although in recent years numerous attempts have been made. The most recent declines in prices of primary raw materials in 1937-1938, has thrown doubt upon the efficacy of these measures.

In the price decline after 1929, inventory problems again be-

came serious. The following table gives the inventory valuations and net incomes as reflected on the books of another group of companies representing inventory losses from 1928 to 1931.

RELATION OF NET INCOME TO INVENTORY, 1928-1931

MOVEMENT OF INVENTORY VALUES

(*ooo omitted*)

	1928	*1929*	*1930*	*1931*
American Sugar Refining	$10,920	$17,962	$13,424	$8,267
Botany Consolidated Mills	11,346	9,529	5,074	4,076
Burns Brothers	5,363	6,413	2,447	2,678
Cluett Peabody	6,547	5,713	3,478	2,905
Eitington-Schild	7,883	7,830	4,230	2,115
Firestone Tire & Rubber	24,759	41,228	27,549	29,134
Great Western Sugar	38,958	23,989	28,692	34,877
International Shoe	35,185	28,984	26,259	22,185
United States Rubber	66,548	57,499	44,050	27,037
Walworth Company	7,984	9,217	7,692	4,573

NET INCOME AVAILABLE FOR STOCK

(*ooo omitted*)

	1928	*1929*	*1930*	*1931*
American Sugar Refining	$6,568	$6,645	$5,659	$4,155
Botany Consolidated Mills	846*	2,104*	3,044*	2,222*
Burns Brothers	1,186	1,096	1,387*	2,836*
Cluett Peabody	1,359	663	798	553
Eitington-Schild	2,131	2,423*	1,075*	1,149*
Firestone Tire & Rubber	7,072	7,726	1,541	6,028
Great Western Sugar	3,530	7,785	5,810	489*
International Shoe	15,761	17,031	12,874	9,744
United States Rubber	10,781*	576	18,063*	9,473*
Walworth Company	413	2,031	163	2,062*

* Loss.

During this period there were sharp fluctuations in the inventory account. With many companies, including some of those listed above, the inventory loss was a factor contributing to the subsequent failure of the company. Botany Consolidated Mills, Burns Brothers, and Walworth, of those listed above, were compelled to seek the protection of the courts.

In the rise of commodity prices from the low of 1932 and 1933, many corporations benefited. Tabulations showing inventory movements and net income of a selected list of companies is shown herewith:

RELATION OF NET INCOME TO INVENTORY, 1933-1935

MOVEMENT OF INVENTORY VALUES

(*ooo omitted*)

	1933	*1934*	*1935*
American Woolen	$36,437	$21,883	$30,533
Colgate-Palmolive-Peet	16,853	20,977	22,591
Continental Can	18,881	18,661	22,134
Cudahy Packing	16,204	21,000	21,361
Goodyear Tire & Rubber	39,422	55,754	58,902
National Distillers Products	12,686	27,329	30,941
Pittsburgh Coal	5,331	8,521	6,558
Procter & Gamble	28,927	28,264	44,629

NET INCOME AVAILABLE FOR STOCK

(*ooo omitted*)

	1933	*1934*	*1935*
American Woolen	$7,219	$5,411*	$2,869
Colgate-Palmolive-Peet	373	3,744	4,141
Continental Can	7,547	10,707	11,223
Cudahy Packing	1,813	1,968	1,211
Goodyear Tire & Rubber	4,134	4,287	5,452
National Distillers Products	6,086	11,134	7,009
Pittsburgh Coal	2,868*	146	691*
Procter & Gamble	10,811	14,370	15,123

* Loss.

In this period, increases in inventory resulted in increases in profits. The sharp drop in the first period destroyed the surpluses of a number of companies in some industries. Armour and Central Leather are illustrations. In the second period one unfortunate purchase of raw cotton by Richard Borden Manufacturing in the spring of 1929 "at what seemed a reasonable" price, transformed a corporate surplus into a deficit.[8]

[8] Statement of Charles N. Borden, President, Richard Borden Manufacturing Company, at stockholders' meetings, as reported in *Journal of Commerce*, November 13, 1930.

In a rising market a large inventory profit *may* be made, and in a declining market a loss *may* be incurred. *It does not follow, however, that these profits and losses are reflected to the same extent in reported income of different companies. Extraordinary differences in the treatment of changing inventory values appear.*

This is illustrated by the reports of the leading meat-packing companies for the fiscal year of 1935. In that year Swift created an inventory reserve of $6,000,000 and charged it to the earnings for 1935. Another inventory reserve of $6,500,000 was charged to the earnings for 1934, and in 1933, $3,267,000 was charged against 1933 earnings. John Morrell, another unit in the industry, created a small inventory reserve in 1933; but it included this inventory reserve in its 1935 earnings.

Cudahy Packing and Wilson, however, created no reserve against inventory fluctuations in 1935. Had Swift followed the same policy as Cudahy and Wilson, its earnings of $1.48 a share for that year would have been much higher than the reported figures.

In the non-ferrous metal industry, progress has been made in eliminating the fluctuations in earnings due to changes in commodity prices. American Smelting and Refining and National Lead have for many years followed a policy designed to free stated profits from this disturbing influence. American Smelting has long used the so-called "normal stock" system of inventory. A part of the inventory is considered necessary for continuous operation. It is considered as a permanent asset. It is part of the operating "plant." This part of the inventory is valued at prices sufficiently low to reduce the effect of price fluctuations to a minimum. The remainder is valued at cost or market, whichever is lower, on the so-called "first-in, first-out" basis. National Lead and American Can have also adopted this system. National Lead carries its normal stock of lead at three cents a pound;[9] the American Can carries its tin plate at $3.60 a box. These prices, except for the worst of the depression in 1931 and 1932, are lower than the lowest market quotations.

Recently American Smelting and Refining has changed its system. Its normal stock is now reported on the basis of last-in and first-out. This change, however, has introduced no fundamental

[9] Letter from National Lead Company, January 31, 1939.

modifications of the normal stock system of reporting inventory. Both normal and excess stocks of the American Smelting and Refining are carried at prices below the market. The following table shows the inventory valuations and the market for the commodity as of October 1, 1937:

	Normal Inventory [10] *Price*	*Price Nov. 9, 1937*
Domestic Copper	6.70 cents per pound	11.00 cents per pound
Domestic Lead	3.63 " " "	5.00 " " "
Domestic Zinc	3.73 " " "	5.75 " " "

American Smelting and Refining has also set up a reserve against normal stock inventory values.

A company which thus reports its inventory, under most conditions eliminates the losses from declining prices as well as the gains from advancing prices. The reported earning power is more stable, it reflects more accurately the normal operating and market conditions of the industry as a whole and of the company in particular.

The table [11] on page 79 shows the net income reported by the American Smelting and Refining from 1929 to 1935, and the earning power per share that would have been shown if the company had followed the ordinary practice of valuing its inventory on the first-in, first-out basis.

Similar differences in the method of valuing inventory exist in other industries. In the vegetable-oil industry, Procter and Gamble credits unusual inventory profits to a reserve. Wesson Oil and Snowdrift does not. In 1935, Procter and Gamble charged its earnings with $4,000,000 as a credit to a reserve for "materials and products equalization." [12] Wesson Oil and Snowdrift, however, made no such charge, and reported an increase in profit. In 1937, due to a sharp drop in the price of lard and cottonseed oil, both companies were faced with inventory losses. The stated profits of Procter and Gamble were not seriously affected, since the inventory loss was reflected in a charge to the inventory

[10] Annual Report, American Smelting and Refining Company, year ending December 31, 1935, p. 5. This report states also, "that the normal stocks are, by the metal stock reserve, protected to fixed prices considerably lower," *ibid.*, p. 5.

[11] As computed by *Wall Street Journal*, March 18, 1936.

[12] *Wall Street Journal*, June 23, 1936.

reserve. Wesson Oil and Snowdrift, on the other hand, in its current income account, reflected its inventory loss for 1937.

Similar differences in accounting practice for other items characterize the accounting of industrial corporations. In the oil industry, large sums are spent to drill wells. Drilling is essential to expand oil reserves. Accounting for drilling costs varies widely. Some companies capitalize drilling costs; and these "assets" are subsequently amortized. Other companies charge these expenses to current income. Others follow a compromise policy.

AMERICAN SMELTING AND REFINING COMPANY EARNINGS, AS REPORTED AND AS ADJUSTED FOR ASSUMED INVENTORY VALUES

Year	*Net Shown*		*First In, First Out*	
	Total	*A Common Share*	*Total*	*A Common Share*
1935	$13,700,000 †	$ 5 01 †	$18,700,000 †	$7.45 †
1934	7,500,000	1 63	12,000,000	4 57
1933	6,000,000	0.77	14,500,000	5.43
1932	4,500,000 *	... *	7,900,000 *	... *
1931	800,000	... *	3,300,000 *	... *
1930	11,000,000	3.77	1,700,000	... *
1929	21,800,000	10.02	21,400,000	9.84

* Deficit.

† These figures include non-recurring profits of $1,297,540, equal to 71 cents a share.

These practices vary not only between companies in the same industry, but also for a given company at different times. The Socony-Vacuum Oil Company recently introduced a change in accounting policy. "Effective January 1, 1936, the company's crude oil producing subsidiaries in the United States adopted the policy of capitalizing *intangible* development costs as incurred instead of charging them to income." For 1936, these intangible costs, less amortization taken during the year, were $8,850,224; and this amount was added to earnings.[13] The company, therefore, beginning with 1936, estimates the future crude-oil production of each well and then writes off the capitalized drilling costs on a per-barrel basis as the oil is produced.

[13] Annual report, Socony-Vacuum Oil Company, 1936.

A change in management sometimes may result in a modification of accounting policy sufficient to make a difference in the income statement. For example, Holland Furnace appointed a new management in 1933. Soon after it charged current income with reserves to take care of losses from bad debts. The application of this new accounting method retroactively resulted "in a reduction of approximately 60 per cent in the amount of loss on customers' accounts charged in the consolidated statement of income for the year ending March 31, 1933, when compared with the corresponding item in the annual report to stockholders for that year." [14]

In the motion-picture industry, the leading corporations follow different policies for the writing off of the cost of films. They endeavor to write off the cost of films currently in proportion to film receipts. The revenue from a new picture is concentrated mainly in the first few months of showing. After a short period the revenues from the new film drop sharply, and then disappear. Paramount Pictures writes off 83 per cent of 85 per cent of the cost (the 85 per cent being the percentage of cost allocated to the United States and Canada) within thirteen weeks from the date of release; Twentieth-Century-Fox Film, 53 per cent of total cost. Loew's writes off approximately seven-eighths by the end of the first year; while Paramount, in the same period, writes off 100 per cent of the 85 per cent United States and Canada cost, and 78 per cent of the 15 per cent foreign cost.[15]

Warner Bros. in 1937 adopted "a new and more drastic scale of film amortization," a change that increased operating expenses and reduced earnings. The table on page 81 shows the cumulative change of film costs written off under new and old rates.[16]

Net income may also be related to book value. Many statistical computations, both in government publications and in publications by investment institutions, are based upon the ratio of net income to book value of assets—invested capital. Invested capital, however, can seldom be accurately computed. In steam-railroad,

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[14] *Wall Street Journal*, February 18, 1936.

[15] The details on amortization are based on correspondence with the companies and on the listing application to the New York Stock Exchange No. A-10783 of Paramount Pictures, Inc.

[16] *Wall Street Journal*, November 26, 1937.

telephone, power and light, gas, street-railway, telephone, and water industries (the public utilities), efforts have been made to obtain comparable statements of invested capital. The Valuation Act of 1913 gave the Interstate Commerce Commission, for example, a mandate to value each railroad property. The Commis-

WARNER BROS. PICTURES, INC., SCALE OF FILM AMORTIZATION

Weeks After Release	*Revised Rate Per Cent*	*Former Rate Per Cent*
4	15	13
8	36½	32½
13	53	51½
26	70½	73
30	74	77
39	83	84¼
52	95	93¾
65	100	100

sion was required to secure the original cost (which would correspond to invested capital). The difficulties of determining original cost were, in many cases, insurmountable. The records were often not available. In some cases records had never been prepared. A school of thought, of which former Justice Brandeis is an able exponent, insisted, and still insists that, not the original cost but only the "prudent" cost, known as the "prudent investment," be included in the value upon which the railroad (and public utility) should be permitted to earn a return.

Neither can the book value of the property be considered an accurate guide to the amount of invested capital. In some industries arbitrary write-ups of the book value are common; while in others arbitrary write-downs prevail. Some companies in the power and light industry resorted, in the decade of the twenties, to increases in book value. Northern States Power, for example, operating in the Middle Northwest, revalued its properties. An appraisal was made on the basis of reproduction cost new, as well as on the basis of reproduction cost new less observed depreciation. The appraisal resulted in an increase of book value of $18,378,207, or 39 per cent over former book values.

New York State Electric and Gas, in the same year, reappraised its fixed capital on the basis of reproduction cost new. The ledger value of $5,947,991 was increased to $10,860,231. Simi-

lar appraisals, on the basis of reproduction cost new, on additional properties subsequently acquired by this corporation, were made after 1924. As of December 31, 1929, the book value of the fixed-capital account, amounting to $49,004,873, had been written up, on the basis of the appraised valuation, to $58,985,645. Metropolitan Edison in 1925, Adirondack Power and Light in 1920, United Gas and Fuel in 1918 and again in 1925, furnish additional illustrations of write-ups in the public utility business.[17]

Many well-managed non-utility companies, on the other hand, pursue the opposite practice and write *down* the book value of their assets. Shortly after Air Reduction acquired a stock interest in United States Industrial Alcohol, the book value of plant and equipment of the latter company was written down from $29,115,544 to $1.00. During periods of declines in earnings, many managements write down book values in order to reduce annual depreciation charges in subsequent periods, or to reduce the balance-sheet "liability" represented by stocks, or to make adjustments in the capital structure in order to pay dividends out of earnings. For example, Armour in 1934 reduced the book value of its properties by $54,000,000, permitting a reduction in the par value of the common stock. Libbey-Owens Ford Glass from 1930 to 1936 reduced its net plant account from $27,533,592 to $15,960,019. A write-off of $10,000,000 was made in 1931.[18] During this period, when book values were reduced by 44 per cent, Libbey-Owens Ford bought the Ottawa, Illinois, plant of National Plate Glass from General Motors for $9,500,000. It acquired the assets of Vitrolite, as well as the laminated-glass patents of Triplex Safety Glass. In addition to the shrinkage in plant account, the company also charged off $2,473,057 in its patent manufacturing account. In 1936, American Can eliminated intangible assets from its property account. This write-off amounted to $44,593,881.

The commercial banking business is featured by extensive write-downs and write-ups of its assets. When earnings are low, substantial write-downs are made; when earnings are high, asset shrinkages may be recovered. For example, the National City Bank, including National City Company, from 1930 to 1936

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[17] Summary Report of the Federal Trade Commission, Senate Document No. 92, Part 72-A, 70th Congress, First Session, 1935, p. 282.

[18] *Wall Street Journal,* March 2, 1937.

appears to have written off something like $225,000,000. A single investment in the General Sugar Corporation of Cuba, carried at $25,000,000, was written off.[19] The Chase National Bank restored to its balance sheet in 1934 and 1935, from accounts which had been written off, a total of $7,700,000 of realized recoveries. Part of the realization was used to settle a claim of the Comptroller of the Currency in the Harriman Bank matter, and the balance was placed to the credit of reserve accounts.[20]

In some computations relating net income to invested capital, the recorded book investment is, therefore, ignored. Invested capital is approximated. The Federal Trade Commission, as well as the National Industrial Conference Board, describes permanent investment as the balance-sheet equivalent of capital stock, funded debt, and surplus. Short-term notes and accounts payable are omitted, since, as a rule, they are covered by current assets. The surplus item introduces some difficulties. The Federal Trade Commission adds certain reserves to the corporate surplus. Other computations eliminate reserve items. These computations are open to the objections already made to the use of net income as a measure of profits. The information is either not available, or is presented in such form as to make accurate comparisons difficult.

If comparable, similar data for all industries and for all corporations within a given industry were available, the test of net income would be ideal. Such information, however, is not available, and it is for this reason, primarily, that it is not possible to apply the income standard as a common denominator for the measurement of investment values.

We have therefore selected as the basis of determining profit trends, *the disbursements of business corporations to investors—the interest and dividends paid to creditors and stockholders over a period long enough to establish comparable trends of profits.*

Determination of income trends over a reasonably long period cannot be uniformly made. Investment distributions, on the contrary, produce uniform results. A rise in the volume of distributions to security holders from year to year and from period to period reflects a favorable trend of profits. A decline in the volume of distributions reflects a declining trend of profits.

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[19] *Wall Street Journal,* October 6, 1936.
[20] *Wall Street Journal,* September 10, 1936.

An investor is an income buyer. He buys a current income; and he is interested in corporate income only as it affects his personal income. The return to the investor rises with the rise of corporate dividends and interest distributions. He takes his income, not in the form of ships, or locomotives, or bales of goods, or raw materials in which the profits of a company may appear, but in cash. He therefore profits directly only when the company turns over cash in the form of dividends and interest.

This standard has numerous defects. It cannot always be safely assumed that an increase in interest and dividend payments reflects an increase in profits. Over a short period this standard is objectionable. If the existing corporate management is to avoid the difficulties of bankruptcy, interest payments must be made regardless of current earnings. Bankruptcy is a disgrace, a confession of failure. Businessmen value highly their reputation for solvency. Long years of schooling in the importance of solvency, reverence for the rights of creditors, and also the pervasive and potent influence of investment bankers deeply interested in the continued payment of interest on bonds which they have sold, and for which they must assume at least moral responsibility, unite to build up in company managements a determination to pay fixed charges at all costs, not to surrender until the last shot of cash is fired, the last redoubt of credit surrendered. Despite the absence of earnings in periods of adversity, interest payments will often be maintained. The corporation's accumulated cash and liquid assets will be used, not for the purpose of improving the quality of the company's product, nor for expanding markets, nor for reducing costs, but for the payment of interest. The cash appropriation to depreciation allowances currently credited to reserve accounts will be used, not to replace obsolete or physically exhausted properties, not to finance the installation of additions and betterments, but to pay interest. Cash savings for interest will be created by reducing physical maintenance, by reducing advertising expenditures, by failure to purchase new equipment. The commercial credit of the company will even be jeopardized by slow payments of supply bills in order to provide for maturing coupons.

If possible, the industry will borrow to pay interest on existing debts. Hope is eternal, and the ingenuity of management is great.

If the credit of a corporation is high, money can be borrowed to pay interest. The steam-railroad industry has made loans, first from private bankers, and second from the Reconstruction Finance Corporation, in order to secure funds to pay maturing principal and interest on existing debts.

This can be considered a general practice in all industry. The decline in cash and current resources, the increase in borrowed funds, and the decline in income available for the payment of interest on bonds usually occur together. The records afford abundant proof of this tendency. Taking our illustrations from the most recent period of depression and recovery and from the major companies and industries: Philadelphia and Reading Coal and Iron, and Hudson Coal in anthracite; Gould Coupler, Pressed Steel Car, and Baldwin Locomotive Works in railway equipment; Chicago and Northwestern, Chicago, Milwaukee St. Paul and Pacific, Chicago and Eastern Illinois, Missouri Pacific, St. Louis and San Francisco, and Chicago, Rock Island and Pacific in steam railroad; National Department Stores and City Stores in department stores; Consolidation Coal in the bituminous coal; all have depleted cash, lowered maintenance and borrowed funds to pay interest, and so postponed the day of doom.

The recent financial history of the Philadelphia and Reading Coal and Iron Corporation serves as a detailed illustration of financial orthodoxy along this line. This company is one of the leading units in the anthracite-coal business. Demand has been declining, and gross revenue and net income have declined with demand. In 1928, in order to finance improvements and to reduce costs, the company sold a bond issue. The investment only delayed the inevitable result. The margin of safety and earning power of these bonds were small. In 1929 there was a net deficiency after interest of $795,418, followed by a profit of $1,026,055 in 1930, and another profit of $1,360,295 in 1931. This proved to be the end of the profit history of this enterprise. Beginning with 1932 large losses were shown, as follows:

1932	$4,868,603
1933	4,834,472
1934	986,534
1935	6,100,791
1936	3,908,974

These losses were reflected in no corresponding reductions in interest payments. To pay interest the company reduced its cash, securities, notes and accounts receivable, and coal on hand from 1929 to 1936. Early in 1937 it finally reached the end of its resources and surrendered to the courts.

The maintenance of a steady flow of interest payments lends some stability to a company's securities. It may even attract investment consideration during the years of depression when so many strong corporations pass dividends. The stable record of interest payments, however, is no conclusive demonstration of the company's strength.

It is, therefore, the strong corporations, or rather, corporations formerly strong, that in the early stages of their decline pay unearned interest.

Under such conditions, the payment of interest on bonds is not an accurate reflection of prosperity. The bondholder cannot assume that, because interest is paid, the earnings of the company are maintained, and that the bonds are sound investments. Unfortunately, many investors are apt to fall into this error. The presumption is usually in favor of the *continued* payments of interest on that bond which has maintained such payments for the greatest number of years. This attitude leads to overconfidence. It lulls the bondholder into a sense of false security. In fact, it is likely to lead many bondholders, because of such overconfidence, to buy additional bonds in companies that are drifting toward the breakers.

In the steam-railroad industry, for example, in the period from 1929 to 1931, investors purchased more than $300,000,000 of the bonds of the Chicago, Rock Island and Pacific; the Chicago and Northwestern; the Chicago, Milwaukee, St. Paul and Pacific; the Missouri Pacific; the St. Louis and San Francisco; the Chicago, Indianapolis and Louisville; the Central of Georgia; the Mobile and Ohio; and the Wabash. These roads paid interest for only a few years. They are now in the hands of the courts.[21]

Unearned dividends are also paid to stockholders. In depression, dividends may be maintained by companies which have heavy cash balances. Stability in dividend payments is considered valu-

[21] See *Annals* of The American Academy of Political and Social Science (September, 1937), p. 49, "The Steam Railroad Industry," by Julius Grodinsky.

able by the investor. Institutions such as universities, colleges, hospitals, and museums, conduct their operations on the basis of an annual budget. This budget is not flexible. Operating expenditures can be reduced only with difficulty. The maintenance of a standard of instruction in an institution of learning, and of a standard of service to the sick in the hospital, is considered essential. Funds required to maintain this standard must be forthcoming. An investment that maintains an uninterrupted record of payments to the investor is, to that extent, superior to another whose distributions may be larger but more irregular. Many individuals also live on the basis of a budgeted income in which interest and dividends are included.

In order to maintain the investment standing of their securities, some of the strong companies pay a regular dividend, even though partly unearned. The American Telephone and Telegraph Company is the most conspicuous illustration of this policy. The policy has been abandoned by most companies since 1930. With most large companies dividends rise and fall with earnings.

This practice of financially well-established companies is not considered harmful. American Telephone and Telegraph plumes itself on its long dividend record, maintained because large cash accumulations had been made in past years, which could have been currently used to increase dividends, but which the company held in reserve against this emergency. In the recovery following an industrial recession, the earning power of the financially strong companies operating in expanding industries increases. Then the dividends paid are less than net income, and the cash which was drawn upon for the purpose of maintaining a record of dividends in the period of depression is restored.

The payment of unearned dividends, however, is not a practice which can be generally approved. It is frequently adopted by weaker corporations with tragic results. If companies are controlled by other enterprises with heavy debts, then in order to save the controlling company there is the temptation to utilize the existing cash of the controlled companies. Some public utility holding companies, after the break in 1929, adopted this unfortunate practice. The Middle West Utilities system drew upon the reserves of some of its operating subsidiaries in order to preserve the holding company. In 1930 and 1931, unexpected and unex-

plained increases in dividend payments were made by corporate members of the Insull Companies. The York Railways Company, for example, whose income declined from $796,535 in 1930 to $650,505 in 1931, nevertheless increased its common dividends from $600,000 to $1,100,000 in the same period. Cities Service, part of the Doherty group, through the Cities Service Power and Light, also exacted a toll of unearned dividends from its power and light operating subsidiaries. For example: Toledo Edison, with income declining from $4,056,155 in 1931 to $2,953,556 in 1932, increased common dividends paid to Cities Service Power and Light from $1,100,000 to $8,673,379 in the same period. These rapid dividend increases in the face of decreases in income may be followed by even more rapid declines in dividends paid in subsequent years. Fortunately, these unwise dividend payments of the power and light companies produced few financial tragedies for the stockholders and bondholders.

Such mistaken policies in declining industries may produce more serious reverses. The steam-railroad industry, for example, does not have the strength of the power and light industry. The payment of unearned dividends is therefore likely to produce serious consequences by draining cash and moving ahead the date of bankruptcy. One of the largest railroad systems, the Missouri Pacific, with its controlled affiliates, was in 1929, a major unit in the Van Sweringen railroad chain. One of its most profitable subsidiaries was the New Orleans, Texas and Mexico, which owned all the stock of the St. Louis, Brownsville and Mexico. The following tabulation records the net income and the dividends paid by this road in the period from 1926 to 1931:

ST. LOUIS, BROWNSVILLE AND MEXICO RAILROAD NET INCOME AND DIVIDEND PAYMENTS [22]

	Net Income	*Dividends*
1926	$1,444,000	$ 783,987
1927	829,779	976,000
1928	1,113,771	603,000
1929	1,108,000	1,039,000
1930	1,599,000	930,897
1931	397,878	4,155,000

The net income in 1931 was too small to pay any dividend. There was no apparent reason for the sensational increase in divi-

[22] New York *Times*, November 4, 1937.

dend payments. An official of the Interstate Commerce Commission stated that the road was then without funds to pay the dividend.

The New Orleans, Texas and Mexico was in turn controlled by the Missouri Pacific. The New Orleans, Texas and Mexico paid heavy unearned dividends to the Missouri Pacific, secured in part from the unearned dividends paid by the St. Louis, Brownsville and Mexico. Another part of the dividends paid by the New Orleans, Texas and Mexico was secured from cash advances made by the Missouri Pacific. These advances, from November 1928 to November 1931, totaled $2,770,000.[23] The Missouri Pacific Railroad from its organization on March 5, 1917 up to 1928 had paid neither common nor preferred dividends on its stock. In 1928 it paid a preferred dividend on arrearages of 2¾ per cent, in 1929, 6½ per cent, in 1930, 5 per cent, in 1931, 3¾ per cent. On March 1, 1933 the company filed a petition in bankruptcy. These dividend payments reflected neither the company's financial position nor its earning power.

Much of the preferred stock on which unearned dividends were paid was at that time controlled by the Allegheny Corporation, the top holding company in the Van Sweringen System. The acquisition of the preferred stock of the Missouri Pacific was financed in part by an issue of Allegheny Corporation bonds. A large proportion of the Missouri Pacific preferred dividends was, therefore, collected by the Allegheny Corporation and paid by the latter as interest on its outstanding bonds. Whether the preferred dividends would have been paid by a management not associated with the holding company is an open question. It is sufficient to state that the payment of the dividend did not reflect an ability to pay on the part of the railroad. The bondholders and stockholders of the Missouri Pacific Railroad were not warranted in concluding that the increase in dividend payments from 1928 to 1931 was a measure of the improved investment status of their securities.

Another property of the Missouri Pacific System, the Texas and Pacific, declared a dividend on September 30, 1930, of $296,287. Of this dividend, $290,130 was "credited Missouri Pacific account upon our [Texas and Pacific Railway] request, by J. P. Morgan

[23] *Ibid.*

and Company, from proceeds of $1,700,000 loan to the Texas and Pacific Railway Company." [24]

The St. Louis and San Francisco Railway increased its common dividends early in 1929 and continued to pay a high dividend for the balance of 1929 and in 1930. Later in 1932 the company applied for a receiver. Again the increase in dividend distributions served as a prelude, not to sustained prosperity, but to protracted bankruptcy. The Chicago, Rock Island and Pacific is another example of the same tendency.

This practice of paying dividends prior to financial reverses is also found in other industries. It is extensive in a period of rising commodity prices. Profits arising from appreciation in inventories are not segregated from the ordinary profits. From the total income, which may be relatively large, heavy dividends are paid. This practice has not been followed by an increasingly large number of well-managed enterprises such as National Lead, American Smelting and Refining, American Can, etc. The inflation period of 1919 to 1921 produced a large group of financial casualties. Many of the companies, financially embarrassed in 1921 and 1922, had paid heavy dividends in 1919 and 1920. Many of the large dividend payers of the 1919 to 1920 period turned in the poorest investment record in the fourteen years covered by this study. Companies in leather, raw sugar, shipbuilding, marine transportation, fertilizers, woolen, silk and cotton textile industries, paid heavy dividends based on inventory profits. In the next few years many failed to pay interest. In subsequent receiverships they reorganized their capital structures and converted a large portion of their bonds into stocks.

The standard of dividend and interest distributions as a measure of the financial strength or weakness of a company is thus open to many objections. A weak company may pay unearned interest for years. It may also pay unearned dividends, although this usually does not long continue. Some companies, on the other hand, pay no dividends for some years in order to build up their cash reserves or to expand the plant capacity, or for other purposes necessary to increase ultimate earning power. Over longer periods, however, involving a normal cycle of expansion, depres-

[24] *Ibid.*

sion, and recovery, these deficiencies, as between one corporation and another, usually correct themselves.

Over a period long enough to include normal periods of recovery and recession, the trend of dividend and interest distributions to security-holders, with care taken to check quick assets at the beginning and end of the period, can, therefore, be accepted as a reasonably accurate index of profits. The index must be used with care. Like all other tools, it must be used with a sense of skepticism, and with reservations. Continuous payment of unearned interest on bonds cannot be accepted as a measure of stable financial strength. Sudden increases of dividend payments must be examined with suspicion. A gradual rise in dividends over a course of years is probably a reflection of continuous increases in earnings, although even such a record may frequently be due to other causes, such as the acquisition of additional properties through new stock issues. A sudden rise in interest and a fall in dividends is to be carefully scrutinized. Although the total flow of distributions to security-holders may be maintained, a change in form may be dangerous. The increase in payments by the public utility holding companies did not, in the period of the twenties, represent a corresponding increase in the earning power of the utility industry. Interest payments by the holding company frequently replaced dividend payments. A flexible common dividend was replaced by an inflexible interest payment.

In inflation, the dangers of using the standard of investment distributions may be intensified. The declaration of increased dividends by corporations with heavy inventories may be a prelude to financial disaster. Such increased distributions must be examined by the investors with an eye on the commodity market. The rapid rise in the index of dividend and interest distributions, if the rise is occasioned by an appreciation in inventory values, may turn out to be a false lead. Experience has shown the falsity of the expectation of increased financial strength in a period of price inflation.

With all these deficiencies, however, the standard of investment distributions, if used carefully, is the best that can be obtained. It is, in fact, the only standard which can be applied to test without distinction the earnings of all corporations. It is

independent of commission rulings and of the vagaries of accounting practice. Information is usually available. It is specific. Over a normal business cycle its employment shows more accurately than any other standard the normal forces operating to increase or decrease earnings.

CHAPTER VI

CLASSIFICATION OF INVESTMENTS

THIS study is based upon the record of dividend and interest distributions by those corporations whose *stocks,* either common or preferred or both, are listed on the New York Stock Exchange. Some corporations list their bonds and not their stocks. Such companies are not included. Those companies whose stocks were listed on May 14, 1937, form the basis of this study.[1]

The securities listed on the New York Stock Exchange constitute the largest and most embracing single list of non-government investment values. To qualify for listing, a security must possess a sufficient investor interest to make a reasonably broad market. Securities with a local market are not qualified for listing. There is therefore, *prima facie,* a substantial investor interest in listed stocks.

The listed companies are usually the successful ones. The companies are large. They control a substantial part of the business within an industry. They have accumulated sufficient differential advantages to enable them to pay interest and dividends. In a pioneer industry the host of small competitors that fall by the wayside rarely reach the pinnacle of stock-exchange listing. The successful survivors usually attain that goal. There are many successful corporations whose securities are not listed. Many are closed companies. Their stock is not available for investment analysis. For various reasons other large and successful companies are not listed. These include such companies as the Aluminum Company, Gulf Oil, and Humble Oil and Refining.

In many industries, the corporations whose securities are listed

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[1] This statement is not entirely accurate. The record of dividends and interest terminates with the year 1936. All corporations whose stocks were listed on that date are included in the study; and also those stocks which were listed between January 1 and May 14, 1937, were added. For various reasons, a number of stocks listed at the end of 1936 were not listed on May 14, 1937. These stocks are, however, included in this study.

on the New York Stock Exchange, although they may be few in number, nevertheless control a large percentage of the business done. For example, in chemicals, three listed companies dominate the field, Du Pont, Allied Chemical and Dye, Union Carbon and Carbide; in lead smelting, a listed company, American Smelting and Refining, has over 55 per cent of the country's lead-smelting capacity; in copper, 50 per cent of production is controlled by four listed companies, Anaconda, Kennecott, Phelps-Dodge, and Calumet and Arizona; in nickel, International Nickel, a listed company, owns 90 per cent of the world's reserves; in telephone, American Telephone and Telegraph owns 80 per cent of the country's telephone service. Western Union does 75 per cent of the country's telegraph business; International Harvester, 50 per cent of the country's agricultural implement business; and General Motors (together with Ford, not listed) does 75 per cent of the country's business in automobiles. In steel, nine listed companies control 80 per cent of the country's capacity. These companies are United States Steel, Bethlehem, Republic, Jones and Laughlin, Youngstown Sheet and Tube, National, Inland, American Rolling Mills, and Wheeling. Four listed companies produce from 20 to 25 per cent of the country's bread supply—Continental, General, Ward, and Purity. In biscuits, National and Loose Wiles control between 60 and 70 per cent of the nation's production. In meat packing, two listed companies, Swift and Armour, control 50 per cent of the country's production. In cigarettes, three listed companies, American Tobacco, Reynolds, and Liggett & Myers, have more than 80 per cent of the country's production. Two listed companies, General Electric and Westinghouse, do 50 per cent of the country's business in electrical equipment. Eastman Kodak, another listed company, controls about 90 per cent of the photographic supply business. Three can-manufacturing companies, all three of which are listed, American Can and Continental Can directly, and National Can, through the McKeesport Tin Plate, indirectly, manufacture 90 per cent of the cans used by packers in the United States. Two listed sulphur companies, Texas Gulf and Freeport, control almost all of the country's sulphur production. Four listed tire companies—Goodyear, Goodrich, U. S., and Firestone, manufactured 40 per cent of renewal tires and practically all original tires in 1926. It is estimated that one

listed company, Standard Brands, produces from 60 to 80 per cent of the country's yeast production. In cash registers, one listed company, National Cash Register, dominates the field.[2]

Other industries are not well represented on the New York Stock Exchange. Indeed, because of this very fact, a number of securities listed have been omitted from this study. New York Dock and Bush Terminal, listed companies, are not representative of the trends in the terminal and docking industries; Austin Nichols, a listed company, is not representative of the wholesale industry; Corn Exchange Bank and Trust, a listed corporation, is not sufficiently representative of the commercial banking industry. Continental Insurance and Fidelity Phenix Fire Insurance are also not sufficiently representative of insurance. Numerous service industries, particularly in the field of consumer and personal service, are not represented by companies whose securities are listed on the New York Stock Exchange.

Other industries are partially and inadequately represented on the Exchange. A number of industrial groups consist of one company only: die casting, by Doehler Die Casting; excavating machinery by Bucyrus-Erie; photographic supplies by Eastman Kodak; moving-material equipment by Link Belt; fresh fruit by United Fruit; salt by International Salt. In each of these industries the inclusion of a single company is warranted either by one or both of two principles. First, the single company may control a large proportion of the industry. Second, the trend of distributions to stockholders and bondholders of the listed company is representative of the trend of distributions of the industry as a whole.

Real-estate ownership and operation is the most serious industrial omission from the New York Stock Exchange. Apartments, hotels, office buildings; educational, fraternal, and other institutional structures are normally owned and operated by localized enterprises. The business is decentralized. There is no single financially powerful corporation whose securities are distributed nationally. The typical corporation is known only to a limited

[2] These figures on the amount of business controlled by corporations whose securities are listed on the N. Y. Stock Exchange are taken from Hearings on S. 10, Part II, before a Subcommittee of the Committee on the Judiciary of the United States Senate, 75th Congress, First Session, on Federal Licensing of Corporations, pp. 512-515.

number of well-informed businessmen. This business borrows heavily. Its interest charges are large but its dividend payments are small. In the last decade the bondholders took heavy losses.

Interest on state, municipal, and Federal government bonds constitutes a large percentage of the interest burden of the country. The forces affecting the flow of interest by public bodies are not examined in this study. Neither is the interest paid on the bonds and mortgages resting on individual homes and on buildings of the kind examined in the preceding paragraph. The interest payments of the companies whose securities are listed do not, therefore, represent a substantial portion of the total interest paid.

The dividend payments of the listed companies do represent, on the other hand, a preponderant part of the total national dividends. The listed companies are generally the successful companies. The total dividends paid by listed companies, however, include many duplications, most of which are excluded from this study. The dividends of the public utility holding companies duplicate the dividends of many of the operating companies; and the dividends of the investment trusts duplicate the dividends of the companies whose securities are held by the investment trusts. The percentage of dividends paid by the listed companies to the dividends paid by all the companies is larger than published figures suggest.

Not every stock listed is covered by this study. Omissions have been made. They may be classified as follows:

(1) Railroad holding companies, illustrated by Allegheny Corporation and Railroad Securities-Illinois Central Stock. These companies are holders of the securities of railroad corporations, most of whose securities are listed on the Exchange, and are therefore included within this study. To avoid duplication, the railroad holding companies were excluded.

(2) Industrial holding companies, the majority of whose assets consist of stocks listed on the Exchange, are omitted. Such companies are Pittsburgh United and Solvay American. Nothing is to be gained by including the distributions of these companies. Their omission eliminates another source of potential duplication.

(3) Public utility holding companies, illustrated by American Power and Light, American and Foreign Power, National Power and Light, Electric Power and Light, American Water Works and

Electric, Federal Water Service, Engineers Public Service, United Gas Improvement are omitted. Many of the public utility holding companies own controlling interests in different classes of utility services—power, manufactured gas, natural gas, water, ice, and street railway. It is difficult to classify these joint interests in numerous utilities. Shall Columbia Gas and Electric be included in natural gas or in electric power and light? Shall American Water Works and Electric be included in water or in electric power and light? Shall Federal Water Service be included in natural gas or in water? These are unanswerable questions. To include a holding company in one or another class would necessitate so many arbitrary assumptions as to vitiate the conclusions which, to a considerable extent, are based upon the accuracy and adequacy of the classification. The inclusion of the utility holding companies invites duplications. For example, Standard Gas and Electric—whose stocks are listed on the Exchange—owns most of the common stock of the Philadelphia Company, whose preferred stock is also listed. It also owns a controlling interest in Louisville Gas and Electric, another listed stock. Columbia Gas and Electric, to take another illustration, owns the common stock of Dayton Power and Light, whose preferred stock is listed.

A third objection to the inclusion of the public utility holding companies arises from the nature of their capital structures. Long-term bonds have been issued frequently to purchase the common stock of operating companies. The interest charges of the holding companies are paid from the dividends of the operating company. The fixed charges of the holding company are not the fixed charges of the power, gas, water, or telephone business. They represent the interest paid by holding companies; and an increase in the fixed charges of these companies permits the observer to draw no conclusion with regard to the financial policies of the operating utilities.

(4) The railroad-guaranteed stocks are also eliminated. These are stocks issued by railroad companies, the dividends of which have been guaranteed by other railroad companies. Usually, the guarantor railroad owns large blocks of the guaranteed stocks. For example, the Pennsylvania Railroad guarantees dividends on the stocks of the Cleveland and Pittsburgh, the Pittsburgh, Ft. Wayne and Chicago, the Allegheny and Western; the Illinois

Central guarantees dividends on the stocks of the Alabama and Vicksburg, and the Vicksburg, Shreveport and Pacific; the New York Central guarantees dividends on the Cincinnati and Sandusky, the Canada Southern, the New York and Harlem. The guaranteed dividends, to the extent of guaranteed stock ownership by the guarantor, are returned to the latter's treasury. The balances, paid in dividends to the minority stockholders, are small. Moreover, the guaranteed dividends are included in the fixed charges of the guarantor railroad, and thus appear in the interest (fixed charges) of that railroad in this study.

(5) Investment trusts, illustrated by the Lehman Corporation, the Associated Investors, Atlas Corporation, New York Investors, the Wells Fargo Company, the Standard Investing Corporation, the Tri-Continental Corporation, the United States and Foreign Securities Corporation, are excluded. These companies hold the securities of other companies, a substantial percentage of which are listed on the New York Stock Exchange. To include the investment trusts would cause duplication of distributions.

(6) Companies in the liquor and distilling business, illustrated by National Distillers, American Commercial Alcohol, Seagram Distillers are excluded. The prohibition incident, which was not liquidated until 1933, makes it impossible to present a record of comparable distributions.

(7) Industries that are represented by listed corporations, whose distributions are not typical of the industry, are excluded. This is illustrated by Austin Nichols, New York Dock, Bush Terminal, Continental Insurance, and Corn Exchange Bank and Trust. The wholesale business, of which Austin Nichols is a part, consists of many enterprises scattered throughout the land. Most are privately owned. They are not national in character. The trend of distributions to security-holders of the few companies listed on the Stock Exchange are not necessarily indicative of the trend of the industry. New York Dock and Bush Terminal are local warehousing and terminal-service companies in the New York harbor area. Companies in the same line of business are found in every port. Hence, the trend of the industry as a whole cannot be based on the distribution record of these two companies —the only representatives of the industry listed on the Exchange. Neither can conclusions with regard to the trend of dividends in

the commercial banking and fire-insurance business, be drawn from the record of the Corn Exchange Bank and Trust, the only listed representative of the commercial banking business; or from the Continental Insurance and the Fidelity Phenix Fire Insurance—the only two listed representatives of the insurance business. Such considerations explain the omission of numerous companies.

(8) Companies which paid no interest and dividends in twelve or more years of the fourteen-year period included in the study are omitted. This includes such companies as Atlas Tack and Maracaibo Exploration.

(9) Companies (other than steam railroads) whose operations are conducted in foreign countries, other than Canada and Cuba, are excluded. This is illustrated by Patino Mines, Pirelli, Rhine Westphalian Electric Power, which report their operations in foreign currencies. Conversion of foreign currencies into American dollars would involve arbitrary assumptions on which there are differences of opinion. Also, due to differences in government policy, taxation policies, population trends, technological improvements, and standards of personal consumption, the financial results in particular industries may be different in different countries. The inclusion of foreign companies in a group consisting largely of American companies might substantially alter the conclusions reached.

(10) Foreign steam-railroad companies, other than the Canadian Pacific, are excluded. This group is represented on the New York Stock Exchange by the Belgian Northern Railroad, the Cuba Company, the Cuba Railroad, and the National Railways of Mexico. The operations of these companies do not reflect the same forces applying to railroads in the United States and Canada. Also, in some foreign countries, government ownership and operation, in part, tend to alter the trend of distribution to stockholders and bondholders.

(11) The securities of the aviation industry are excluded. The aviation industry is still in its pioneer stage. No listed companies have a record of operations embracing the fourteen-year period under study. The industry, from the standpoint of payments to stockholders and bondholders, has not had sufficient time to build up an investment record. The industry has used its surplus earn-

ings to expand plant and equipment and to conserve its financial strength.

(12) The securities of a company, 95 per cent or more of whose common stock is owned by another company, the stock of which is listed on the New York Exchange, are also excluded. This is illustrated by Greene Cananea Copper and Chile Copper. To include companies in this category would add little of value. To the extent of the ownership of the common stock by another listed company, duplication would exist. Also, the dividends paid by the majority stockholding company to the minority stockholders are included under the preferred distributions of the former.

(13) A number of companies are omitted because of inadequate dividend and interest data for the period covered in this study. This includes such concerns as Hat Corporation of America and Burlington Mills.

(14) Some companies are adjusted for acquisitions and mergers in one or more of the three periods. In dairy products it was found impracticable to make adequate adjustments for this purpose for two companies—National Dairy and Borden. Hence, two index numbers have been prepared. One embraces the adjusted figures for the entire industry, excluding National Dairy and Borden. The other covers National Dairy and Borden adjusted for 1930 to 1936. Neither group embraces National and Borden adjusted from 1923 to 1929 inclusive.

(15) Corporations in liquidation are also excluded from this study. Texas Pacific Land Trust, for example, is using the proceeds from land sales to retire its proprietary certificates. Mother Lode Coalition Mines and Granby Mining, Smelting and Power are liquidating enterprises. In a study of distributions to securityholders, these companies do not belong.

After the elimination of companies in the fifteen categories, there remain, as the basis of our study, 655 companies for which interest and dividend payments from 1923 to 1936, inclusive, have been computed. A large number of the total presented a problem of merger or acquisition. This method of expansion was extensively employed during the period 1923-1930.

Many corporations grew by the acquisition of other corpora-

tions within the same or other industries. If enterprises with a record of interest and dividend payments were acquired by a corporation whose securities were included within this study, the increased payments to the securities-holders by the acquiring corporation did not reflect an enhancement of payments for the industry as a whole. One batch of securities merely replaced another. If the acquisition was effected by an exchange of securities, then some of the bondholders or stockholders, or both, changed the form of their investments. They held the securities of Company A instead of Company B. In order to present a *comparable* record of dividend and interest payments reflecting the *industry as a whole,* it was necessary to consider the payments made on the securities of the acquired company.

This computation of interest and dividend distributions by industries pictures a trend. It endeavors to ascertain in terms of a common denominator the increase or decrease of dividend and interest payments. It does not show the relative profitability of a dollar invested in two or more industries during the period covered by the study. Neither does it show the relative profitability of a dollar invested in a given industry from one year to another, or from one phase of the business cycle to another. Neither does it reflect accurately the relative income of the bondholder and stockholder in one industry as compared with another. It does, however, present a reasonably accurate picture of the trend in dollar payments to stockholders and bondholders of the industries covered by this survey in the period 1923 to 1936 inclusive. Increased payments, due solely to the changing of title to existing earnings, have been, so far as possible, excluded. But the increased payments made in consequence of the sale of new securities used for plant extension, plant improvement, working capital, and for advertising and merchandising campaigns are not distinguished from increases due to rise in dividends from reinvested earnings. Only as they are paid to investors do reinvested earnings become investor income. The company or industry that uses its reinvested earnings skilfully and profitably is treated in the same way as the company or industry that reinvests with equal profit the cash received from investors through the sale of securities.

Our next problem is one of classification. Since our object is to determine the trend of cash disbursements to investors on a group basis of similarity of demand trends, it is necessary to depart from the accepted basis of classification into rails, utilities, industrials, real estate, and financial institutions. These categories include industries which are prosperous and industries which are not prosperous.

Also bearing on this conventional division is the fact that regulation has lost its position of paramount importance. It has not saved either the railroads or the street railways. The Federal government, far from fostering all utilities, has attacked one of them, the light and power industry, and is forcing a number of companies to sell their properties. The Supreme Court has joined in the attack. In a recent case, it went so far as to deny to the utilities what they had always considered they possessed—a monopoly of distributing territories, subject to the obligation to give good service at reasonable rates.[3] The manufactured-gas industry is not as prosperous as it was. Electric competition is affecting its earnings.

As for the industrials, many of these groups are more prosperous than the regulated companies. Regulation does not assure stability.

As the basis of our study, we have endeavored to establish a classification based upon the trends of demand. We start with the five primary classes of industry: (1) Consumers' Goods: cigarettes, refined sugar, shoes; (2) Consumers' Services: motion pictures, street railways; (3) Consumers' Capital Goods: automobiles, domestic powered accessories, furs; (4) Producers' Goods: coal, copper and iron, metals and machinery; and (5) Producers' Services: railroads, telegraph, and marine transportation.

Within these five primary classes, we include the individual companies. Each allocation is based upon the company's predominant activity, upon that product or service from which it derives more than fifty per cent of its sales or revenue. Since the trend of earnings is based *primarily* upon the trend of de-

[3] Decisions of United States Supreme Court, Majority Opinion No. 27, October Term. 1938, January 30, 1939.

mand, we have examined the sphere of activity of each company, and we have endeavored, so far as possible, to unite only similar demand-trend companies within a given industry; thus removing the danger that counter-moving demand trends, some advancing and some declining, may balance, and to some extent, cancel, each other. Many doubtful cases were resolved, either in terms of physical volume, or of dollar sales.[4]

In a few doubtful cases, individual judgment of the authors determined the choice. Evans Products, Tennessee Corporation, and Texas Pacific Coal and Oil, for example, on the basis of letters from the companies, were placed in railway equipment, fertilizer, and crude oil respectively.[5] Eastman Kodak, on the basis of a letter disclosing the absence of a break-down of gross sales, was placed in photographic supplies.

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[4] We gratefully acknowledge the coöperation of the following companies in correcting and supplementing the information as to their dominant business: Allis-Chalmers Manufacturing, American Machine and Metals, American Telephone & Telegraph, Barber Asphalt, Blaw Knox, Barnsdall Oil, Caterpillar Tractor, Consolidated Edison (New York), Continental-Diamond Fibre, Diamond Match, Doehler Die Casting, Dunhill International Inc., Duplan Silk, Evans Products, Fairbanks-Morse, Fairbanks Company, General Electric, Gotham Silk Hosiery, Ingersoll Rand, Inland Steel, International Salt, Kayser, Kimberly-Clark, Link Belt, Marlin-Rockwell, Munsingwear, Ohio Oil, Pacific Gas and Electric, Parker Rust-Proof, Penick and Ford, Phoenix Hosiery, Pittsburgh Screw and Bolt, Reynolds Spring, Savage Arms, Sparks-Withington, Standard Statistics Co., Tennessee Corporation, Texas Pacific Coal and Oil, Timken-Detroit Axle, Truscon Steel, United American Bosch, United Drug, United Carbon, United Fruit, United States Distributing, Van Raalte, Westinghouse Electric and Manufacturing, and Worthington Pump and Machinery.

[5] The following quotation is from a letter from Evans Products Company, August 17, 1937: "We can quite readily realize it would be difficult for you to classify our company as to whether we are in the Automotive Accessory field or just what. At the moment, at least, we would be far better classified as suppliers of Railroad equipment even though we do a great deal of business with automobile companies. Offhand we would say that our gross income is derived about 50% from automobile companies and 50% from the railroads."

The following quotation is from a letter, from the Tennessee Corporation, August 19, 1937: "We do not attempt to place our company in any particular field. The name 'Tennessee Corporation' was chosen to avoid the implication that we were involved in any particular product field, as our interests are spread over fertilizers, copper, and chemicals. Some of the statistical agencies from time to time include Tennessee Corporation with various groups, but we do not care to sanction such classifications."

The following quotation is from a letter from the Texas Pacific Coal and Oil Company, July 3, 1937: "In answer to your inquiry, advise that while the major part of our gross profit comes from the sale of crude oil produced by us, only about one-half of our gross earnings (sales) is derived from the sale of crude oil, the remainder coming from sales of refined products, tires, gas, etc."

The classification of companies by industries, based on the primary product or service of the companies included in each class, under the five primary classes of investment, follows:

LIST OF COMPANIES ARRANGED BY PRIMARY CLASSES AND INDUSTRIES

I. Consumers' Goods

1. *Anthracite Coal*
   - Lehigh Valley Coal Corporation
   - Philadelphia & Reading Coal & Iron Company
2. *Baking and Flour*
   - Continental Baking Corporation
   - Cushman's Sons, Inc.
   - General Baking Company
   - General Mills, Inc.
   - Pillsbury Flour Mills Company
   - Purity Bakeries Corporation
   - Ward Baking Corporation
3. *Chewing Gum*
   - American Chicle Company
   - William Wrigley, Jr. Company
4. *Crackers and Biscuits*
   - Loose-Wiles Biscuit Company
   - National Biscuit Company
   - United Biscuit Company of America
5. *Cigarettes and Accessories*
   - American Tobacco Company
   - Diamond Match Company
   - Liggett & Myers Tobacco Company
   - P. Lorillard Company
   - Philip Morris & Company, Ltd., Inc.
   - R. J. Reynolds Tobacco Company
6. *Confectionery*
   - Hershey Chocolate Corporation
   - Loft, Inc.
   - Sweets Company of America, Inc.
7. *Cigars*
   - Bayuk Cigars, Inc.
   - Congress Cigar Company, Inc.
   - Consolidated Cigar Corporation
   - General Cigar Company, Inc.
   - Porto Rico-American Tobacco Company
   - Webster Eisenlohr, Inc.

8. *Consumers' Paper Specialties*
   A. P. W. Paper Company, Inc.
   Lily-Tulip Cup Corporation
   Scott Paper Company
   Sutherland Paper Company

9. *Cotton, Woolen, and Silk Textiles*
   American Woolen Company
   Belding Heminway Company
   Botany Worsted Mills (N. J.)
   Cannon Mills Company
   Century Ribbon Mills, Inc.
   Consolidated Textile Corporation
   Pacific Mills
   Reliance Manufacturing Company

10. *Cuba Raw Sugar*
    Central Violeta Sugar Company, South America
    Cuban-American Sugar Company
    Francisco Sugar Company
    Guantanamo Sugar Company
    Manati Sugar Company

11. *Dairy Companies*
    Beatrice Creamery Company
    Borden Company (1930-36, unadjusted)
    National Dairy Products Corporation (1930-36, unadjusted)
    Pet Milk Company
    Western Dairies, Inc.

12. *Drugs and Proprietary Compounds*
    Abbott Laboratories
    American Home Products Corporation
    Bristol-Myers Company (1923-29, 1933-36)
    Coty, Inc.
    Drug, Inc. (1928-33)
    Dunhill International, Inc.
    Lambert Company
    Lehn & Fink Products Corporation
    Life Savers Corporation (1923-27, 1933-36)
    Parke, Davis & Company
    Sharp & Dohme, Inc.
    Sterling Products, Inc. (1923-27, 1933-36)
    Vadsco Sales Corporation
    Vick Chemical Company (1923-29, 1934-36)
    United Drug, Inc.
    Zonite Products Corporation

13. *Fresh Fruit*
    United Fruit Company

14. *Fruit and Vegetable Canning*
    California Packing Corporation of N. Y.
    Libby McNeill & Libby
    Snider Packing Corporation

15. *Full-Fashioned Hosiery*
    Durham Hosiery Mills
    Gotham Silk Hosiery, Inc.
    (Julius) Kayser and Company
    Phoenix Hosiery Company
    Real Silk Hosiery Mills, Inc.
    Van Raalte Company, Inc.

16. *Meat and Fish Packing*
    Armour and Company
    Cudahy Packing Company
    Adolf Gobel, Inc.
    John Morrell & Company
    Pacific American Fisheries, Inc.
    Swift and Company
    Wilson & Company, Inc.

17. *Men's Furnishings*
    Cluett, Peabody & Company, Inc.
    Manhattan Shirt Company
    Phillips-Jones Corporation

18. *Non-Alcoholic Beverages*
    Canada Dry Ginger Ale, Inc.
    Coca-Cola Company
    Liquid Carbonic Corporation
    White Rock Mineral Springs Company

19. *Oil Refining*
    Atlantic Refining Company
    Barber Company, Inc.
    Barnsdall Oil Company
    Colonial Beacon Oil Company
    Consolidated Oil Corporation
    Continental Oil Company
    Louisiana Oil Refining Corporation
    Mid-Continent Petroleum Corporation
    Phillips Petroleum Company
    Pure Oil Company
    Shell Union Oil Corporation
    Simms Petroleum Company
    Skelly Oil Company
    Socony-Vacuum Oil Company, Inc.
    Standard Oil Company of California
    Standard Oil Company of Indiana

Standard Oil Company of Kansas
Standard Oil Company of New Jersey
Sun Oil Company
Texas Corporation
Tide Water Associated Oil Company
Union Oil Company of California
Warner-Quinlan Company

20. *Packaged Foods*
Beech-Nut Packing Company
The Cream of Wheat Corporation
General Foods Corporation
Hecker Products Corporation
Standard Brands, Inc.

21. *Photographic Supplies*
Eastman Kodak Company

22. *Porto Rico Sugar*
Central Aguirre Associates
Fajardo Sugar Company of Porto Rico
South Porto Rico Sugar Company

23. *Publishing and Distributing*
American News New York Corporation
Butterick Company, Inc.
Conde-Nast Publications, Inc.
Curtis Publishing Company
Gannett Company, Inc.
McCall Corporation
McGraw-Hill Publishing Company, Inc.

24. *Rayon (Spinning and Weaving)*
Celanese Corporation of America
Duplan Silk Corporation
Industrial Rayon Corporation

25. *Refining of Corn Products*
Corn Products Refining Company
Penick & Ford, Ltd., Inc.

26. *Beet Sugar*
American Crystal Sugar Company
Great Western Sugar Company
Holly Sugar Corporation

27. *Cane Sugar Refining*
American Sugar Refining Company

28. *Shoe Manufacturing*
Brown Shoe Company, Inc.
Endicott Johnson Corporation
International Shoe Company

29. *Snuff*
American Snuff Company
Geo. W. Helme Company

30. *Soaps and Cleaning Compounds*
Bon Ami Company
Colgate-Palmolive-Peet Company
Procter & Gamble Company

31. *Tobacco*
American Sumatra Tobacco Corporation
McAndrews & Forbes Company
Standard Commercial Tobacco Company, Inc.
United States Tobacco Company
Universal Leaf Tobacco Company, Inc.

32. *Underwear (Men's)*
Munsingwear, Inc.
Robert Reis & Company

II. Consumers' Services

1. *Automobile Accessories Chain*
Western Auto Supply Company

2. *Bus and Cab Transportation*
Greyhound Corporation
Omnibus Corporation
Parmelee Transportation Company

3. *Coal and Ice Distribution*
American Ice Company
Burns Brothers
City Ice & Fuel Company

4. *Decentralized Non-Metropolitan Department Stores*
Best & Company, Inc.
J. C. Penney Company

5. *Drug Chains*
Peoples Drug Stores, Inc.
Walgreen Company

6. *Electric Power and Light*
Central Illinois Light Company
Cleveland Electric Illuminating Company
Dayton Power and Light Company
Detroit Edison Company
Duquesne Light Company
Kansas City Power and Light Company
Pacific Gas & Electric Company
Southern California Edison Company, Ltd.
Virginia Electric & Power Company
West Penn Power Company

7. *Electricity, Gas and Street Railway (Composite)*
   Consolidated Edison Company of New York
   Louisville Gas & Electric Company
   Milwaukee Electric Railway & Light Company
   Public Service Corporation of N. J.

8. *Electric Passenger Transportation (Metropolitan)*
   Brooklyn-Manhattan Transit Corporation
   Interborough Rapid Transit Company
   Hudson & Manhattan Railroad Company
   Market Street Railways
   New York Railways Corporation
   Philadelphia Rapid Transit Company
   Third Ave. Railway
   Twin City Rapid Transit

9. *Food Chains*
   American Stores Company
   Dominion Stores, Ltd.
   First National Stores, Inc.
   Grand Union Company
   Jewel Tea Company, Inc.
   Kroger Grocery & Baking Company
   National Tea Company
   Safeway Stores, Inc.

10. *Furniture Chains*
    Barker Bros. Corporation
    Reliable Stores Corporation

11. *Instalment Finance Companies*
    Commercial Credit Company
    Commercial Investment Trust Corporation
    Household Finance Corporation

12. *Mail Order*
    Chicago Mail Order Company
    Montgomery Ward & Company, Inc.
    Sears, Roebuck & Company

13. *Manufactured Gas*
    Brooklyn Union Gas Company
    Laclede Gas Light Company
    Peoples Gas Light & Coke Company

14. *Metropolitan Department Stores*
    Abraham & Straus, Inc.
    Arnold Constable Corporation
    Associated Dry Goods Corporation
    Bloomingdale Bros., Inc.
    City Stores Company

Fair
Franklin Simon & Company, Inc.
Gimbel Brothers, Inc.
Kaufmann Department Stores, Inc.
Kresge Department Stores, Inc.
Lane Bryant, Inc.
Lord and Taylor
R. H. Macy & Company, Inc.
May Department Stores Company
National Department Stores Corporation
The Outlet Company
William Filene's Sons Company

15. *Motion Pictures*
Consolidated Film Industries, Inc.
Loew's, Inc.
Paramount Pictures, Inc.
Pathé Film Corporation
Twentieth Century-Fox Film Corporation
Universal Pictures Company, Inc.
Warner Bros. Pictures, Inc.

16. *Personal Service*
Consolidated Laundries Corporation
Kendall Company

17. *Restaurant Chains*
Childs Company
Exchange Buffet Corporation
Frank G. Shattuck Company
John R. Thompson Company
Waldorf System, Inc.

18. *Shoe Chains*
Florsheim Shoe Company
G. R. Kinney Company, Inc.
Melville Shoe Corporation

19. *Variety Chains*
W. T. Grant Company
H. L. Green Company, Inc.
S. S. Kresge Company
S. H. Kress & Company
McLellan Stores Company
McCrory Stores Corporation
G. C. Murphy Company
Neisner Brothers, Inc.
J. J. Newberry Company
F. W. Woolworth Company

III. Consumers' Capital Goods

1. *Automobile Manufacturing*
   - Auburn Automobile Company
   - Chrysler Corporation
   - General Motors Corporation
   - Graham-Paige Motors Corporation
   - Hudson Motor Car Company
   - Hupp Motor Car Corporation
   - Nash Motors Company
   - Packard Motor Car Company
   - Reo Motor Car Company
   - Studebaker Corporation
2. *Bedroom and Kitchen Equipment*
   - National Enameling and Stamping
   - Simmons Company
3. *Consumers' Goods and Services Machinery*
   - American Machine & Foundry Company
   - American Machine and Metals, Inc.
   - Food Machinery Corporation
   - Ritter Dental Manufacturing Company, Inc.
   - United States Hoffman Machinery Corporation
   - S. S. White Dental Manufacturing Company
4. *Domestic Powered Accessories*
   - Air-Way Electric Appliance Corporation
   - Crosley Radio Corporation
   - Eureka Vacuum Cleaner Company
   - Florence Stove Company
   - Kalamazoo Stove Company
   - Kelvinator Corporation
   - Maytag Company
   - McGraw Electric Company
   - Radio Corporation of America
   - Servel, Inc.
   - Sparks-Withington Company
   - White Sewing Machine Corporation
   - Zenith Radio Corporation
5. *Furs*
   - Eitingon Schild Company, Inc.
   - A. Hollander & Son, Inc.
6. *Hard-Surfaced Floor Coverings*
   - Armstrong Cork Company
   - Congoleum-Nairn, Inc.
7. *Personal Accessories*
   - American Safety Razor Corporation
   - Bulova Watch Company, Inc.

General Time Instruments Corporation
Gillette Safety Razor Company
Hamilton Watch Company
International Silver Company
W. A. Sheaffer Pen Company

8. *Soft Pile Fabrics*
   Artloom Corporation
   Bigelow-Sanford Carpet Company, Inc.
   Sidney Blumenthal and Company, Inc.
   Mohawk Carpet Mills, Inc.

9. *Sporting Goods*
   Brunswick-Balke-Collender Company
   Savage Arms Corporation
   A. G. Spalding & Bros.

IV. Producers' Goods

1. *Alloys and Its Raw Materials*
   Allegheny Steel Company
   Crucible Steel Company of America
   International Nickel Company of Canada, Ltd.
   Ludlum Steel Company
   Vanadium Corporation of America

2. *Automobile Accessories*
   Allen Industries, Inc.
   Bendix Aviation Corporation
   Bohn Aluminum & Brass Corporation
   Borg Warner Corporation
   Briggs & Stratton Corporation
   Edward G. Budd Manufacturing Company
   Budd Wheel Company
   Campbell, Wynant & Cannon Foundry Company
   Clark Equipment Company
   Cleveland Graphite Bronze Company
   Collins & Aikman Corporation
   Eaton Manufacturing Company
   Electric Auto-Lite Company
   Electric Storage Battery Company
   Federal Screw Works
   Hayes Body Corporation
   Houdaille-Hershey Corporation
   Kelsey-Hayes Wheel Company
   Martin-Parry Corporation
   Midland Steel Products Company
   Motor Products Corporation
   Motor Wheel Corporation

Mullins Manufacturing Corporation
Murray Corporation of America
Parker Rust-Proof Company
Raybestos-Manhattan, Inc.
Reynolds Spring Company
A. O. Smith Corporation
Spicer Manufacturing Corporation
Stewart-Warner Corporation
Thermoid Company
Thompson Products, Inc.
Timken-Detroit Axle Company
United American Bosch Corporation
Wayne Pump Company
L. A. Young Spring & Wire Corporation

3. *Ball and Roller Bearings*
   Marlin-Rockwell Corporation
   Timken Roller Bearing Company

4. *Bituminous Coal*
   American Coal Company of Allegany County
   Consolidation Coal Company, Inc.
   Elk Horn Coal Corporation
   Island Creek Coal Company
   Pacific Coast Company
   Pennsylvania Coal and Coke Corporation
   Pittsburgh Coal Company
   Pittsburgh Terminal Coal Corporation
   Pond Creek Pocahontas Company
   Truax-Traer Coal Company
   United Electric Coal Companies
   United States Distributing Corporation
   Virginia Iron, Coal and Coke Company

5. *Book and White Paper*
   American Writing Paper Corporation
   Champion Paper and Fibre Company
   Crown Zellerbach Corporation
   Kimberly-Clark Corporation
   Mead Corporation

6. *Building and Construction Equipment*
   American Radiator & Standard Sanitary Corporation
   American Seating Company
   Chicago Pneumatic Tool Company
   Crane Company
   Fairbanks Company
   Holland Furnace Company
   Minneapolis-Honeywell Regulator Company
   Otis Elevator Company

Pittsburgh Screw and Bolt Corporation
Truscon Steel Company
Walworth Company
Worthington Pump & Machinery Corporation
Yale & Towne Manufacturing Company

7. *Business Machines*
   Addressograph-Multigraph Corporation
   Burroughs Adding Machine Company
   International Business Machines Corporation
   National Cash Register Company
   Remington Rand, Inc.
   L. C. Smith & Corona Typewriters, Inc.
   Telautograph Corporation
   Underwood-Elliott Fisher Company
8. *Cast Iron Pipe*
   Central Foundry Company
   United States Pipe & Foundry Company
   Warren Foundry & Pipe Corporation
9. *Cement*
   Alpha Portland Cement Company
   Lehigh Portland Cement Company
   Lone Star Cement Corporation
   Pennsylvania-Dixie Cement Corporation
10. *Chemicals (not otherwise stated)*
   Air Reduction Company, Inc.
   Allied Chemical & Dye Corporation
   Atlas Powder Company
   Dow Chemical Company
   E. I. Du Pont De Nemours & Company
   Hercules Powder Company, Inc.
   Mathieson Alkali Works, Inc.
   Monsanto Chemical Company
   Union Carbide and Carbon Corporation
   Westvaco Chlorine Products Corporation
11. *Chemicals, Carbon Black*
   Columbian Carbon Company
   United Carbon Company
12. *Chemicals, Solvents*
   Commercial Solvents Corporation
   United States Industrial Alcohol Company
13. *Cork and Metallic Containers and Enclosures*
   American Can Company
   Anchor Cap Corporation
   Continental Can Company, Inc.
   Crown Cork & Seal Company, Inc.
   Reynolds Metals Company

14. *Crude Oil*
    - Amerada Corporation
    - Houston Oil Company of Texas
    - Ohio Oil Company
    - Pacific Western Oil Corporation
    - Panhandle Producing & Refining Company
    - Plymouth Oil Company
    - Seaboard Oil Company
    - Superior Oil Corporation
    - Texas Pacific Coal and Oil Company
    - H. F. Wilcox Oil & Gas Company

15. *Die Casting*
    - Doehler Die Casting Company

16. *Electrical Equipment*
    - Allis-Chalmers Manufacturing Company
    - Continental-Diamond Fibre Company
    - Cutler-Hammer, Inc.
    - General Electric Company
    - Square D Company
    - Westinghouse Electric & Manufacturing Company
    - Weston Electrical Instrument Corporation

17. *Excavating Machinery*
    - Bucyrus-Erie Company

18. *Farm Machinery*
    - J. I. Case Company
    - Caterpillar Tractor Company
    - Deere & Company
    - International Harvester Company
    - Minneapolis-Moline Power Implement Company
    - F. E. Myers & Brother Company
    - Oliver Farm Equipment Company

19. *Fertilizers*
    - American Agricultural Chemical Company
    - International Agricultural Corporation
    - Tennessee Corporation
    - Virginia-Carolina Chemical Corporation

20. *Glass*
    - Hazel-Atlas Glass Company
    - Libbey-Owens Ford Glass Company
    - Owens Illinois Glass Company
    - Thatcher Manufacturing Company

21. *Heavy Steel*
    - Bethlehem Steel Corporation
    - Colorado Fuel & Iron Corporation
    - Gulf States Steel Company
    - Inland Steel Company

Jones & Laughlin Steel Corporation
Republic Steel Corporation
United States Steel Corporation
Youngstown Sheet & Tube Company

22. *Internal Combustion Engines*
Briggs & Stratton Corporation
Continental Motors Corporation
Hercules Motors Corporation
Outboard, Marine & Manufacturing Company
Waukesha Motor Company

23. *Iron Ore, Pig and Wrought Iron*
A. M. Byers Company
Great Northern Iron Ore Properties
Interlake Iron Corporation
Sloss-Sheffield Steel & Iron Company

24. *Leather*
Amalgamated Leather Companies, Inc.
American Hide & Leather Company
United States Leather Company

25. *Light Steel*
Acme Steel Company
American Rolling Mill Company
Continental Steel Corporation
Eastern Rolling Mill Company
Follansbee Brothers Company
Granite City Steel Company
Keystone Steel & Wire Company
McKeesport Tin Plate Corporation
National Steel Corporation
Otis Steel Company
Pittsburgh Steel Company
Sharon Steel Corporation
Superior Steel Corporation
Wheeling Steel Corporation

26. *Machine Tools*
Black & Decker Manufacturing Company
Bullard Company
National Acme Company
L. S. Starrett Company

27. *Moving Material Equipment*
Link Belt Company

28. *Multi-Industrial Machinery and Products*
American Chain & Cable Company, Inc.
Fairbanks, Morse & Company
Foster-Wheeler Company
Ingersoll-Rand Company

29. *Newsprint*
    Abitibi Power and Paper Company, Ltd.
    International Paper & Power Company
30. *Non-Ferrous Metals*
    American Smelting & Refining Company
    American Zinc, Lead & Smelting Company
    Anaconda Copper Mining Company
    Anaconda Wire & Cable Company
    Bridgeport Brass Company
    Calumet & Hecla Consolidated Copper Company
    Cerro De Pasco Copper Corporation
    Federal Mining & Smelting Company
    General Cable Corporation
    Howe Sound Company
    Inspiration Consolidated Copper Company
    Kennecott Copper Corporation
    Magma Copper Company
    Miami Copper Company
    Mueller Brass Company
    Noranda Mines, Ltd.
    Park Utah Consolidated Mines Company
    Phelps-Dodge Corporation
    Revere Copper & Brass, Inc.
    St. Joseph Lead Company
    Vulcan Detinning Company
31. *Paints*
    Devoe & Reynolds Company, Inc.
    Glidden Company
    National Lead Company
32. *Paper Board and Containers*
    Container Corporation of America
    Robert Gair Company, Inc.
    Hinde & Dauch Paper Company
    Union Bag & Paper Corporation
    United Paperboard Company, Inc.
33. *Petroleum and Natural Gas Equipment*
    S. R. Dresser Manufacturing Company
    National Supply Company
34. *Precious Metals*
    Alaska Juneau Gold Mining Company
    Dome Mines, Ltd.
    Homestake Mining Company
    McIntyre Porcupine Mines, Ltd.
    Silver King Coalition Mines Company
    Sunshine Mining Company
    United States Smelting Refining and Mining Company

35. *Printing, Materials and Equipment*
American Bank Note Company
American Colortype Company
American Type Founders, Inc.
W. F. Hall Printing Company
Intertype Corporation

36. *Railway Equipment*
American Car & Foundry
American Brake Shoe and Foundry Company
American Locomotive Company
American Steel Foundries
Baldwin Locomotive Works
Evans Products Company
General Railway Signal Company
Gould Coupler Company
Lima Locomotive Works, Inc.
National Malleable & Steel Castings Company
New York Air Brake Company
Pressed Steel Car Company, Inc.
Pullman, Inc.
Superheater Company
Symington Company
Transue and Williams Steel Forging Corporation
Westinghouse Air Brake Company

37. *Refractories*
General Refractories
Harbison-Walker Refractories Company

38. *Rubber and Rubber Tires*
Firestone Tire & Rubber Company
B. F. Goodrich Company
Goodyear Tire & Rubber Company
Kelly-Springfield Tire Company
Lee Rubber & Tire Corporation
Norwalk Tire & Rubber Company
United States Rubber Company

39. *Salt*
International Salt Company

40. *Steel-Mill Equipment and Steel Products*
Blaw-Knox Company
Mesta Machine Company
United Engineering & Foundry Company

41. *Sulphur*
Freeport Sulphur Company
Texas Gulf Sulphur Company

42. *Synthetic Building Materials*
Celotex Corporation
Certain-Teed Products Corporation

Flintkote Company
Johns-Manville Corporation
Masonite Corporation
National Gypsum Company
Paraffine Companies, Inc.
Ruberoid Company
United States Gypsum Company

43. *Truck, Bus, and Cab Manufacturing*
Checker Cab Manufacturing Corporation
Diamond T Motor Car Company
Federal Motor Truck Company
Mack Trucks, Inc.
White Motor Company

44. *Vegetable Oils*
Archer-Daniels-Midland Company
Chickasha Cotton Oil Company
Spencer Kellogg & Sons, Inc.
Wesson Oil & Snowdrift Company, Inc.

V. Producers' Services

1. *Building Construction*
Foundation Company
George A. Fuller Company
Thompson-Starrett Co., Inc.
Ulen & Company
United States Realty and Improvement Company
Warren Brothers Company

2. *Marine Transportation*
American-Hawaiian Steamship Company
Atlantic Gulf and West Indies Steamship Lines
International Mercantile Marine Company
Merchants & Miners Transportation Company

3. *Railroads, Coal and Iron Ore*
Chesapeake & Ohio Railway Company
Louisville & Nashville Railroad Company
Norfolk & Western Railway Company
Pittsburgh & West Virginia Railway Company
Virginian Railway Company

4. *Railroads (Except Coal and Iron Ore)*
Atchison Topeka & Santa Fe Railway Company
Atlantic Coast Line Railroad Company
Baltimore & Ohio Railroad Company
Bangor & Aroostook Railroad
Boston and Maine Railroad
Canadian Pacific Railway

Central Railroad Company of New Jersey
Chicago & Eastern Illinois Railway Company
Chicago Great Western Railroad Company
Chicago, Indianapolis & Louisville Railway Company
Chicago, Milwaukee, St. Paul & Pacific Railroad
Chicago Northwestern Railway Company
Chicago, Rock Island & Pacific Railway Company
Colorado & Southern Railway Company
Delaware & Hudson Railroad Corporation
Delaware, Lackawanna & Western Railroad Company
Denver & Rio Grande Western Railroad Company
Detroit and Mackinac Railway Company
Duluth, South Shore & Atlantic Railway Company
Erie Railroad Company
Great Northern Railway Company
Green Bay & Western Railroad Company
Gulf, Mobile & Northern Railroad Company
Illinois Central Railroad Company
Kansas City Southern Railway Company
Lehigh Valley Railroad Company
Minneapolis, St. Paul & Sault Ste. Marie Railway
Missouri-Kansas-Texas Railroad Company
Missouri Pacific Railroad Company
Nashville, Chattanooga & St. Louis Railway
New Orleans, Texas & Mexico Railway Company
New York Central Railroad Company System
New York, Chicago & St. Louis Railroad Company
New York, New Haven & Hartford Railroad Company
New York, Ontario & Western Railway Company
Norfolk Southern Railroad Company
Northern Pacific Railway Company
Pennsylvania Railroad Company
Peoria & Eastern Railway Company
Père Marquette Railway Company
Reading Company
Rutland Railroad Company
St. Louis-San Francisco Railway Company
St. Louis Southwestern Railway Company
Seaboard Air Line Railway Company
Southern Pacific Company
Southern Railway Company
Texas & Pacific Railway Company
Union Pacific Railroad Company
Wabash Railway Company
Western Maryland Railway Company
Western Pacific Railroad Corporation
Wheeling & Lake Erie Railway Company

5. *Shipbuilding*
   American Ship Building Company
   New York Shipbuilding Corporation
6. *Tank Cars, Construction and Operation*
   General American Transportation Corporation
   Union Tank Car Company
7. *Telegraph*
   Postal Telegraph & Cable Corporation
   Western Union Telegraph Company, Inc.
8. *Telephone*
   American Telephone and Telegraph Company
   Pacific Telephone and Telegraph Company

In the Consumers' Goods classification, the food group comprises a number of industries, some of which are expanding and some declining. Packaged foods, represented by General Foods, Standard Brands, Beech-Nut Packing, is expanding. Meat packing, represented by Armour, Swift, Wilson, is declining. Fruit and vegetable canning is expanding in terms of demand; although in terms of distributions to security-holders the trend is not favorable. Heavy inventory losses and gains sweep these industries and produce temporary financial losses or profits. Bread and flour constitute another division. Due to the decline in the per-capita consumption of cereals, this industry is losing ground. This change in dietary habits also affects adversely, though not to the same degree, the financial strength of the biscuit industry. Hence, the investors have fared somewhat better with National Biscuit, United Biscuit, and Loose-Wiles Biscuit than they have with Continental Baking, General Baking, Purity Bakeries and Ward Baking.

Another important branch of the food group for which separate classifications have been prepared revolves around sugar. The raw-sugar industry is separated from the refined sugar; and the cane raw-sugar business, in turn, has been divided into two classes: Cuban raw sugar and Porto Rican raw sugar. The raw-sugar business as a whole has been demoralized by a succession of price reductions occasioned by a world-wide oversupply. The Cuban raw-sugar companies, therefore, in conformity with the trend of the industry as a whole, have made a poor financial record. Dividend suspensions, defaults, receiverships, and bankruptcies have followed the regular course of events in a declining

industry. The Porto Rican sugar companies have benefited by a unique differential advantage. Territorially a part of the United States, Porto Rico has secured customs-free entry for all of its goods, including sugar, into the United States. The exemption from the import tariff has been retained by the Porto Rican companies. Even though members of a declining industry, the Porto Rican raw-sugar companies have been able to pay handsome dividends. Their interest charges are low. Sugar-refining is represented by the cane-refining and the beet-refining industries. The demand for refined sugar of both kinds shows the same trend. Financially, the beet-sugar refining companies are in a more favorable position.

The corn-products refining industry is another division of the food group which has done well. Careful diversification among various uses, the development of new uses, the preparation of products in packaged form attractive to the consumer, combined with the absence of destructive price-cutting competition, has enabled the industry to show a good record of dividend distributions.

The primary textile group also displays differences in trends among its component parts. The demand for silk, cotton, and woolen goods has been declining, although at an irregular pace, punctuated from time to time by sudden reversals in demand. The demand for rayon, on the other hand, has been rapidly expanding. The dividend records of Industrial Rayon, and Celanese, the only two listed members of the rayon industry, have not been uniformly good. The index of investment distribution, however, is more favorable than that of the other textile fiber groupings.[6]

Consumers' Services classification has been broken up into a number of industries, conforming to distinctive trends of demand.

A separate classification has been provided for each *commodity* distributed through a chain of stores. The drug chains are represented by two companies; the food chains by eight; the shoe chains by three; the restaurant chains by five; the furniture chains by two; the coal and ice distribution (including some manufacture) by three; and the variety chains by ten corporations.

[6] The basis of the other classifications in Consumers' Goods has been examined in Chapter V.

With the exception of coal and ice, these distributing organizations have one point in common. They distribute commodities through the medium of a chain of individual outlets. Mass purchasing and mass distribution represent the justification of this form of consumer service.

The weakness of economic reasoning based upon the application of a general theory to financial and investment results is illustrated by the varying success of chain-store organizations handling different commodities. Presumably, the economies of mass distribution apply to all forms of goods. Drugs, food, shoes, restaurant, furniture, coal and ice, and low-priced varieties are all benefitted by the economies from mass purchasing, special discounts, and superior sales management. The savings in overhead and administrative expenses apparently apply also to all forms of goods and services. This theory is not borne out in financial results. A favorable trend in the demand for food does not always correspond with a favorable trend in the demand for a particular form of distributing food. Indeed, it may be said that the food-chain industry is declining. Independently owned and operated food stores have been able, through coöperation, to secure a larger proportion of the business available.

The shoe-chain stores, however, present a different picture. They are capturing a larger share of the business from the independent stores. The demand for shoes on the whole has increased; but the amount distributed by shoe chains has increased much more rapidly.

Four major Consumers' Services—electricity, manufactured gas, natural gas, and metropolitan electric passenger transportation—are public utilities.[7] Companies included within this industry

[7] A separate industrial group consisting of four large companies has been made of those public utilities, the predominant revenues of which come from electricity, but which also perform a substantial street-railway, manufactured-gas, or steam-heat service, or combination of any. Electricity is a rapidly expanding industry. The other three services are declining industries. Hence, the union of the declining services with the expanding service in one company serves to retard the rise in sales and the rise in earnings. A separate classification for companies selling electricity exclusively reveals more clearly the earnings of the electric light and power business. In the electric light and power industry appears the Pacific Gas and Electric Company which does a substantial natural-gas business. Natural gas is, however, expanding, and therefore the inclusion of the Pacific Gas and Electric Company does not interfere with the trend of expanding electric sales. The Virginia Electric and Power Company, included in the electrical power and light industry, also does a small urban transportation business.

have a "monopoly" of the business done in their respective communities. Franchise contracts protect them in their territories from competition. No trolley company *normally* competes with another trolley company in the territory covered by the franchise contract. No electric light and power company *normally* competes with another light and power company in the territory embraced within the franchise. Exceptions in both industries exist.

The department-store group has been broken up into two industries, based upon the difference in sales trends. The metropolitan department stores, centrally located, represent the backbone of the department-store group. The population trend to the suburbs and to the peripheries of the large city has reduced the earnings of these stores; and the high tax, advertising, delivery, and administrative overhead have operated in the same direction. Hence, these department stores as a group have shown a declining trend of dividend payments. These forces have not affected the earnings of the stores located in the suburbs, the small villages, and in the low-rent sections of the large cities. These department stores show a more favorable trend of dividend distributions. Hence, a separate classification for the non-metropolitan decentralized department stores, comprising Best and J. C. Penney, is justified.

The other Consumers' Services will be described in Chapter VII.

Some comment is in order upon the primary class entitled Consumers' Capital Goods. These represent durable articles purchased by the final consumer, the demand for which, therefore, is postponable.

The demand for mechanisms to reduce the amount of labor in the home has expanded. The domestic powered accessories industry does not, however, reveal the full effect of this expansion in terms of expanding interest and dividend payments. The most important corporations in this industry—General Electric, Westinghouse Electric, and General Motors—are not included. The former two are classified under electrical manufacturing industries, and the latter under automobile manufacturing. This arrangement reflects the preponderant trend of demand, most of their revenue being derived from an industry other than domestic powered accessories. This industry also includes what are, from the trade standpoint, a number of separate industries—radios,

sewing machines, electric washing machines, electric refrigerators, and smaller domestic appliances. These industries have a common ground of a pronounced expansion in demand from the residential consumer.

Another heterogeneous list of industries is included in personal accessories. This includes two safety-razor companies, a fountain-pen company, three companies in watches and clocks, and the International Silver Company. These companies, from the standpoint of the trend of demand, are distinct from furniture. The reduced building space per person does not lead, necessarily, to a reduction in the use of personal accessories. Neither is there any important labor-saving involved in their use as in the use for domestic powered accessories. The serviceability of these articles and their similarity in the trend of demand explain the classification presented.

The separate classification for hard-finished floor covering brings out the difference in the trend of demand between this article and the soft-pile fabrics. The per-capita consumption of the former is expanding, and the latter declining.

Automobile manufacturing is considered at length in Chapter II on "Demand in Consumers' Goods."

A classification in the group of Consumers' Capital Goods—consumers' goods and services machinery—differs from accepted standards. Each company in this industry may represent, technically and trade-wise, a separate industry. Ritter Dental and White Dental sell equipment to dentists; American Machine and Metals to beauty shops and to power laundries; and American Machine and Foundry to the tobacco and baking trades. These companies and these trades are united by the characteristics of the market to which they sell. They sell to businessmen, and not to the final consumers. But the businessmen who purchase the equipment deal with the final consumer. They sell goods or services for final consumption. The dentist, the laundry, the beauty shop, sell a final goods or service. These industries produce capital goods, for which demand can be postponed. In this respect, the demand does not differ from the demand for electrically powered appliances, personal accessories, and hard-finished floor coverings. A possible objection to this arrangement might arise from the inclusion within the same category of industries with varying trends of

demand. Fortunately, among the listed companies on the New York Stock Exchange, the trend of demand, as a group, is in the same direction.

Many interesting classsification problems appear in Producers' Goods. In the fuel group, solid fuel—bituminous coal—shows a declining trend; liquid fuel, an expanding trend. A separate classification for each industry is therefore in order.

In building materials, a similar division between expansion and decline prevails. The standard old-line building materials, such as lumber, brick, cement, and stone, have fared poorly. The demand has not increased. Long Bell Lumber, the only representative of this important group listed on the Exchange, is in bankruptcy. The cement industry, of which the most important companies are included in this study, has done poorly. The trend of sales and of interest and dividend distributions, at least within recent years, is distinctly downward.

Another division of this group is described, for convenience of classification, as synthetic building materials. The companies in this industry treat the raw materials in such a way as to build up—synthesize—new products which are substantially different from, and usually an improvement on, the original raw material. These companies impregnate paper or textile fibers with asphalt; fabricate wallboard and sidings from gypsum; or manufacture insulation products from minerals or from industrial wastes, such as bagasse. Another company manufactures a superior form of lumber used for a wide variety of purposes. A specialized process increases the wearing quality and reduces the weight of the lumber fabricated. Taking the industry as a whole, the record of sales and investment distribution is superior to that of the "natural" building materials. The separate classification of these companies as a part of a synthetic building-material industry is justified. The industry exhibits more favorable trends of demands and superior investment distributions as compared with the older cement, stone, and building-material aggregates.

In machines and mechanisms, other classification problems are encountered. The customary classification into light or heavy machinery serves no useful financial purpose. Some machinery lines, heavy and light, are prosperous, and some are not prosperous. Some serve expanding, and some serve declining, industries. Some

serve other capital-goods industries, and others serve consumers'-goods industries. The departure from conventional standards is therefore to be explained in the light of an effort to adapt financial and investment values to underlying demand and sales trends.

The machine-tool industry requires a separate classification. This industry provides the mechanisms for the cutting of metals. These mechanisms are not only fundamental, they are highly diversified. Their fortunes are tied up with the movement of the capital-goods industries as a group. Bullard Company, National Acme, and Black and Decker are representatives of this industry.

Some machine industries are affiliated with specific consuming industries. The fortunes of the machine industries are allied with the fortunes of the consuming industries, the latter representing the market for the former. Agricultural machinery responds to the changing fortunes of the farmer. The classification includes such companies as International Harvester and J. I. Case. The profits of the railroad-equipment industry respond to the earning power of the steam-railroad industry. This industry includes an extensive variety of mechanical enterprises. American Locomotive and Baldwin Locomotive manufacture locomotives; American Car and Foundry, freight and passenger cars; Superheater Company, steam-saving devices; Westinghouse Airbrake and New York Airbrake, airbrakes. The companies in this industry, however, have this in common: they produce articles sold primarily to the steam-railroad industry. It is therefore proper to classify them into one industry known as railway equipment.

Another, more complex, classification, is the building-equipment industry. This classification includes Otis Elevator, specializing in elevators; American Radiator and Standard Sanitary Manufacturing in plumbing, heating, air conditioning, and sanitary equipment for use in the home; Fairbanks in valves; Walworth in valves, fittings, and wrenches; and Worthington Pump and Machinery in pumps. Perhaps the pump industry is sufficiently characteristic to warrant a separate classification. The sales of pumps to a considerable degree, however, fluctuate with the rise and fall of commercial, factory, and business construction. This justifies the inclusion of Worthington Pump and Machinery within this industry.

Another industry sells machinery to the petroleum and natural-gas industry. National Supply sells oil-well drilling equipment and Dresser Manufacturing, joints and couplings for pipe lines. The prosperity of these companies thus depends upon the prosperity of the petroleum and natural-gas industry.

A small number of machine and equipment companies are allied with steel. They manufacture machinery and equipment which are used largely in steel mills. They include Mesta Machine and United Engineering and Foundry. These two concerns are the leading producers of rolling mills which, in the last ten years, have revolutionized the manufacture of rolled steel. The plant reconstruction of the light-steel industry has thus contributed to the prosperity of these two enterprises. Blaw-Knox, the third corporation within this industry, sells machinery to steel plants. But this class of business *may not* represent a majority of its sales volume. The company defines itself as "producers of steel products," which it manufactures "for widely diversified fields." [8] To make this classification more inclusive and more suggestive of the products covered, it is entitled "steel-mill equipment and steel products."

An important and expanding part of the machinery group is the material-handling and material-moving equipment industry. Unfortunately, only one of the representative concerns in this industry is listed on the Exchange—Link Belt. Its operations, sales trends, earnings, and dividend payments are, however, representative of the industry; and its inclusion as the sole representative is therefore justified.

The companies manufacturing electrical equipment are separately classified. There are some difficulties in the interpretation of their sales and dividend record, arising from the percentage of domestic-accessory business done by the two leading companies, General Electric and Westinghouse Electric and Manufacturing. A break-down of their gross sales between capital equipment and consumer's capital equipment would be revealing. No such breakdown is available. Based upon an examination of their products, it is believed that their predominant business falls

[8] Letter from the Blaw-Knox Company, D. Clinton Grove, Advertising Manager, April 14, 1937.

in producers' rather than in consumers', goods. The other companies respond to the fluctuations of the capital goods industries —Weston Electrical Instrument, Square D, Cutler-Hammer. Continental-Diamond Fibre sells vulcanized fiber, laminated phenolic products, and fabricated mica. The major use for these products is in electrical insulation.[9] Allis-Chalmers is a large producer of electric equipment, and also of farm equipment. In 1936 about 50 per cent of its sales volume was in the tractor field.[10] Based on the sales trends for electrical and for farm equipment from 1930 to 1936, the company in that period might be classified in the farm-equipment industry. It is listed in the electrical-equipment industry for the entire period.

There are other machine companies that respond to the prosperity of the printing industry. Five listed companies are included: in machinery and equipment, Intertype and American Type Founders; in book, catalogue, and commercial printing service, Hall Printing; in color-printing service, American Colortype; and in financial printing service, American Bank Note. There is one unfortunate, American Type Founders, the victim of unwise financing, taking the form of excessive fixed charges and too liberal dividend payments. This company failed in 1933 and was reorganized. It paid only a small amount of interest in 1936 after the bankruptcy and reorganization.

The power-equipment manufacturers represent another division of the machinery group. The internal-combustion engine companies produce Diesel, as well as gas, engines. In recent years the favorable trend in Diesel engines might justify a separate classification. Some of the gasoline-engine companies have shifted to Diesels in order to profit from the favorable trend of demand. In view of the ease with which production can be shifted from one type to another, a separate classification is not justified. Hercules Motor, for example, one of the leaders in gas engines, has within recent years increased its production of Diesel engines for bus service. Caterpillar Tractor, in 1933, shifted almost completely from gas-powered to Diesel-powered tractors, and is a large producer of Diesel engines. It is also a large manufacturer of

[9] Letter from Continental-Diamond Fibre Company, August 11, 1937.
[10] Letter from Allis-Chalmers Manufacturing Company, April 14, 1937.

tractors; and it is classified in the farm-equipment industry. Another important division of the power group, combustion equipment, is not represented on the Exchange. International Combustion Engineering, which went into receivership in the early thirties, for reasons developed in the chapter on "Changes in Management," was succeeded by Combustion Engineering, whose stock is not listed on the Exchange. Foster-Wheeler, important in combustion equipment, is also a large producer of oil-refinery equipment. The sales are dominated by neither article; and the company is therefore classified in multi-industrial products.

The iron and steel group cannot be considered as a separate unit. Iron and iron-ore companies have been placed in a single industry. Four companies are included: Sloss-Sheffield Steel and Interlake Iron are leading merchant pig-iron companies; Great Northern Iron Ore Properties is an important producer of iron ore; and A. M. Byers is the leading producer of wrought iron. The consolidation of these lines into one group is based upon the decline in the demand for pig iron which affects them all. Reduced demand for pig iron leads to lower demand for iron ore. A. M. Byers, representative of the wrought-iron trade on the Exchange, has made technological improvements designed to reverse the unfavorable trend in the demand for wrought iron, an effort which thus far has proved unsuccessful in placing the company on a dividend basis.

The heavy steel industry caters largely to the railroad and building-construction industries. The decline in these two industries has been persistent for more than a decade; and the earning and dividends of the heavy-steel industry since 1930 have suffered. Colorado Fuel and Iron, steel-rail manufacturer, has gone through bankruptcy. United States Steel and Jones and Laughlin have passed their common dividends and have paid only part of their preferred dividends. Bethlehem Steel's dividend record in this period has been ragged. The dividend records of Gulf States Steel and Youngstown Sheet Steel and Tube have been poor. Republic Steel represents a consolidation of many enterprises. It combines the old Republic Steel, an important unit in the heavy-steel industry, with a number of new concerns engaged in tubes and pipe manufacturing and in the production of rolled

steel and light-alloy products. Based on its predominant sales and capacity, it must still be included in heavy steel.

Inland Steel, the remaining member of the heavy-steel industry, has displayed a relatively excellent record of dividend payments. Its superior record is due, largely, as explained in the Chapter XXIII, "Demand Correctives," to the construction, in the heart of the depression, of a continuous rolling mill, which enabled the company to participate in the expanding fortunes of the light-steel industry.

The relatively favorable dividend record of the light-steel industry is a reflection of the expanding demand for the light and flat-steel products. The superior position of National Steel is, in part at least, due to a locational differential advantage. The company has a plant located in the most important sheet-steel market of the country—Detroit, Michigan. McKeesport Tin Plate paid handsome dividends from its earnings—partly from tin plate—until 1938, when they were destroyed by technical obsolescence.[11] The poor dividend record in recent years of Superior Steel is explained by the use of earnings to improve its property and to pay off its debt.

Another industry closely connected with steel, although not, with respect to all companies, a part of it, has been classified as "stainless steel and its raw materials." Stainless steel is a combination of steel with other metals known as alloys.[12] Aluminum Company of America, a large producer of aluminum, a major alloy, is not listed on the Exchange. Magnesium, another alloy, is made by Dow Chemical. From the standpoint of contribution to its revenue, magnesium is relatively unimportant. Vanadium Corporation of America, the leading factor in its field, is listed in the alloy group. International Nickel displays a remarkable record of dividend payments, reflecting the highly favorable trend of demand for nickel. Allegheny Steel and Ludlum Steel specialize in the manufacture of alloy steel.[13] No company listed on the Exchange derives any important revenue from the extraction and sale of chromium ore. Both the light-steel and the heavy-steel industry are important users of alloy materials and are im-

[11] For details see chapter on "Latent Obsolescence," p. 317.

[12] This definition, scientifically considered, is inadequate. It is sufficiently distinctive to justify the classification based upon the trend of demand.

[13] These two companies have recently consolidated.

portant manufacturers of stainless steel. Their preponderant revenue and sales, however, are derived from other sources.

The copper, lead, and zinc companies are joined in a non-ferrous industry group.

The automobile-accessories industry presents a number of problems in classification. Some corporations in this industry manufacture equipment for the automobile industry; while others —Budd Wheel, Kelsey-Hayes Wheel Company, Spicer Manufacturing—manufacture equipment, materials, and accessories which are used in other industries as well. Of the companies included in the accessory industry, only a few depend exclusively for their market outlets upon the automobile industry. The percentage of gross volume, gross revenue, or both, derived from the automobile industry in 1936 ranges from slightly more than 50 per cent for such companies as Borg Warner and Stewart-Warner to much less than 50 per cent for such companies as Doehler Die Casting and American Chain and Cable. For these concerns and numerous others, a break-down of the gross revenue received from the production and sale of specific products is not available. In each case, an exhaustive examination preceded the inclusion of a corporation within this group. In most cases, sufficient information was available to warrant the conclusion that either the company received more than 51 per cent of its gross revenue or gross sales from the automobile industry, or that the automobile industry represented the most important market for its goods and products. For example, A. O. Smith within the last fifteen years has been shifting into non-automobile lines. It has brought out a superior electrically welded steel pipe, a new pipe for oil-well casing, pressure vessels, and glass-lined storage tanks. There was reliable authority to the effect that the automobile-frame business has accounted for a majority of the company's dollar sales.[14]

Sparks Withington, in the period covered by this study, has shifted into the radio and electrical refrigerator business. Correspondence with the company discloses that the business is divided approximately one-third to each of these groups. It is therefore included in the domestic powered accessory business.

In the automobile-accessory industry are also included a number of corporations which, on first glance, seem to be improperly

[14] Letter dated July 1, 1936, Standard Statistics Company, Inc., A. W. Ward.

classified. These include Parker Rust-Proof, Collins and Aikman, Allen Industries, and Federal Screw Works. Although no official break-down of earnings is available, examination of the sources indicates that more than 51 per cent of gross sales or of gross revenue is derived from the automobile industry. From the standpoint of nature of product, Collins and Aikman would seem to belong in the soft-pile fabric industry. Because of the character of its market, however, it is classified in automobile accessories. Allen Industries, based upon the nature of the article produced, falls in the cotton-textile industry; but based upon the market served, it falls within automobile accessories. The classification is designed to bring out the expanding and declining trends of demand and the corresponding trends of dividends and interest distribution. This primary purpose is best served by the inclusion in the motor-accessory industry of such apparently unrelated enterprises as Collins and Aikman, and Allen Industries.

On the other hand, other companies closely identified with the automobile industry, but which have sales characteristics of their own, are excluded from the motor-accessory group. The rubber and rubber-tire industry is an illustration. Its dependence upon the motor industry for a source of revenue is counterbalanced by other considerations. The industry is beset by a distressing inventory and raw-material problem. The fluctuations in the price of crude rubber and the competitive price wars in rubber tires have produced temporary profits and temporary losses. Long-term bond issues have provided funds to bolster the working-capital position of numerous leading corporations in this industry after the weakening of the company's finances because of heavy inventory write-offs. Within recent years, the leading rubber and rubber-tire companies have expanded their mechanical-goods division, which is dependent upon forces other than those responsible for the increase or decrease in the sales of motor cars. The rubber and rubber-tire industry is therefore listed as a separate group.

The automobile industry also furnishes the largest market for the sale of safety glass. The most important outlet of Libbey-Owens Ford is the motor-car industry. The demand for glass, however, is highly diversified; it is a demand which is rapidly expanding as new uses for glass are discovered. New glass products for such new uses as insulation, building blocks and tex-

tiles are being developed. The glass industry, therefore, is sufficiently distinctive to be considered as a separate grouping. Libbey-Owens Ford is therefore associated with Hazel Atlas Glass and Owens Illinois Glass as the corporate units of the glass industry. An important part of the sales outlet of the glass industry, especially of Owens Illinois Glass, consists of containers. Owens Illinois Glass, considered separately, could have been included in a separate classification known as the glass-container industry. This would, however, carry the classification to unnecessary lengths. The container industry is classified separately, as metallic and cork containers. It includes American Can and Continental Can, the leading producers of tin containers; Crown Cork and Seal, an important manufacturer of cork bottle-tops and allied products; Anchor Cap, manufacturer of caps for glass and other containers; and the Reynolds Metals, a producer of foil for the packaging and wrapping of miscellaneous products and packages for many industries.

A separate classification of Producers' Services embraces those industries that serve largely businessmen and producers rather than consumers. The eight forms of producers' services included cater to the final consumer as well as to the producer. This is particularly so in the telephone industry. No separation of telephone revenue between business and residence usage is available. For the American Telephone and Telegraph Company, the operations of which dominate the telephone industry, "very rough estimates, which necessarily involve a considerable degree of judgment, indicate that for the Bell System, that is, the American Telephone and Telegraph Company and its principal telephone subsidiaries, something over half of the gross operating revenue—probably between fifty and sixty per cent—originates at business telephones."[15] The telephone industry is therefore placed in Producers' Services.

The telegraph industry depends mainly upon the demands of business and is therefore placed in the Producers'-Service group.

Among privately owned and publicly capitalized industries, the steam-railroad industry was, until recent years, the largest source

[15] Letter from S. L. Aredier, Chief Statistician, American Telephone and Telegraph Company, June 13, 1938.

of investment income. Because of a combination of influences, its revenues have been declining. We have divided the railroads into two groups—(1) railroads, 50 per cent of whose traffic in tonnage in 1936 was bituminous coal or iron ore, and (2) other railroads.

CHAPTER VII

TRENDS IN INVESTMENT RETURNS

IN THE PRECEDING chapters we have explained and briefly illustrated the classification of industries in terms of demand. The trend of profits reflected in interest and dividend distribution roughly corresponds with the trend of demand.

Our next task is to record and express in terms of distributions to investors the trends of profits from 1923 to 1936 by primary classes, and by groups of companies which we recognize as industries.

The basis of our study is the index numbers of distributions to investors from 1923 to 1936 inclusive by industrial groups with the average distributions of 1928 to 1930 as a base or common denominator. Each of these index numbers is automatically weighted for the individual companies. Each company in each industry for each year has a weight in the index number proportioned to the relative importance of its distribution in that year in the aggregate of annual distributions for the entire group of companies. The result is a series of index numbers which shows the trend of disbursements in that industry for fourteen years in terms of the base. This trend, so expressed, can be compared with the trends of other groups of companies (industries), compiled in the same manner. In the chapters which follow, where we refer to trends, we mean trends of distribution to investors of interest and dividends, expressed in the form of index numbers, computed on the base of 1928 to 1930, as 100 per cent.

In the discussion of individual industry trends our object is to summarize and explain the movements of distributed profits during three stages of a business cycle. The space given to the discussion of each industry does not correspond to the relative importance of its distributions. It is influenced by special considerations affecting distribution (profit) trends; commodity or service competition; diversification of product in its influence

upon stability of demand; legislative and administrative policies affecting control of supply, wages and hours, or rates; relationship between industries in terms of demand; and effects of intra-industrial competition affecting prices. In some conspicuous cases, such as railroads and electric passenger railroads, the facts are so familiar that elaboration is unnecessary. The field occupied by these companies represents a cross section of American industry. A detailed consideration of the influences affecting profits in any industry would require more space than we have allotted to the entire list of one hundred and eleven industries.

In most of our divisions, depression began with 1931, recovery with 1934. This departure from accepted opinions, according to which the depression began in the fall of 1930 and recovery in April, 1933, is forced by the nature of the standard employed to determine profit trends. In most industries there is a lag of a year between the decline or expansion of business and corresponding changes in dividend disbursement. Nineteen-thirty was a good year for the investor. In many industries, dividends increased. Railroads and utilities, under the inspiration of the Hoover program, borrowed large sums. Bond issues for new capital construction were large. In the same way, substantial business recovery occurred in the last eight months of 1933. Dividend payments, however, were sharply reduced in this year. Corporation managements, in spite of increased earnings in 1933, continued to reduce dividends. Not until 1934 did this policy change. To include 1933 in the period of recovery on the basis of the distribution standard of measurement would make the average showing for some expanding industries in the recovery period but little better than during the depression. By recognizing the year's lag between increased profits and increased dividends, this result is avoided. In general, we have ignored sharp variations from the trend in years intermediate between the terminal years of the period.

We have considered the influence of the undistributed profits tax in increasing distributions to investors during 1935 and 1936. This might be regarded as an influence tending to distort the trends of distribution during 1936. In fact, however, this premium on paying dividends operated upon all companies paying dividends in expanding and declining industries. Any increase in dividends which may have resulted from the law, did not change

the trend of distributions so far as to transform the trend of any industry.

The statements of fact in this chapter, wherever they fall outside the limits of common knowledge, are mainly taken from the *Commercial and Financial Chronicle* and its "Railroad" and "Industrial" supplements, and the *Statistical Abstract.*

Our first presentation is a comparison of the index numbers representing the trend of investment distribution for the five primary classes of investment, and also expressed for each grand division in terms of the index representing the movement of total distributions from 1923 to 1936. The group trends of distribution show the movement of each group trend in terms of the base. It should be kept in mind that here and throughout this study our object is to show *trends,* to indicate those industries and groups of industries which show the greater expansion in times of prosperity, the smaller declines in times of depression, and which, over the entire business cycle, including both prosperity and depression, have shown the greater progress. The index numbers of the five primary classes appear in the following table:

Year	*Total Distribution of Interest and Dividends Index*	*Consumers' Goods Index*	*Consumers' Services Index*	*Consumers' Capital Goods Index*	*Producers' Goods Index*	*Producers' Services Index*
1923	62.4	61.8	43.9	30.3	59.1	75.5
1924	67.4	63.1	52.0	34.6	64.1	80 8
1925	73.5	70.7	60.8	53.5	73.4	84.0
1926	82.9	84.0	71.6	75.5	80.6	88.5
1927	88.7	88.9	80.6	90.7	88.4	91.1
1928	94.1	88.9	86.6	104.8	93.7	96.6
1929	103.5	101.9	101.1	107.7	109.3	99.7
1930	102.4	109.3	112.3	87.6	97.0	103.7
1931	86.1	90.0	107.4	70.0	69.7	93.4
1932	65.0	74.1	92.0	32.8	40.4	75.4
1933	57.3	58.5	80.8	30.7	33.1	71.1
1934	60.8	64.9	78.5	36.2	41.0	71.1
1935	62.3	63.3	80.8	53.0	49.1	67.9
1936	78.4	82.1	97.7	108.6	80.3	68.3

All of the classes advance during the first period. All classes decline during the depression. Four of the five classes show substantial advances during the period of recovery. Only Producers' Services, the railroads predominating in this class, fail to respond to the stimulus of increasing production and increasing national

income. The comparison of primary-class trends shows that Consumers' Capital Goods, whose principal component is automobile manufacture, made the most rapid percentage advance during the first period, the most rapid decline during the depression, and the greatest recovery after 1933. Consumers' Services were but little behind Consumers' Capital Goods during the two expansion periods. They also made a much better showing during the depression, declining only from 112.3 in 1930 to 80.8 in 1933, as compared with a Consumers' Capital Goods decline from a peak of 107.7 in 1929 to a low of 30.7 in 1933. Even compared with Consumers' Goods, traditionally resistant to depression influences, Consumers' Services—light and power, gas, retail and mail-order distribution, and instalment finance, to mention the more important elements of this group—made a better investment showing during the depression than did Consumers' Goods. Next in rank come Producers' Goods. This class, in its distributions to investors during the expansion period, was surpassed by three of the five classes with which it is compared. Only Producers' Services showed a smaller advance. And in the depression period there is little to choose between Producers' Goods and Consumers' Capital Goods. They go down together, and at about the same rate. The worst showing of all was made by the Producers' Service class, dominated by the railroads. Even the stable payments of American Telephone and Telegraph, in part out of the cash accumulations of past prosperity, do not avail to offset the declines in railway interest and dividends.

In the examination of individual industries that follows, the index numbers of each of the five primary classes are inserted in each of the groups into which the individual index numbers are divided.

We have now to examine these industries, represented on the New York Stock Exchange by groups of corporations and, in a few cases, by single corporations, as financially expanding and financially declining industries. We compare (in terms of dividends and interest payments to security-holders) the profit trends of each industry with the profit trends of the primary class in which it operates. Most of these companies normally confine the *major* portion of their activities to a given industry.[1]

[1] For classification of these groups, see preceding chapter.

The 111 industries are divided into 18 groups—for example, Habit, Non-Metallic Minerals, and Food. The cash distributions for 1936 for each industry in each group are separately tabulated in one table to show the relative importance of each industry. Another table gives the index number by industries for each year. It also gives for each year the index number for the primary class of which the industries are a part. In the discussion of individual industries that follows, the most important industry in each group, measured by 1936 cash distributions, is considered first, and the least important, last; the order of presentation following the order of decline of cash distributions to investors in 1936.

CONSUMERS' GOODS

We start our presentation with the habit industries—a group of industries the consumption of whose products gives so much specific enjoyment that they become rooted in the physical needs of the addicts to these habits.

Cigarettes constitute the largest habit industry. The rapid increases in cigarette consumption date from the war period for men and from shortly after that period, for women. The "short-smoke" accommodates itself to the accelerated pace of city life. It is also considered more economical. Because the products of its combustion can be more easily inhaled, the cigarette is regarded as more stimulating than the cigar. The index of distributions rose from 54.6 in 1923 to 118.7 in 1930. It declined to 110.6 in 1933, and in 1936 stood at 120.3. The most serious obstacle to continued growth of cigarette distribution by listed companies is the growth of low-priced brands. Another obstacle has been the high prices of domestic tobacco resulting from the crop-control program.

Drugs and Proprietary Compounds include the manufacture of ethical and "patent" medicines and medical preparations, with the "patent" or "trade marked" group predominating. This justifies the inclusion of this industry of sixteen companies in a "habit" group. The object of large advertising expenditure is to establish habits. Self-medication is a habit. The index numbers of this industry moved in general conformity with the Consumers'-Goods' index during the first period. It declined less than

HABIT GROUP

Cash Distributions, 1936

(*000 omitted*)

Cigarettes and Accessories	$90,388	Chewing Gum	8,989
Drugs and Proprietary Compounds	28,088	Tobacco	6,596
Non-Alcoholic Beverages	18,652	Cigars	4,761
Non-Alcoholic Beverages (except Coca Cola)	(884)	Snuff	3,540

Index Numbers of Cash Distributions

(*1928-30=100*)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Cigarettes and Accessories	6	54.6	55.6	65.7	70.9	83.3	87.7	93.7	118.7	113.4	115.0	110.6	108.3	108.6	120.3
Drugs and Proprietary Compounds	16	48.6	49.5	61.8	79.9	96.7	90.3	104 0	105.7	103.1	91.3	65.4	74.4	75.2	82.4
Non-Alcoholic Beverages	4	50.2	51.9	60.1	58.5	59.2	71.1	103.8	125.1	130.7	109.4	90.0	99.4	112.9	178.7
Non-Alcoholic Beverages (except Coca Cola)	3	21.7	28 8	49.9	57.9	75.0	86.8	102.3	111.0	81.5	38.7	26.6	34.5	22.8	20.9
Chewing Gum	2	55.8	72.1	84.1	89 8	95 5	94 9	90.4	114.7	114.4	100.4	89.7	115.3	104.6	114.5
Tobacco	5	116.2	108.2	92.3	89.9	92.1	89.5	110.0	100.1	84.0	75.7	124.4	113.4	112.9	137.2
Cigars	6	42.0	45.1	45.7	62.8	96.3	96.6	105.7	97.8	78.7	49.1	43.3	77.9	37.8	48.2
Snuff	2	86.4	93.4	95.1	95.1	95.1	101.0	101.0	98.0	98.0	98.0	93.6	94.5	95.7	95.7
Consumers' Goods Index	....	*61 8*	*63.1*	*70 7*	*84.0*	*88.9*	*88.9*	*101.9*	*109.3*	*90.0*	*74 1*	*58.5*	*64.9*	*63.3*	*82.1*

the average of Consumers' Goods, and it advanced more during recovery. In the recovery period, the drug industry remained well below the other members of the habit group.

We must recognize the predominating influence in recent years of Coca Cola in the *Non-Alcoholic Beverage* industry. While the distributions of all the members made a good showing of expanding dividends during the first period; during the depression, Canada Dry Ginger Ale, White Rock, and Liquid Carbonic (producer of soda-fountain equipment and supplies) fell to low figures, and they have shown little improvement during the recovery period. Coca Cola, however, was little affected by depression. Its sales and dividends continued to advance. In spite of a decline in the distributions of other soft-drink companies to low figures—111.0 in 1930 to 20.9 in 1936—Coca Cola carried the non-alcoholic beverage index during the same period from 125.1 in 1930 to 178.7 in 1936.

Chewing Gum, like tobacco and Coca Cola, is strictly a habit product. It has the advantage that its addicts start very young. Its demand was not seriously affected by depression, and it advanced rapidly during recovery. The chewing-gum index advanced from 55.8 in 1923 to 114.7 in 1930. It declined to 89.7 in 1933, and by 1936 it stood at 114.5.

Tobacco includes leaf tobacco, pipe tobacco, and tobacco accessories such as licorice. The largest member of the industry, United States Tobacco, is also a snuff producer. If a break-down of its sales could have been obtained, this company might have been placed in the snuff group. The index of distributions of this industry *declined* during the first period from 116.2 in 1923 to 100.1 in 1930, and to 75.7 in 1932. From this point, mainly because of increased distributions by United States Tobacco, the index rose to 137.2 in 1936.

Cigars have lost in competition with cigarettes. Until 1929 the distribution index of the seven companies studied increased from 42.0 in 1923 to 105.7 in 1929, a more rapid advance than cigarettes. After 1929, however, cigars declined. In 1936 the index number was 48.2. The distributions of the largest member, General Cigar, have alone been maintained at substantially the figures of the expansion period. Various explanations—time of consumption, abstention of women smokers, increasing cost of tobacco,

FOOD GROUP

CASH DISTRIBUTIONS, 1936

(000 omitted)

Packaged Food	$31,253	Crackers and Biscuits	$13,738	Fruit and Vegetable Canning	$5,133
Meat and Fish Packing	28,436	Refining of Corn Products	12,594	Porto Rico Sugar	4,323
Dairy Products (Total)	19,050	Fresh Fruit	12,584	Refined Sugar—Cane	4,084
Baking and Flour	15,369	Refined Sugar—Beet	11,444	Confectionery	3,842
		Cuba Raw Sugar	$110		

INDEX NUMBERS OF CASH DISTRIBUTIONS

(1928-30 = 100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Packaged Foods	5	32.6	44.8	55.3	83.4	91.1	88.6	103.3	108.1	99.4	84.7	68.8	69.0	67.0	77.8
Meat and Fish Packing	7	105.6	93.6	104.9	91.4	95.6	94.7	103.3	102.0	81.9	59.5	38.1	49.0	65.6	62.6
*Dairy Products—Borden and National†	2	.....	.....	.....	.....	.....	.....	.....	138.0	152.8	135.0	85.4	84.7	83.5	80.4
Baking and Flour†	7	.....	.....	86.0	102.2	106.0	104.1	107.0	88.9	82.6	63.6	50.5	45.0	44.8	64.4
Crackers and Biscuits	3	51.3	60.4	54.5	67.8	80.4	86.9	101.5	111.6	99.2	97.5	75.7	98.1	64.7	61.7
Refining of Corn Products	2	19.9	62.8	64.6	81.3	83.8	92.0	102.4	105.5	93.9	84.9	87.7	86.9	86.5	104.6
Fresh Fruit	1	93.4	95.7	10.6	95.7	116.8	113.5	86.1	100.4	93.4	57.0	52.0	76.1	75.1	104.5
Refined Sugar—Beet	3	88.6	123.9	112.0	112.3	120.6	114.9	109.7	75.4	35.3	33.6	62.9	93.0	106.2	170.2
Fruit and Vegetable Canning	3	48.4	61.2	76.2	98.7	101.4	94.4	94.3	111.3	54.1	29.1	32.6	49.4	48.7	78.2
Porto Rico Sugar	3	82.1	81.0	80.2	77.4	89.0	113.3	106.1	80.6	50.1	49 9	73.2	89.8	77.0	110.3
Refined Sugar—Cane	1	80.5	80.5	89.6	117.1	117.1	80.5	110.0	109.6	100.1	76.9	69.9	68.0	66.5	66.4
Confectionery	3	27.8	36.9	29.1	61.1	14.9	59.6	54.5	185.9	138.7	146.6	92.2	89.1	89.7	101.4
Dairy Products, (except National and Borden)	3	42.1	48.4	56.5	69.7	90.2	100.1	100.9	99.0	88.5	43.6	38.2	40.5	42.7	51.7
Cuba Raw Sugar	5	160.5	160.0	212.4	167.1	135.7	132.9	89.5	77.6	56.4	23.6	10.1	8.7	7.9	3.3
Consumers' Goods Index	....	*61.8*	*63.1*	*70.7*	*84.0*	*88.9*	*88.9*	*101.9*	*109.3*	*90.0*	*74.1*	*58.5*	*64.9*	*63.3*	*82.1*

* These two groups are in the list of companies arranged by Primary Classes and Industries, included in one industry entitled Dairy Companies.

† In a few industries, because earlier figures for some of the companies of these industries were not available, the index numbers start at a date later than 1923, thus shortening the first period. These cases do not disturb the trend of distributions of those industries, nor of the general group to which they belong.

In some cases also—for example, motion pictures and the two large dairy companies—merger figures for the first period could not be disentangled and the index numbers are computed only for the second and third periods.

have been made for the failure of cigars to retain popularity. The fact, however, is indisputable. The cigar companies, as a group, have declined.

The *Snuff* habit, once the accepted vehicle of genteel masculine indulgence, still persists in the back streets of demand long after its social popularity has vanished. The two snuff companies, American Snuff and George W. Helme, paid $3,457,000 in dividends in 1924, and $3,540,000 in 1936. This is an unusual record of stability.

The *Food Group* numbers forty-eight companies divided into thirteen industries.

The *Packaged Foods* industry supplies trade-marked goods in convenient form. They strongly appeal to the home buyer who is limited in storage space and has many demands upon her time which, under more primitive conditions, was largely devoted to food preparation. The companies in this industry have been favored by the trend of consumers' demand. At the same time, while showing resistance to depression influences, the group index declined less than the index of Consumers' Goods. The index of packaged foods increased only from 68.8 in 1933 to 77.8 in 1936, as compared with an increase of 23.7 points in the general Consumers' Goods index. Over the entire period, packaged foods, among the unsubsidized food industries, is second to *Refining of Corn Products.*

Meat and Fish Packing shows little change in disbursements from 1923 to 1930. From 1930, the trend is sharply downward to 1933, and the industry has not recovered. Per-capita consumption of meat is declining, and the industry has suffered losses in the wide fluctuations of live-stock prices.

Dairy Products shows sharp declines. In spite of large increases during the twenties in consumption, and of corresponding gains in profits, the combined index of the smaller companies, from 1930 to 1936, decreased from 99 to 51.7, and of Borden and National Dairy, the large milk "trusts," which are occasionally under fire for their *alleged* exploitation of the farmer and extortion from the consumer, during the same period, show a decline from an average of 145.5 in 1930-31, to 80.4 in 1936.[2] These dairy

[2] Borden and National Dairy grew by mergers during the twenties, and because of the unavailability of essential data, adjustments for mergers and

companies have suffered from double regulation by which the wholesale price of milk has been advanced and the retail price has been reduced. Competition of farmers' coöperatives and independent dealers has also reduced profits. On the face of the record, these companies have not justified the expectations of profit that were generally entertained concerning them at the time they were formed.

Baking and Flour and *Crackers and Biscuits,* after a substantial advance to 1929, show a declining trend after 1930. In spite of the growth of population and the expected corresponding increase in demand for the necessities of life, the distributions of this group now stand but little above the level of 1923. Per-capita consumption of cereals is declining.

Refining of Corn Products has done well in each period. The history of Corn Products Refining, organized as a consolidation, the principal member of its industry, suggests the difficulty of making a consolidation function effectively. Not until after the war did this company, which had been forced under a consent decree in 1919 to dispose of several profitable units, realize its possibilities of profits.

Fresh Fruit is represented by a single company, United Fruit. This company has, for many years, enjoyed a dominant position in the supplying of bananas to the United States. It is also a large producer of raw sugar. It combines production, transportation, and wholesale distribution. After a sharp decline of 50 per cent in 1932 and 1933, due to the decline in sugar, this company recovered its position. In 1936, its index was above the average of 1929 and 1930.

The *Beet Sugar* companies have greatly improved their position. Their disbursement index rose from 75.4 in 1930 to 170.2 in 1936. They are favored by the domestic-sugar quota and by a subsidy.

In *Fruit and Vegetable Canning,* profits were reduced by inventory losses. Snider Packing went through a creditors' reorganization.

The *Porto Rico Sugar* index, during the same period, has

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acquisitions of these two companies from 1923 to 1929 were not made. Adjustments for the period 1930 to 1936 were made. Hence, these index numbers are given for the 1930 to 1936 period only.

increased from 80.6 to 110.3. These companies enjoy subsidies and quotas.

Cane Sugar Refining in the United States has shown a decline. The index of American Sugar Refining, the only listed company in the industry, fell from 109.6 in 1930 to 66.4 in 1936. The company has since suspended common-dividend payments.

The decline in the disbursements of the *Confectionery* industry, mainly represented by Hershey Chocolate, is explained by a falling-off in the per-capita consumption of bulk and boxed candy and by inventory losses. From a high point of 185.9 in 1930, the index of this industry fell to 101.4 in 1936.

The financial history of the *Cuba Raw Sugar* business, which is the financial history of Cuba, presents a record of continuous decline. Starting with 160.5 in 1923, the index number in 1929 stood at 89.5, in 1933 at 10.1, and in 1936 at 3.3. It has almost reached the bottom. The large market remaining is the United States. Into this market, Porto Rico, the Philippines, and Hawaii ship sugar, duty free. Cuba pays a duty. These dependencies of the United States receive large subsidies. The American market is divided among "offshore" and domestic producers by a quota system, designed to favor American producers. Production is restricted in Cuba, but crop control has accelerated the decline in Cuba-sugar profits by increasing overhead.

There are six industries in our *Clothing and Materials* group.

Shoe Manufacturing is represented by three large companies. Each of these produces a large amount of its own raw material. None of them, however, has done much in the acquisition of retail outlets. They produce standard merchandise, much of it low priced, which is sold through regular channels of distribution. The absence of differential trade-mark advantages in a competitive market, with a very moderate increase in physical sales since the depression, seem to account for the poor showing of this group. During the first period the index numbers, starting from 62.1 in 1923, rose to 113.3 in 1930. In 1934 the index of distributions was 67.2, and in 1936 it had advanced only to 72.4.

The situation in the *Cotton, Woolen, and Silk Textiles* industry has been already explained in a preceding chapter.[3] Not only has there been a decline in quantity sold due to changes in styles, but

[3] See Chapter II, pp. 15, 27-30.

CLOTHING AND MATERIALS GROUP

CASH DISTRIBUTIONS, 1936

(000 omitted)

Shoe Manufacturing	$10,085
Cotton, Woolen, and Silk Textiles	8,006
Rayon	5,433
Full-Fashioned Hosiery	1,962
Men's Furnishings	1,328
Underwear (Men's)	332

INDEX NUMBERS OF CASH DISTRIBUTIONS

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Shoe Manufacturing	3	62.1	66.8	71.0	73.1	80.3	87.9	98.8	113.3	103.3	87.3	69.5	67.2	73.0	72.4
Cotton, Woolen, & Silk Textiles	8	243.6	210.6	214.0	187.7	158.0	118.2	109.0	72.7	44.4	22.9	21.2	69.0	50.0	124.5
Rayon	3	25.1	27 1	27.3	46.6	83.8	91.9	104 7	103.4	91.5	53.6	138.3	145.7	124.4	199.1
Full-Fashioned Hosiery	6	64.4	58.7	66.3	76.8	94.4	85 1	107.4	107.4	52.4	37.1	27.1	33.4	35.3	44.1
Men's Furnishings	3	124.0	117.0	92.6	93.3	95.2	95 6	93.9	110.4	49.0	26.2	19.5	25.3	27.5	54.4
Underwear (Men's)	2	22 7	90.4	98.5	92.3	100.6	112.4	101.1	87.4	45.3	16.1	5.8	6.5	19.7	29.9
Consumers' Goods Index	----	*61.8*	*63.1*	*70.7*	*84.0*	*88.9*	*88.9*	*101.9*	*109.3*	*90.0*	*74.1*	*58.5*	*64.9*	*63.3*	*82.1*

rayon has invaded the market and absorbed an increasing amount of a decreasing demand. The decline in the cotton, woolen, and silk index of distributions has been severe. From 243.6 in 1923, the index fell to 21.2 in 1933. A small recovery followed in 1934-1935, and in 1936, the concentration of buying due to apprehension of higher prices, carried the index to 124.5. This improvement was not sustained.[4]

Rayon, on the other hand, showed rapid improvement while its competitors were declining. The rayon index started at the low point of 25.1 in 1923. By 1929 it had advanced to 104.7. During the depression, the rayon index fell to a low of 53.6 in 1932, and then rapidly recovered, standing at 199.1 in 1936, far surpassing the general index of Consumers' Goods in its rate of improvement throughout the fourteen-year period.

The index of the *Full-Fashioned Hosiery* industry rose rapidly till 1930. During the depression it fell from 107.4 in 1930 to 27.1 in 1933, and by 1936 it recovered only to 44.1. High labor costs and price wars between the union and non-union divisions go far to explain the low profits. The demand for hosiery has continued to expand. It is the financial results that are disappointing.

Men's Underwear and Men's Furnishings have made a poor showing during the second and third periods. The three companies in this industry are operating in a competitive market. The men's furnishings index of distributions was comparatively stationary during the first period. The underwear index rose sharply. During the depression, both indices declined to very low figures, and their recovery was small. Cluett Peabody, the largest member of the combined group, derives a large income from royalties for the use of the sanforizing process.

The *Consumers' Fuel* group contains two members, Refined Petroleum and Anthracite Coal. Bituminous coal, while used for domestic heating, is essentially a Producers' Good.

Oil Refining has not been held down by decreasing demand. The production of gasoline, for example, increased from 262 million barrels in 1925 to 515 million barrels in 1936. Price wars have impaired the industry's profits.

The demand for *Anthracite Coal* has rapidly declined. The distribution index, however, shows only a moderate decline.

[4] See Chapter II, p. 27.

CONSUMERS' FUEL GROUP

Cash Distributions, 1936

(000 omitted)

Oil Refining	$237,978
Anthracite Coal	4,836

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Oil Refining	23	63.2	62 8	68 9	86.5	87.1	86.4	107.1	106 5	75 0	58.7	42.8	47.7	44 0	71.3
Anthracite Coal	2	192.7	110 5	99.3	138 1	138 0	99 6	97 1	103.3	93 8	93.7	94.9	90.7	91.1	88.2
Consumers' Goods Index	....	*61 8*	*63.1*	*70 7*	*84 0*	*88 9*	*88 9*	*101 9*	*107 3*	*90 0*	*74 1*	*58 5*	*64.9*	*63.3*	*82.1*

There are two anthracite companies in the industry—Philadelphia and Reading Coal and Iron, and Lehigh Valley Coal. The first named paid unearned interest for several years, preserving its solvency by draining its current assets.[5] Early in 1937 it gave up the struggle and went into bankruptcy.

There remain in Consumers' Goods four *Miscellaneous* industries, each of which occupies its own field, and whose distribution indices must be separately considered.

Soaps and Cleaning Compounds has been favored by expanding demand. Most of the market is controlled by three companies —Procter and Gamble, Colgate-Palmolive-Peet, and Bon Ami, which are listed, and Lever Brothers which is not listed. The industry, during the first two periods, showed the most rapid expansion in any of the four industries now being considered. Its rate of advance during the recovery period was, however, small, a fact explained by growing competition. Soap is soap. All "brands" are made by the same general processes. Therefore, soap profits depend mainly upon advertising. The three listed companies are large advertisers. Until 1932 the index number remained high, 127.6 in that year, compared with 106.5 in 1930 and 99.9 in 1929. In 1936, however, the index stood at 90.2.

Eastman Kodak is the only representative of *Photographic Supplies and Equipment* that is listed on the Exchange. It is so large, however, that it is representative. Its distributions were stable during the first period. It declined rapidly during the depression and rose more rapidly than the general group index during the recovery period from 41.2 in 1933, to 90.1 in 1936. This improvement is partly attributed to the development of new chemical lines.

In *Publishing and Distributing,* Curtis Publishing, in the first period, represented almost all the group distributions. The poor showing of this company in recent years has been due to a reduction of advertising revenue. Two series are therefore presented, one based on the movement of total distribution, and the second eliminating Curtis Publishing. Outside of Curtis Publishing the industry made a good recovery from a low of 50.2 in 1933 to 83.9 in 1936.

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[5] See details of these interest payments by the Philadelphia and Reading Coal and Iron Company in Chapter V, pp. 85, 86.

MISCELLANEOUS GROUP

Cash Distributions, 1936

(000 omitted)

Soaps and Cleaning Compounds	$16,277
Photographic Supplies and Equipment	15,564
Publishing and Distributing	9,811
Consumers' Paper Specialties	1,985

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Soaps and Cleaning Compounds	3	54.6	54 8	56 5	69 8	94 1	95 2	99 9	106.5	135.1	127.6	87 4	78 7	87 0	90.2
Photographic Supplies	1	92.9	96.3	96 8	95.7	96.0	96 1	98.4	105.5	106 8	54 3	41.2	60 9	73.8	90 1
Publishing and Distributing	7	44.3	54.6	69 2	74.4	79 1	90.6	103.0	106.4	76.9	47 6	9 5	34.9	36 9	43.9
P. & D. (except Curtis)	6	40.2	41.5	45.3	73 8	67.0	87.4	97.4	115.2	94 5	59 8	50.2	56 8	51.7	83.9
Consumers' Paper Specialties	4	27.9	33.2	41.6	85 4	76.5	82 7	102.7	114.7	103 0	90 5	95 7	110.2	118 8	162 9
Consumers' Goods Index	....	*61.8*	*63.1*	*70 7*	*81.0*	*88.9*	*88 9*	*101 9*	*109 3*	*90*	*71 1*	*59 5*	*64 0*	*63 3*	*82 1*

Consumers' Paper Specialties, including four companies, is small in relative amount of distribution, but in persistent upward trend it has few rivals. These companies manufacture "give away" products—cups, containers, paper napkins—along with standard articles sold to the consumer through the retail trade. The demand for these products has continually increased, and price competition, though with difficulty, has been kept in check. The low point of the index was 90.2 in 1933, from which it advanced to 162.9 in 1936.

CONSUMERS' SERVICES

Consumers' Services include *Retail Distribution, Power, Light and Heat, Transportation,* and a *Miscellaneous* group: *Instalment Finance, Motion Pictures,* and *Personal Services.*

The first group to be considered is *Retail Distribution.*

Retail Distribution paid $158,717,000 to investors in 1936. This was the highest figure reached since 1923. The previous high was reached in 1930, with $146,740,000. Since, in 1935, figures of distribution were only $97,592,000, a question may be raised concerning the terminal point of the trend. The payment of the soldiers' bonus in 1936 explains some of the increase. We fail, however, to see any reason to depart from our pattern. Nineteen thirty-six was a good year for the retailer; so were 1929 and 1930. During the twenties, distribution of listed retail companies rose $20 million in 1926, $21 million in 1927, and $25 million in 1929. Nineteen thirty-six was a good year for all classes of business. While the boom was short lived, it was substantial. All retail companies shared in its profits. By contrast with the gain in profits by automobile companies, this rise of retail distributions is small. In recent years the American businessman has been forced to gather his roses while he may.

The most important member of *retail distribution* is *Mail Order,* meaning primarily Sears Roebuck and Montgomery Ward. These two companies have improved their mail-order business by the addition of a large number of retail stores. A few of these are true department stores in organization and management. Most of these stores are operated as outgrowths and supplements of the mail-order business, where a limited group of articles in general

RETAIL DISTRIBUTION GROUP

Cash Distributions, 1936

(000 omitted)

Mail Order	$52,728	Coal and Ice Distribution	3,980
Variety Chains	43,247	Shoe Chains	2,910
Metropolitan Department Stores	21,287	Drug Chains	2,636
Decentralized Non-Metropolitan Department Stores	18,779	Restaurant Chains	2,359
Food Chains	10,391	Auto Accessories Chains	1,363
Furniture Chains	612		

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Mail Order	4	7 5	29 4	50 4	54.9	73.3	82 8	110.5	106 7	61 3	35 9	13 7	17 7	52 9	225.0
Variety Chains	10	24 8	29.5	36 0	63 8	77 2	81 6	106 5	112 0	163.5	99.3	84.7	93 9	102 4	116 7
Metropolitan Department Stores	17	55.3	63 2	73 9	76 2	89.7	99 2	104.5	96 3	83.7	52 6	39 7	49 7	58.6	87.0
Decentralized Non-Metropolitan Department Stores	2	.....	.....	.....	51.3	69 5	62 9	71 0	166.2	84 8	71 4	41.1	129.8	114 4	206.2
Food Chains	8	27 8	32 4	55 8	73 7	71 9	83.2	107 4	109 5	109 4	98.2	88.1	92 3	84.3	77.9
Coal and Ice Distribution	3	44.8	51.8	58 9	59.9	71.7	92.8	101 2	106 0	93.8	74.8	63.6	55 9	48.5	43.3
Shoe Chains	3	.....	.....	.....	114 8	101 6	85.1	84 8	130 2	108 4	54.7	39 3	43.1	77 6	132.8
Drug Chains	2	.....	.....	.....	56.5	77 7	95 2	112 8	92 2	87 2	101.1	191.3	263.8	302.0	469.9
Restaurant Chains	5	53 2	58 8	66 3	73 8	79.6	81 9	117 3	100.8	67 3	44 8	21.1	19.4	23.6	41.6
Auto Accessories Chains	1	.....	.....	.....	17 2	30 9	103.5	101 9	94.5	86 7	55.5	47.3	126 0	94.5	219.1
Furniture Chains	2	.....	46 9	42 9	49.3	97 2	93 2	105 9	100.9	59 4	32.2	14.0	34 1	30.1	75.3
Consumers' Services Index	.....	*43 9*	*52.0*	*60.8*	*71.6*	*80.6*	*86.6*	*101.1*	*112.3*	*107.4*	*92.0*	*80.8*	*78.5*	*80.8*	*97.7*

family demand are on display and for sale, and where orders can also be placed for all merchandise carried in the mail-order catalogue which is not carried in the store. These stores do not replace the mail-order business but rather strengthen and supplement it. The mail-order companies sell merchandise at low prices. The effect of the large sales of Consumers' Capital Goods appears in the extreme variations of their distribution indices.

Variety Chains, comprising ten companies, is second to the mail-order companies in payments to investors. Of these, F. W. Woolworth is the most important. Its dividend payments in 1936 were 53 per cent of the total. This company did not, however, improve its position in recent years as rapidly as did its competitors.

Variety chains deal in low-priced merchandise, 5 cents to $1.00. Woolworth stopped at 10 cents until recent years. Its maximum prices are now higher. The stated maximum of these stores is $1.00, and below that price they sell an extensive line. (S.S.) Kresge, for example, sells wearing apparel, notions, jewelry, stationery, toys and games, hardware and cutlery, toilet articles, glassware, dinner ware, and kitchen ware, radio supplies, electric supplies, candy, and delicatessen. The appeal of the variety store is based on price. It gives no credit, offers no bargains—aside from its consistent policy of low prices—and makes no deliveries.

Metropolitan Department Stores include seventeen companies. They suffered heavy inventory losses during the post-war period. They are large owners of central city real estate. Their tax and interest burdens are heavy. Most of them give credit (Macy now gives credit), accept returned merchandise, deliver even small packages carefully wrapped. Mail-order companies and variety chains are vigorous price competitors with department stores. Distributions to investors by department stores declined during the depression, when price considerations were unusually important, less than those of the mail-order group, and during the period of recovery they advanced from 39.7 to 87.0.

On the other hand, the record of the *Decentralized Non-Metropolitan Department-Stores,* with two companies, of which J. C. Penney is the principal representative, is substantially better than that of the metropolitan stores. J. C. Penney operates 1,537 limited-line department stores, most of them located in

small towns. Here the company is free from the handicaps of metropolitan locations, and its costs are lower. Penney's distributions to investors declined much less from 1930 to 1933 than those of the metropolitan group. Penney's advance during the recovery period was from 41.1 in 1933 to 206.2 in 1936 as compared with the advance for the metropolitan group from 39.7 to 87.0. The decentralized department store, on the basis of the record, is more productive of dividends than its metropolitan rival.

Food Chains includes eight companies. This industry expanded during the twenties at about the same rate as did other retail outlets. It made a fair showing of stability during the depression, a fact in part explained by the heavy mortality among independent grocers, the index falling only from 109.5 in 1930 to 88.1 in 1933. It continued the decline during the recovery period, falling to 77.9 in 1936. The most important differential advantage of the grocery chains is price. They are comparable, in this respect, with variety chains and mail-order companies. The price differential of the food chains is being reduced by the mass buying of grocery coöperatives. The independent grocer who survived the depression, who is now able to meet chain prices on staples, and is superior in service and resulting good will, is in a better position to combat chain-store competition.

The chain method of retail marketing is also represented on the Exchange by two drug chains, two furniture chains, three ice and fuel chains,[6] five restaurant chains, three shoe chains, and one auto-supply chain. In relation to the total volume of retail business in their respective lines, these retail outlets are of small importance. Of the minor chains, auto-supply and drug chains make the best showing of distributions for each period. Shoes come next, furniture third, restaurants fourth, and ice and fuel last.

The personal element in retailing in these lines, involving special skills, credit, and dealer's good will, operates against large participation in total sales by these chains. Where they have been developed, however, with the exception of retail ice and fuel and restaurants, they have made excellent records. When poor records have been made, special circumstances account for them. Res-

[6] Burns Brothers distributes only coal and fuel oil.

POWER, LIGHT, AND HEAT GROUP

Cash Distributions, 1936

(000 omitted)

Electric Power and Light	$104,521
Electricity, Gas, and Street Railway (Composite)	92,947
Manufactured Gas (Metropolitan)	10,504

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Electric Power and Light	10	53 6	63 0	73 6	81 4	91.4	93.6	101 4	104.9	115 2	114 4	107.4	104.3	105.3	101.9
Electricity, Gas, and Street Railway (Composite)	4	47 4	54 0	62.5	70 2	79.8	87 6	98.7	113 7	116 4	117.5	110.2	99.4	95.3	94.4
Manufactured Gas (Metro.)	3	107.3	104.2	90.9	83.2	88 4	90.8	103.4	105.8	111.4	100 5	89.8	75 9	73.6	67.5
Consumers' Services Index	. .	*43 0*	*52 0*	*60.8*	*71 6*	*80 6*	*86.6*	*101 1*	*112.3*	*107.4*	*92 0*	*80.8*	*78 5*	*80 8*	*97.7*

taurant chains, for example, are exposed to unusually severe competition from independents who operate on a wages rather than a profit basis, while both ice and coal are declining in volume of sales.

Power, Light, and Heat in its volume of distribution to investors is the most important group in Consumers' Services. The index numbers include a break-down between ten companies whose business is confined to electricity and four companies which, in addition to electricity, supply other services. The latter is termed the "Composite Utility" companies. These four companies, in addition to electricity, also supply either gas, surface transportation, steam heat, or a combination of one or more of these services.

The division is dominated by electric power.[7] The index of these "Composite" companies closely follows the general trend of Consumers' Services until 1931. A rapid expansion in the use of electricity carried the index of distribution from 47.4 in 1923 to 117.5 in 1932. From this point the index declined to 94.4 in 1936, showing no response to recovery stimulus. When the trend line of the electric companies is freed from the influence of gas and street-railway earnings, the showing is more favorable.

An examination of the trend of distributions by manufactured-gas companies, of which three are listed, shows the effect of the declining domestic demand for gas. Starting at a high point of 107.3 in 1923, the line dips in 1926 under the weight of a sharp dividend reduction by Brooklyn Union Gas. This cut was restored. By 1931, the index was back to 111.4, a slight gain from 1923. From this point the decline is continuous to 1936, when the index stands at 67.5. The decline in domestic sales—the most profitable part of the business—is due to the competition of electricity.

Transportation consists of two industries—metropolitan electric passenger transportation with eight companies, and bus and cab transportation with three companies.

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[7] Only a small part of the distributions of the power and light industry are made by companies included in this study, which omits all utility holding companies (see "Classification of Investments," pp. 96-97). The trend of distributions of these operating companies corresponds to the trend of the industry.

ELECTRIC RAILWAY, BUS, AND CAB GROUP

Cash Distributions, 1936

(000 omitted)

Metropolitan Electric Passenger Transportation	$35,695
Bus and Cab Transportation	3,251

Index Numbers of Cash Distributions.

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Metropolitan Electric Passenger Transportation	8	74 6	85 2	90 3	96.4	98.4	97.6	101.5	100.8	93.7	78.1	69.3	63.0	63.1	59.6
Bus and Cab Transportation	3	32 1	57.2	56.8	61.4	62.0	108.2	132.4	59.4	46.5	32.5	25.1	24.4	24.3	28.6
Consumers' Services Index	....	*43.9*	*52.0*	*60.8*	*71.6*	*80.6*	*86.6*	*101.1*	*112.3*	*107.4*	*92.0*	*80.8*	*78.5*	*80.8*	*97 7*

The *Metropolitan Electric Passenger Railway* industry, which was seriously damaged by a sharp advance in operating costs during the war, partially recovered its position during the twenties. Then came a sharp decline which was not reversed during the recovery period. The index of distribution decreased from 101.5 in 1929 to 59.6 in 1936. For this decline various explanations have been offered: the continuance of mass unemployment, mainly concentrated in the large cities where these companies are located; the growing competition of the private automobile; the general dilapidation of the physical plants upon whose repair and replacement the operating companies had insufficient funds to spend; and the increasing burdens of taxation. Rates of fare, with the exception of New York City, have been fixed at the highest rates consistent with maximum return.[8]

Bus and Cab Transportation did very well during the twenties,[9] the index rising from 32.1 in 1923 to 132.4 in 1929. From this point, the index declined to 24.3 in 1935.

The remaining groups of Consumers' Services will be presented together but have no direct relationship to each other.

Instalment Finance companies deal mainly with the individuals and corporations to whom interest is of little consequence. Two of the companies buy receivables at substantial discounts,

[8] A criticism of the conclusions drawn from the record of *Metropolitan Electric Passenger Transportation*, has been made by one of our friends who is actively and successfully engaged in the rehabilitation of the "transit industry" as it is now termed. He points out that the companies listed on the New York Stock Exchange are not nationally representative of the industry. Most of the disbursements are made by companies in New York, and this situation is complicated by the maintenance of the five-cent fare and by municipal competition. This is a fair criticism.

We therefore present a comparison of the distributions for 1929 and 1936—the period of decline—of important electric passenger-railway companies in other cities than those represented by the listings. Baltimore, Pittsburgh, Buffalo, St. Louis, Kansas City, Chicago, Cincinnati, Los Angeles, Washington, and Indianapolis. Compared with the disbursements of the listed companies. (Cleveland and Boston are omitted because of municipal subsidies. New Orleans is omitted because the street railway and the power business are consolidated. Detroit is omitted because the street railway is municipally owned and operated.)

	1929	1936	Per Cent of Decline
Listed Companies	$60,858,000	$35,695,000	40
Outside Companies	16,373,000	7,720,000	53

The listed companies, it is evident, make a more favorable showing since 1929 than unlisted companies.

[9] The fact should be noted that most of the bus lines which are not included in this study are operated as parts of larger transit systems. Their profits cannot be separately stated.

MISCELLANEOUS GROUP

Cash Distributions, 1936

(000 omitted)

Instalment Finance	$38,636
Motion Pictures (Unadjusted)	11,060
Motion Pictures (Adjusted)	3,234
Personal Service	956

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Instalment Finance	3	17 9	28.4	55 7	71 2	58.2	63 3	123 7	113.0	99 6	77.4	59.7	77.7	95 0	170.5
Motion Pictures (Unadjusted)	3	18.1	33.7	41.6	54 4	69 5	82 9	85 7	131 4	103.3	50.7	30 3	22 5	45 6	69.2
Motion Pictures (Adjusted)	4	12 8	19.8	18 3	56 0	81.6	56 6	84 3	159 1	62.7	49 0	33 9	37.2	31.2	33.8
Personal Service	2	...	...	...	120 8	153 7	78 2	109 6	112.3	112.4	104 3	68.9	82.0	60.2	80.9
Consumers' Services Index	...	*43 9*	*52 0*	*60 8*	*71 6*	*80 6*	*86 6*	*101 1*	*112 3*	*107 4*	*92 0*	*80.8*	*78 5*	*80 8*	*97.7*

representing the purchase of automobiles and similar articles, where the article furnishes the security for the loan. Commercial Investment Trust also does a factoring business with textile manufactures by which money is lent against sales. Household Finance operates under State small-loans acts which allows high rates of interest on small loans.[10] This is the only company listed on the New York Stock Exchange doing its major business in this field.

The volume of annual purchases—their business is not stated in terms of sale—of two of these four companies is as follows for 1936:

Commercial Credit	$ 933,854,000
Commercial Investment Trust	1,169,696,000

The personal-finance companies which perform an indispensable public service—at least, so they say—publish no statements of loans. This business is profitable. These companies, in addition to money contributed by stockholders, borrow large sums from banks by the sale of low-interest bonds. They trade, with safety and great profit, on the equity.

An examination of their trends of distribution to investors presents a pleasing picture of growth. Starting with 17.9 in 1923, the index rose to 123.7 in 1929, declined to 59.7 in 1933, and rose to an all time high point of 170.5 in 1936. These companies are exposed to increasing competition from commercial banks.

Motion Pictures present a difficulty. There are eight companies. Three large companies—Loew's, Fox Film (a predecessor of Twentieth-Century-Fox), and Paramount Publix present such a tangle of intercorporate relationships and accretions that it was found impossible to disentangle them for the first period. The index numbers, unadjusted from 1923 to 1936, are presented separately for these three companies

The distribution history of the motion-picture companies shows a rise for the *adjusted* companies from 12.8 in 1923 to 159.1 in 1930. From this time the index declines to 33.9 in 1933, and levels off around that point. The *unadjusted* companies' index rises from 18.1 in 1923 to 131.4 in 1930; falls to a low of 22.5 in 1934, and then rises to 69.2 in 1936. Fox and Paramount, during the depression period, declined proportionately with the larger group,

[10] Beneficial Industrial distributions were not available before 1930 and were therefore not included in the index.

but made a better showing in 1935 and 1936. The industry is suffering from reduced attendance. This is probably due to competition with other forms of amusement.

The two remaining companies in this group are classed as *Personal Service* industries. The Kendall Company manufactures hospital supplies; and Consolidated Laundries, in addition to a laundry business in the New York area, supplies business customers with rented linens.

These enterprises have made a fair showing. Distributions, available first from 1926, were stationary until 1930, declined only to 60.2 in 1935, and recovered to 80.9 in 1936.

CONSUMERS' CAPITAL GOODS

Consumers' Capital Goods have certain distinguishing characteristics. They are durable. Compared with Consumers' Goods, they are expensive. They are well adapted to instalment buying, and they are generally so bought. Replacement purchase, no matter how compelling is the urge to original purchase, is postponable up to the full working life of the article. The automobile is the dominant member of this group. Consumers' Goods quickly perish in the using. They are purchased for cash or on short credit terms. Their purchase cannot be postponed. The old distinction between luxuries and necessities has broken down. The demands for cigarettes, cosmetics, and silk hosiery are as inflexible as the demands for meat and bread. Even relief money is freely spent on these cultural necessities, a fact which is largely responsible for the supplying of relief in checks instead of baskets. Erasmus once wrote: "When I get some money, I shall buy some Greek books, and then I shall buy some clothes." We of this era substitute cigarettes and cosmetics for books in the order of preference. During the depression, the stability of demand in the habit industries has already been pointed out.

These demand characteristics of Consumers' Capital Goods result in a distinctive pattern of profit trends. The profits of these industries are irregular. W. H. Lough, in his noteworthy volume entitled *High Level Consumption* has developed this point. He aptly characterizes the demand for Consumers' Capital Goods as "explosive." During the twenties, the expansion of all

classes of income carried the profits of the Consumers' Capital Goods industries to high levels. Instalment buying made these rapid advances possible. In the depression, instalment payments continued, but new instalment contracts fell to low levels. Non-existent wages could not be mortgaged. Profits in this industry fell to low figures. With the recovery they rose again, slightly above the levels of 1929.

This group is dominated by the automobile. Out of total disbursements of Consumers' Capital Goods listed companies, of $297,683,000 in 1936, the ten automobile manufacturing companies accounted for $264,814,000. The distributions of General Motors and Chrysler in 1936 were $254,272,000, and the distributions of the eight smaller companies, $10,542,000. From the investors' standpoint, a small company may be as sound as a large company. For example, Dow Chemical is a small company, but, in the words of Daniel Webster, "there are those that love it." It has made an excellent record of dividends. Not so with the small motor companies. An examination of the index numbers, separately presented for the entire group and for the eight smaller companies, shows an increase of from 42.9 in 1923 to 114.1 in 1929 for the small companies, and from 20.7 to 104.5 for General Motors and Chrysler combined. The gain in distributed profits for the smaller companies is substantially less than for the large companies. During the depression, the large companies declined from 104.5 to 40.0 in 1932, the small companies declined from 114.1 to 5.0 in 1933-1934. The recovery of the small companies is not impressive. Their index of distribution rose only from 5.0 to 21.0, while General Motors and Chrysler combined index rose from 40.0 to 145.2. The figures show that the small companies in the recovery period made a poor showing. At the high point of 1936, their distributions were only one-sixth of their peak figures of 1929, while General Motors and Chrysler went $71,419,000 beyond their 1929 totals. On the basis of the record, the smaller companies—Packard, Hudson, Studebaker, et al.—seem to be declining in their relative importance in the automobile picture.[11]

In the chapter introducing the primary class of Consumers'

[11] There is no evidence that the product of these smaller companies is inferior. Their disadvantage is in distribution.

CONSUMERS' CAPITAL GOODS GROUP

CASH DISTRIBUTIONS, 1936

(000 omitted)

Automobile Manufacturing	$264,814	Consumers' Goods and Services Machinery	$2,541
Domestic Powered Accessories	12,207	Soft Pile Fabrics	2,286
Personal Accessories	8,086	Bedroom and Kitchen Equipment	1,125
Hard-Surfaced Floor Covering	5,667	Furs	900
Sporting Goods	$366		

INDEX NUMBERS OF CASH DISTRIBUTIONS

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Automobile Manufacturing	10	25.8	30 1	50.3	76.3	91.0	106.1	106.7	87.2	75.1	33.4	32.5	37.2	53.1	116.9
Automobile Manufacturing (except Chrysler and General Motors)	8	42.9	44.6	59.2	80 0	82.4	101.4	114.1	83.8	44.4	10.9	5.0	5.0	7 6	21.0
General Motors and Chrysler	2	20.7	25.3	47.7	75.2	94 7	107.5	104.5	88.0	84 1	40 0	40.7	46.6	66 6	145.2
Domestic Powered Accessories	13	35.6	44.2	48 5	52 5	83.5	96 9	113.8	89.3	50 5	21 4	5.3	21.2	74.2	78.8
Personal Accessories	7	39.0	41.2	61.9	76.4	86.1	93.0	103.0	103 9	36.1	36 5	30.2	34.6	39.5	54.7
Personal Accessories (except Gillette)	6	48.6	46.9	51 0	54 4	61.7	84.1	105.7	110.2	66.2	23 0	15.2	32.0	51.6	95.2
Hard-Surfaced Floor Coverings	2	131.1	207 8	210.1	67.7	69.3	77.8	99 5	122 7	97.0	68 3	82.6	111.0	135 6	198.6
Consumers' Goods and Services Machinery	6	——	.....	75.2	94.3	109.3	111.6	105.2	83.2	105 4	66 1	51.4	56 5	71.4	96 5
Soft Pile Fabrics	4	133 8	97 3	84.8	94.7	106 9	119.7	127 1	53 1	10.2	8 4	6 4	17 9	23.0	66.0
Bedroom and Kitchen Equipment	2	63.7	46.5	69 5	77 6	67.8	77.2	121.0	101 8	7.7	17.2	18 9	23.0	23.7	30 9
Furs	2	14.7	16 7	19.5	126 2	128 1	141.4	131.4	27 2	15 5	26.8	24.3	21.8	15.2	42.8
Sporting Goods	3	77 1	79.6	78 9	54 1	108 2	109.7	118 3	72 1	53.2	22.6	1.7	0 6	5 7	12.4
Consumers' Capital Goods Index	....	*30 3*	*34 6*	*53 5*	*75 5*	*00 7*	*104.8*	*107.7*	*87.6*	*70 0*	*32.8*	*30.7*	*36.2*	*53.0*	*108 6*

Goods and Services, the growth of *Domestic Powered Accessories* was explained in terms of the use of electric power in the home. Electricity has created the demand for these appliances. The need for vacuum cleaners, mechanical refrigerators, automatic-heat and washing machines, was always there. The buying urge was always present. These appliances could have been marketed fifty years before if the indispensable motive power had been available. Electricity did not create the demand, it merely satisfied it. The new motive power was also indispensable to the development of the internal-combustion engine, and so of the motor car.[12]

The distribution trend of domestic powered accessories corresponds closely to that of the automobile industry until 1936 when, compared with automobiles, it made only a small advance. In the competition for the consumers' dollar over fourteen years, the automobile has shown superiority. It should be noted, however, that the margin for future expansion, the distance from the saturation point, is greater for domestic powered accessories (except radios) than for the automobile. The hand-fired furnace, the ice man, and the broom still exasperate millions of housewives who, as soon as their means permit, will possess these mechanical aids to comfortable existence.

The remaining Consumers' Capital Goods industries can be considered together. No one is of major importance. They include *Personal Non-Powered Accessories, Hard-Surfaced Floor Covering, Bedroom and Kitchen Equipment, Consumers' Goods and Services Machinery, Soft-Pile Fabrics, Furs,* and *Sporting Goods.*

Personal Accessories make a poor trend showing for the second and third periods. Like *Publishing,* it is "contaminated," to use Veblen's word, by the sharp decline in the earnings of Gillette Safety Razor. When the patent monopoly of this long prosperous company was terminated, it lost much of its profits. A separate index number is, therefore, included for the group, except Gillette. The entire industry, including Gillette, while of small relative importance, with total distributions of only $8,086,000 in 1936, shows an index gain during the first period from 39.0 in 1923 to 103.9 in 1930. It then fell to 30.2 in one year, and in 1936 had only re-

[12] See Chapter II, pp. 22, 23 for discussion of the place of the electric motor in the development of Consumers' Capital Goods.

covered to 54.7. Removing Gillette, however, we have a different picture for the last two periods. The index, from a peak of 110.2, fell to 15.2 in 1933, but rose to 51.6 in 1935 and to 95.2 in 1936—a gain closely paralleling the improvement in the group trend.

The competition between commodities is illustrated by the comparative trends of *Hard-Surfaced Floor Coverings* and *Soft-Pile Fabrics*. Hard-surfaced floor coverings, which lost ground in the competitive struggle during the twenties, since 1929, has triumphed over its less durable rival. In 1930 the index of soft-pile fabrics was 127.1. It fell to 6.4 in 1933 and recovered to 66.0 in 1936. Hard-surfaced floor coverings, however, which stood at 122.7 in 1930, declined only to 68.3 in 1932 and rose to 198.6 in 1936. There is no group of manufacturers that showed greater ability to triumph over adversity than those "friendly enemies," Armstrong Cork and Congoleum-Nairn, during the depression.

The Consumers' Goods and Services Machinery industry manufactures machines used in such consumer's industries as canning, laundry, and tobacco, and in the dental profession. The demand for these products is relatively stable, and the industry makes a good showing. U. S. Hoffman and American Machine and Metals have made a relatively poor showing since 1929. The relatively good showing of American Machine and Foundry and of Food Machinery Corporation reflects the stabilizing effect upon profits of royalties on leased machines.

Bedroom and Kitchen Equipment, the only representative of the furniture industry on the Stock Exchange, is represented by two companies. During the first period these two companies made a fair showing, the index rising from 63.7 to 101.8 in 1930. In 1931, the disaster suffered by the Simmons Company, which over-extended itself in the acquisition of Berkey and Gay, was mainly responsible for a decline to 7.7. These companies have never recovered their former prosperity.

Furs have shown increasing weakness, though the evidence of the distribution index as a reflection of sales is misleading. There are two companies in the industry, and their disbursement index, which had risen from 14.7 in 1923 to 141.4 in 1928, fell to 15.5 in 1931, and had only recovered to 42.8 in 1936. The consumption of furs still responds to the movement of middle-class and even lower-class income. The drop in the index number was due to the

financial difficulties of Eitingon-Schild, which was forced by heavy inventory losses to liquidate a part of its business, and which has not recovered its position.

The three *Sporting Goods* companies listed on the Stock Exchange, which did fairly well during the expansion period when their combined index number rose from 77.1 in 1923 to 118.3 in 1929, after declining close to zero in 1933, recovered only to 12.4 in 1936. The business is highly competitive, and these large companies have not been able to dominate the market.

PRODUCERS' GOODS

Producers' Goods is second in distributions in 1936 of the five primary classes. It includes 280 listed companies, divided into seven groups.

We now take up the consideration of these groups.

The revolution in steel markets appears in the decline in *Heavy Steel* distributions. Heavy steel includes, as its leading representatives, rails, plates, and structural-steel members. These are used in railway, building, and ship construction, industries which have fallen to very low levels. Even during the expansion period, the heavy-steel industry had fallen into the deceptive and dangerous condition upon which the investor places a false value—"stability," often the herald of decay. The distribution index, starting from a high level, rose only from 82.8 in 1923 to 108.0 in 1929. From this point, as demand declined, the index fell to 18.4 in 1933 and recovered only to 57.1 in 1936, an increase apparently due to the profits of United States Steel in the light-steel industry into which it had cautiously entered. These profits were used to pay arrears of dividends on the preferred stock of United States Steel. It is safe to say, from what is known of the demand for heavy steel during the recovery period, that a break-down of the profits from the two sources of demand would have left heavy-steel profits at a much lower level than the distribution reported.

In its distribution trend, *Non-Ferrous Metals,* until the recovery period, correspond closely to the trend of steel and alloys. Copper is the principal representative of this industry. The principal outlets for copper are in the electrical, building, and telephone and telegraph industries. The decline in the rate of expansion of elec-

METAL PRODUCTS AND METALLIC MINERALS GROUP

Cash Distributions, 1936

(000 omitted)

Heavy Steel	$95,650
Non-Ferrous Metals	71,805
Light Steel	30,829
Precious Metals	23,749
Alloys and Raw Materials	19,978
Refractories	4,747
Iron Ore, Pig and Wrought Iron	3,055

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Heavy Steel	8	82.8	85.6	80.8	83.7	92.5	97.6	108.0	94.3	65.9	29.1	18.4	18.6	21.7	57.1
Non-Ferrous Metals	21	49.6	52.7	89.9	85.3	87.2	93.8	135.7	70.5	31 6	11.6	12.7	21.7	24.4	54.9
Light Steel	14	51.9	76.1	66.6	73.6	79.6	85.8	106 3	107.9	75.1	48.1	42.5	48.3	77.1	133.2
Precious Metals	7	81.1	91.8	103.3	112 1	102 1	101.8	108 2	90.1	78.6	95.1	151.3	322.0	326.8	276.8
Alloys and Raw Materials	5	22 0	34 3	46 2	66 3	67.1	68.0	122.1	109.9	49.2	13.2	12.6	45.8	62.6	104.0
Refractories	2	52.4	57.1	75.5	86 0	84.3	89 4	98.4	112.2	106.3	14.4	4.3	24.0	39.3	100.3
Iron Ore, Pig and Wrought Iron	4	98 9	127.7	82 0	76 9	78 9	104 6	109 3	86 1	65.4	20.1	16.1	23 2	22.2	44.1
Producers' Goods Index	....	*59 1*	*64.1*	*73.4*	*80 6*	*88.4*	*93.7*	*109.3*	*97 0*	*69.7*	*40.4*	*33 1*	*41.0*	*49.1*	*80.3*

trical generating equipment, and the prevailing low level of building construction during the recovery period, account for the poor showing of copper products during the recovery period. They do not indicate any weakening in the long-term demand for copper.

Light Steel made an excellent showing during the expansion period. Starting from 51.9, a figure 30.9 points lower than the distribution index of the heavy-steel companies, the light-steel index rose to 106.3 in 1929, declined only to 42.5 in 1933, and rose to 133.2 in 1936. Light steel—strips, sheets, etc.—is the material which fits into the recent consumption pattern. It is used for motor cars, motor boats, domestic powered accessories, furniture, building improvements, especially store fronts, and a great variety of minor uses. Produced at low cost in the modern continuous rolling mills, it represents the profitable form of steel production. The failure of some of the heavy-steel companies to shift to light-steel production until the recovery period was almost ended is an illustration of the effect upon profits of the unwillingness of conservative management to recognize the face of the sky and the signs of the times.

The increase in the profits of the *Precious Metals* industry during the recovery period was due to the monetary policy of the United States Government in buying gold and silver at high prices. Costs of production did not advance correspondingly, and new veins, unprofitable at former prices, were utilized. During the first period, the distributions of precious-metals industries showed a small advance. This industry, like beet sugar and Porto Rico raw sugar, owes its current prosperity to government subsidies; but its prosperity, while it lasts, is nonetheless real, even though it comes from the public treasury.

The inherent strength of the *Alloys* industry is revealed by the index number of distributions which advanced from 22.0 in 1923 to its high of 122.1 in 1929, dropped to a depression low of 12.6 in 1933, and then advanced in 1936 to 104.0.[13]

The trend in *Refractories* corresponds closely with the trend in metals. For this reason, the refractory companies are placed with the metals. These materials are mainly used in the repair of furnace linings.

[13] For details of the demand for alloys see chapter on "Demand in Producers' Goods," pp. 37, 38.

CHEMICALS AND PROCESSING INDUSTRIES GROUP

Cash Distributions, 1936

(000 omitted)

Chemicals (not otherwise stated)	$83,382
Glass	18,590
Book and White Paper	8,508
Vegetable Oils	5,598
Newsprint	4,686
Carbon Black	4,141
Solvents	2,069
Fertilizers	1,591
Leather	253

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Chemicals (not otherwise stated)	10	67.5	72.3	63 6	80.3	87.2	92.4	105.9	101.7	105.8	91.3	84.8	94.6	103.0	124.9
Glass	4	74.0	80.6	94 9	123.1	117.9	85.2	104.0	110 7	79.0	64.7	103.2	136.2	149.3	291.7
Book and White Paper	5	23.8	35.0	37.4	64.0	77.8	96.0	111.1	92.9	79.5	47.2	57.4	60.7	72.8	84.8
Vegetable Oils	4	17.6	31.7	41.1	54.4	77.2	96.4	103.5	100.2	64 3	50 7	42.9	59.7	81.9	81.0
Newsprint	2	45.7	42.1	52.8	62 0	79.0	120.8	91.9	87.2	48.4	40.7	32.9	29.9	30.0	27.2
Carbon Black	2	51.1	53 6	52 5	56 8	53.9	60.9	93.6	145.6	69.6	36 1	41.5	74.1	100.4	121.3
Solvents	2	17.5	27 5	28.7	41 3	73.6	89 3	111.4	99 3	54.2	33.6	32.0	33.6	65.8	48.4
Fertilizers	4	192.9	89 4	84.0	117.8	77 5	87.2	113.0	99.8	67.7	25.0	13.6	17.6	22.2	39.3
Leather	3	130.3	130 0	82 5	61.3	78.9	149 7	83.4	66.9	51.1	38 4	16.9	8.0	16.6	15.4
Producers' Goods Index	....	*59.1*	*64.1*	*73 4*	*80 6*	*88.4*	*93 7*	*109 3*	*97.0*	*69.7*	*40.4*	*33 1*	*41.0*	*49.1*	*80.3*

Iron Ore, Pig and Wrought Iron—has had difficulties. Steel has taken over much of the field formerly occupied by iron. Its decline began in 1924. From 98.9 in 1923, the index fell to 76.9 in 1926. There followed an increase to 109.3 in 1929, mainly produced by Great Northern Iron Ore. There followed a sharp decline to 16.1 in 1933. Interlake Iron was the only company to show stability, a fact due to its interest payments. The advance of this industry's index from 16.1 in 1933 to 44.1 in 1936 was again mainly due to Great Northern Iron Ore. In periods of large steel production, the iron mines are drawn upon, but in smaller amounts than before the extensive use of scrap. Shipments in 1936 were only 68 per cent of those of 1929.

Of the *Chemicals and Processing* industries, that marked in the foregoing table as *Chemicals (not otherwise stated)* shows the best trend of the Producers'-Goods industries throughout the entire period 1923 to 1936. The industry was already old in 1923, although the major growth in synthetic compounds occurred after that date. The distribution index was 67.5 in 1923, and it rose to 105.9 in 1929. The index fell to 101.7 in 1930, rose to 105.8 in 1931, declined to an average of 90.2 for the next three years, and rose to 124.9 in 1936. The industry is unique in that it supplies products consumed in the using, to almost every branch of industry. From gold recovery to potato growing, from the laundry to the coal mine, from the bakery to the oil refinery, there is no leading branch of production which does not use chemicals. The chemical industry starts with the basic raw materials. It ends with the cellophane-wrapped package on the retailer's shelf. It ushers the child into the world; feeds, clothes and houses him during his life-time, and prepares him for the grave. This fact accounts for its unusual stability of demand and for the consistent advance in its production and profits. There are few industries which can grow without increasing the demand for chemicals.

The chemical companies listed on the New York Stock Exchange also enjoy the considerable advantage of specialization in their several lines. Du Pont is the only one that participates in every branch. Allied Chemical and Dye specializes in heavy chemicals. Synthetic nitrate and coal-tar dyes are important elements in its line. Union Carbide and Carbon specializes in elec-

tric-furnace products and organic synthetics, Monsanto Chemical, in fine chemicals; Atlas Powder (an offshot of Du Pont) in explosives and finishes; Hercules Powder in explosives and cellulose products; Mathieson Alkali in alkalis; Dow Chemical in brine products. This specialization gives some of these companies a differential advantage.

There are few industrial groups whose products are in such universal demand from both producers' and consumers' industries, whose members occupy distinct areas in its field, and which have been able to avoid destructive price competition, while occupying, with the cheaper products of synthetic chemistry, a large field formerly controlled by companies producing natural raw materials or products produced by non-synthetic processes. The stability in demand thus produces corresponding stability in profits paralleled by few other industries.

The *Glass* industry is divided into two major sections: (1.) glass containers, and (2.) building and construction glass, including plate and window glass; safety glass, now generally prescribed by law for automobile construction; decorative and insulating glass; glass blocks; and fibre glass, as yet used mainly for insulation, but promising developments in the field of textiles. The index of distribution showed less gain than many other Producers'-Goods groups during the expansion period, rising only from 74.0 in 1923 to 110.7 in 1930. During the depression the index showed great resistance to the forces of decline, falling only to a low of 64.7 in 1932. Then began a period of rapid growth. The index rose steadily and rapidly to 149.3 in 1935 and to 291.7 in 1936. Like synthetic building materials, this was a substitution and maintenance market. The wastage in glass containers is high, and the other products of the industry aside from window and plate glass, are moving into new markets, a situation comparable to that enjoyed by synthetic building materials and chemical synthetics.

The four companies in this group are Libbey-Owens Ford, Hazel Atlas, Owens Illinois, and Thatcher Manufacturing, the last mentioned confined to glass containers, mainly milk bottles. This company has made the poorest showing of the four. Its products are exposed to the competition of metallic and paper containers.

The *Book and White Paper* industry sells paper which is converted into books, magazines, and catalogues. The demand is somewhat more stable than the demand for newsprint. It enjoyed great prosperity during the first period, declined from 111.1 in 1929 to 47.2 in 1932, and increased to 84.8 in 1936. The good showing of this industry is due in part to the fact that two of its large members, Crown Zellerbach, and Kimberley-Clark, are heavily interested in the profitable consumers' paper-specialties industry.

The *Vegetable Oil* industry comprises four companies, two processing linseed oil, and two, cottonseed oil. A major industrial outlet for linseed oil is paint. Cottonseed oil supplies the soap and margarine industry. The companies also produce live-stock feed. The demand for their products is broad. The index numbers show considerable strength for these industries, particularly during the depression. After an advance from 17.6 in 1923 to 103.5 in 1929, the index declined to 42.9 in 1933 and then recovered to 81.0 in 1936.

The *Newsprint* industry is represented by only two companies, and after 1931 Abitibi Power and Paper was almost moribund. The peak of expansion came in 1928. After that date, the index declined with little interruption to a low of 27.2 in 1936, 18.5 points lower than in 1923. The supply of newsprint has not been controlled. The large consumers, newspaper chains—the Hearst papers were conspicuous in this effort—took advantage of this situation to make contracts at low prices. The New York price of newsprint which was $67.00 per ton in 1929, fell to $50.39 in 1932, and to $40.00 in 1934. The N.R.A. was helpless to remedy the situation, resulting from the pressure of mass buying upon distress selling. In 1936, the price had recovered only to $41.00. The index number of domestic newsprint production (1923-25 base) fell from 93.0 in 1929 to 61.0 in 1935, and rose to 62.0 in 1936.

Solvents, two companies whose principal product is alcohol, did well in the first period, the index rising from 17.5 in 1923 to 111.4 in 1929. During the depression, the index fell to a low of 32.0 in 1933, and in 1936, stood at only 48.4. The explanation of the poor showing is primarily price competition, within the industry, and with producers of synthetics.

The *Fertilizer* industry, represented by four companies, shows an almost continuous decline from 1923 to 1936. The index was 192.9 in 1923, 77.5 in 1927, 113.0 in 1929, 13.6 in 1933, and 39.3 in 1936. Three of the four companies in the industry are primarily phosphate companies manufacturing commercial fertilizer from phosphate rock. The production of phosphate rock has been declining.

The *Carbon Black* industry, although it has its chief market in the rubber industry, has done better than its customers. During the first period the rubber and rubber tire index rose from 79 in 1923 to 105.2 in 1930. Carbon black, on the other hand, during the same period, increased from 51.1 to 145.6. The low points of the depression are almost the same, showing a greater decrease for carbon black. In the recovery period, however, while rubber and rubber tires remained stationary, the carbon black index rose from 36.1 in 1932 to 121.3 in 1936. During the recovery period the carbon-black companies have secured an increasing percentage of earnings from the sale of natural gas.

A persistent decline of distributed profits is shown by the *Leather* industry, represented by three companies. These companies, before the war, were prosperous. From 130.3 in 1923, the index declined to 51.1 in 1931, to 8.0 in 1934, and recovered only to 15.4 in 1936. The explanation of this decline is found in the field of demand, inventory fluctuations being a secondary influence. Leather belting is no longer largely used. The individual motor has taken its place. The production of leather substitutes used in shoes, automobiles, and furniture manufacture has increased. The demand for harness leather has declined with the displacement of the horse by the motor.

The distribution trend of *Automobile Accessories (not otherwise stated)* follows the line of automobile distributions. But the accessory index, compared with that of the automobile-manufacturing industry, rises less in the expansion period, declines more during depression, and makes a smaller recovery from 1933 to 1936. These accessory companies have a substantial advantage over the automobile manufacturers in that a large part of their demand is for replacements. No matter what the condition of the new-car market, automobile accessories are continually sold to the car owner. One explanation of the smaller distributions of the acces-

AUTOMOBILE ACCESSORIES GROUP

CASH DISTRIBUTIONS, 1936

(000 omitted)

Automobile Accessories (not otherwise stated)	$45,797
Rubber and Rubber Tires	21,190
Ball and Roller Bearings	10 207
Internal Combustion Engines	1,955

INDEX NUMBERS OF CASH DISTRIBUTIONS

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Automobile Accessories (not otherwise stated)	36	43.6	68.2	90 3	90.0	84 1	86.2	112.4	101 4	70 3	27.4	17.2	35 8	61.4	110.1
Rubber and Rubber Tires	7	79 0	70 6	91.7	104 0	105 1	93.4	101.4	105 2	80 3	61.7	42.2	47.6	44.1	56.4
Ball and Roller Bearings	2	52 0	59.0	60.2	70.9	80 5	86.5	106.3	107.2	76.0	41.1	21.7	39.6	95.1	117.1
Internal Combustion Engines	5	.....	.....	.....	.....	104 7	105 0	133.7	61.2	48.8	21.7	18 8	32.0	63.7	84.9
Producers' Goods Index	....	*59 1*	*64.1*	*73.4*	*80 6*	*88.4*	*93.7*	*109.3*	*97.0*	*69.7*	*40.4*	*33.1*	*41.0*	*49.1*	*80.3*

sory industry is in the competitive advantage of the relatively limited number of large buyers competing with a large number of accessory sellers. The contracts which the automobile companies offer are so large that the accessory manufacturer is placed at a serious competitive disadvantage. He must compete with other accessory manufacturers for orders. It is noteworthy that the accessory manufacturers have done so well in the face of such an obstacle. We explain in the discussion of corrective factors how certain accessory manufacturers have gone into other lines and have freed themselves from exclusive dependence upon these large buyers.

The Rubber and Rubber Tires industry, in its tire division, which, in amount of sales, is the major part of its business, has, in trend of production, followed the automobile-manufacturing industry. Its range of output fluctuations was, however, less during the depression. The index of distributions, until the recovery period, moved in a more profitable direction. From 79.0 in 1923, it rose to 105.2 in 1930, then declined to 42.2, and it has shown little recovery, standing at 56.4 in 1936. In spite of a substantial increase in production, the rubber manufacturers could not translate increased demand into corresponding increases in dividends.

The explanation of this failure has been already suggested in the preceding section. The tire manufacturers have been dominated in their new sales market by the pressure of the automobile makers. In their replacement demand, which should be very profitable (57 per cent of the total in 1936) they have also sacrificed their profits in cut-throat competition. This competition developed through the mass buying of the large retailers—Sears Roebuck, Montgomery Ward, and Standard Oil-Atlas. These companies, by 1935, were selling 25 per cent of their replacement business, and, of course, the prices were followed by all tire dealers. Automobile companies, on their part, by pressure and threats to make their own tires, have obtained tires at 40 per cent below the prices to tire dealers. Owners of fleets have also obtained their tires at prices 20 per cent lower than consumers' prices.[14]

[14] See *American Economic Review,* September, 1938, "Competition in the Rubber Tire Industry," Lloyd G. Reynolds, for an extended discussion of this subject. The increase in tire mileage may be cited as an additional explanation of the failure of tire demand to increase more rapidly.

The Robinson-Patman Act and the condemnation by the Federal Trade Commission of the Sears-Goodyear Contract have recently made some improvement in this situation. Goodyear and Goodrich have cancelled their contracts with large distributors.

The Ball and Roller Bearings industry corresponds in the breadth of demand to the chemical industry. Anti-friction bearings are now standard equipment in a variety of machinery and equipment including, in addition to automobiles and trucks, tractors, farm machinery, railroad cars and locomotives, and all types of industrial machinery. The index of this industry, which consists of two companies, rose from 52.0 in 1923 to 107.2 in 1929, fell to 21.7 in 1933, and then rose to 117.1 in 1936.

Up to 1933, most of the profits of the *Internal Combustion Engines* came from the sale of gasoline motors. During the next four years, a strong trend toward Diesel motors developed. The index number did not rise during the recovery to its former level. The industry's index, which fell to 21.7 in 1932, rose to 84.9 in 1936.[15]

The *Container* group includes five companies producing paper board and five metal and cork.[16] These container products are in demand by Consumers' and Producers'-Goods industries.

Of the two forms of containers, paper is the cheapest. Tin con-

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[15] *Note:* If the distributions of Caterpillar Tractor had been included in this group, the improvement would have been much greater. A letter from the Caterpillar Tractor Company, April 26, 1937, discusses this question of classification: "I believe our Company could properly be classified either as an agricultural machinery manufacturer, or an industrial machinery manufacturer, while at the same time it could be properly classified as a Diesel-engine manufacturer."

[16] Thatcher Manufacturing, a producer of glass containers, is omitted from the *Container* group. The company is included in the glass group. The other glass companies included in the glass group sell either flat glass like the Libbey-Owens Ford, or a widely diversified list of products including glass containers, structural glass, insulation glass, etc. The Owens Illinois is typical.

Therefore, the inclusion of Thatcher Manufacturing under the container group would have involved, first, a break-up of the glass group; and second, the inclusion in the container group of one of the less important glass-container companies. Owens Illinois Glass is probably the largest manufacturer of glass containers.

An important competitor of glass, in containers, is paper milk bottles. The cost of the two types in use is about the same. The glass milk bottle may make many round trips before it is broken, while the paper milk bottle is destroyed in one using. Retail grocery sales of milk is increasing, and the glass bottle has not been found as suitable for this trade as the paper bottle. See U. S. Dept. of Agriculture Circular 469, 1938.

CONTAINER GROUP

Cash Distributions, 1936

(000 omitted)

Cork and Metallic Containers and Enclosures	$27,164
Paper Board and Containers	3,391

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Cork and Metallic Containers and Enclosures	5	42.8	54.2	50.6	65.1	65.7	84.2	101.1	114.6	113.8	95.0	89.8	111.9	120.6	142.5
Paper Board and Containers	5	....	....	....	....	106.2	136.2	92.5	71.3	35.8	27.9	31.8	60.1	83.0	158.6
Producers' Goods Index	....	*59.1*	*64.1*	*73.4*	*80.6*	*88.4*	*93.7*	*100.3*	*97.0*	*69.7*	*40.4*	*33.1*	*41.0*	*49.1*	*80.3*

tainers, however, are stronger, easier to seal, and more easily labeled. Tin is acid and oil resistant. Paper is not. Each material has its advantages and there is continuous competition between them. The trends of the two container groups after 1930 are generally similar. *Cork and Metal Containers and Enclosures* rose from 42.8 to 114.6 in 1930. During the depression, the *Paper* group fell to 27.9 in 1932 and then rose to 158.6 in 1936. This advance in paper was due to speculative buying in anticipation of further advances which did not materialize. Metal containers, which had declined only to 89.8 in 1933, rose to 142.5 in 1936.

The *Non-Metallic Minerals* group, in tax and wage payments, are good citizens, but they do not show favorable profit trends.

The movement of *Crude Oil* distributions illustrates the ability of production control to influence profits. During the first period, the index of distribution rose from 70.2 in 1923 to 128.4 in 1926. The development of new fields increased the supply of crude oil in 1927 by 130 million barrels. The price broke 41 cents, and the index of crude-oil distribution fell from 128.4 in 1926 to 84.8 in 1928. With an increasing demand for oil products, and a moderate recovery in price, the crude-oil distribution index rose in 1930 to 115.3. Then came the development of the East Texas field. The supply sharply increased and the price fell. The index of crude-oil distribution fell from 115.3 in 1930 to 47.7 in 1933. At this time, first under the N.R.A., and later by state prorations in Texas, Oklahoma, and Kansas, supplemented by an interstate agreement, by the enforcement of the Connolly Act prohibiting the shipment, in interstate commerce, of oil produced in violation of these state laws, and by a tariff on imported crude, the supply was brought under a measure of control The price rose from 87 cents in 1933 to an average of $1.23 for the three succeeding years, and the distribution index rose from 47.7 in 1933 to 72.8 in 1936, still 32.5 points below 1930, but showing a substantial improvement over the refined-petroleum distribution trend during the same period.

Bituminous Coal makes a poor showing. The index fell from 135.4 in 1923 to 99.7 in 1930. It continued to decline during the depression, falling to 44.2 in 1933, and it recovered only to 50.6 in 1936. Island Creek was the only company to pay dividends without interruption from 1923 to 1936. It has no debt. The remaining members of the industry pay interest, but nothing more.

NON-METALLIC MINERALS GROUP

Cash Distributions, 1936

(000 omitted)

Crude Oil	$12,981
Sulphur	11,470
Bituminous Coal	4,365
Salt	518

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Crude Oil	10	70.2	57.2	76.3	128 4	108 6	84.8	99 9	115.3	57.8	67.6	47.7	69.9	58.3	72.8
Sulphur	2	.....	.....	.....	.. ....	96 8	109.1	95.4	95.4	72.2	47 7	35.0	54.0	69.7	83.7
Bituminous Coal	12	135.4	155 1	110.0	94 0	90 6	92.7	107.5	99 7	82.8	49.1	44.2	48.8	47.9	50.6
Salt	1	144.7	128.6	121.0	114.3	114 0	64 7	95 8	139.4	142.4	92 0	89.2	87.6	87.5	91.5
Producers' Goods Index	.	*59.1*	*64 1*	*73 4*	*80 6*	*88 4*	*93 7*	*109.3*	*97 0*	*60.7*	*40 4*	*33.1*	*41.0*	*49 1*	*80.3*

Some of them have had difficulty in meeting their obligations. Consolidation Coal, one of the large producers of income up to that date, failed in 1932, and paid a small amount of interest in 1936 after reorganization in 1935.

This industry has been afflicted with many business maladies: strikes, excessive debt, commodity competition, and competition within the industry. Until 1933, its profits had been held down for many years by the competition between the union and non-union fields. Then, after most of the formerly unionized districts had shaken off the domination of the United Mine Workers, under the N.R.A., the coal industry was forced again to subject itself to labor interference.

The principal trouble of the industry is excess capacity. There are too many mines and too many mine workers. Even in 1936, when production reached 434,070,000 tons, the highest figure since 1930, it was still 134,597,000 below 1920, and this difference is a low estimate of the excess capacity. We have already presented the reasons for this reduction in bituminous demand. The economies in the burning of coal and the substitutions of other fuels, are still going on.

The industry is represented in the income-tax returns for 1934 by 2,017 concerns. In addition, there are a large number of small mines, the exact number unknown, which produce a substantial tonnage sold at lower than stated market prices. The large companies suffer from this low price competition.[17]

A significant contrast between the bituminous-coal and crude-oil industries is evident. Bituminous coal presents a combination of excess production and decreasing demand. Crude oil produces the raw material of an industry whose demand is rapidly expanding. The consumption of gasoline did not materially decline during the depression. It increased from 377 million barrels in 1933 to 482 million in 1936. Where supply could be controlled, increasing

[17] It is doubtful that the establishment of fixed prices by the government, while their enforcement will, for a time, help the large companies by eliminating most of their smaller competitors, will give permanent relief. The experience with coal price-control during the war and during the N.R.A. shows a variety of methods of evasion which can be utilized to defeat the purpose of these well-intentioned measures. Bituminous coal, like anthracite, is sick. Price and wage fixing by law and contract cannot be relied on to quickly cure the disease of over-capacity. While it is the only method which appears to offer the investor in these companies any hope of assured return, it will be a long, costly, and painful process.

demand advanced the price. If the demand had been falling, ef fective supply control might have been much more difficult. Witl supply control and *increasing* demand, crude-oil producers have the opportunity to make profits. With supply control and *decreasing* demand for bituminous coal, control measures, to be effective must be continually made more drastic. The pressure by producers, faced with failure, to evade these restrictions is, therefore increased.

The *Sulphur* industry and the *Salt* industry, with two large companies in sulphur and one in salt, until the depression made excellent records of distributions. The salt index stood at 139.4 in 1930, about the same as in 1923. Since the decline to 92.0 in 1932, the index has remained about stationary. Sulphur made a poorer showing than salt, declining to 35.0 in 1933 and recovering in 1936 to 83.7. Sulphur is threatened by synthetic competition. Salt is not so threatened. Its demand is also more stable because of its use in the field of Consumers' Goods.

Electrical Equipment is one of the major sources of investment income. This industry, in 1936, produced 38 per cent of the distributions of the machinery group. In recent years, the electrical manufacturing companies have directed more of their efforts to the sale of domestic appliances. The index for this industry followed the general group trend throughout the three periods, starting behind the group index in 1923 and overtaking it in 1928. During the depression, the demand for electric current was well maintained. In millions of kilowatt-hours, the production of electricity fell from 96 in 1930 to 83 in 1932; then rose to 85 in 1933, and in 1936 almost equaled the production of 1930.

This well-managed industry, dominated by two large companies—General Electric and Westinghouse Electric and Manufacturing—showed in 1936 an index of profit distribution of 98.0 as compared with 34.6 in 1932. The inherent strength of demand for electricity, in the manufacturing division where the seller is free from interference by governmental executive policies and by regulatory bodies, is shown by this comparison.[18]

The profits of the *Farm-Machinery* industry depend upon farm income. In any reasonable use of the term, the farm industry makes no "profit." The farmer as a class, although a "capitalist,'

[18] See pp. 52-54, "Producers' Goods Trends."

MACHINERY GROUP

Cash Distributions, 1936

(000 omitted)

Electrical Equipment	$60,564	Truck, Bus, and Cab Manufacturing	$2,367
Farm Machinery	26,756	Printing Materials and Equipment	1,922
Business Machines	19,118	Moving Material Equipment	1,902
Railway Equipment	19,078	Machine Tools	1,534
Multi Industrial Machinery and Products	9,970	Excavating Machinery	1,425
Steel Mill Equipment and Steel Products	7,473	Die Casting	363
Petroleum and Natural Gas Equipment	2,386		

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Electrical Equipment	7	45.8	52.0	55 0	62 9	84.4	99 4	95 8	104.8	91.7	34.6	36.2	33.6	43.9	98.0
Farm Machinery	7	.....	.....	47.5	62.4	74.4	75.8	99 7	124.5	101.1	57.1	36.7	41.2	51.3	115.5
Business Machines	8	40.3	40.6	43 7	60.5	72.2	83 7	116 8	99.5	64.3	42.7	33.6	43.6	56 1	76.3
Railway Equipment	17	79.2	86.3	97.2	93 8	97 1	98.4	102 3	99.3	70 2	47.5	33.1	31.1	28.1	36.1
Multi-Industrial Machinery and Products	4	84.6	41.8	42.6	79 0	80.8	91.0	103.2	105.8	74.6	34.8	24.8	49.4	66.1	107.5
Steel Mill Equipment and Steel Products	3	45 7	50.7	55.3	64.2	105.4	94.1	100 5	105.4	95.2	48.3	28.0	47.2	82.7	204.0
Petroleum and Natural Gas Equipment	2	54 5	56.6	63.3	97.2	111.8	155 3	81.3	63.5	51.3	8.1	4.0	6.7	6.8	53.1
Truck, Bus, and Cab Manufacturing	5	88.3	117.5	116.0	153 6	151.6	89 6	93.2	117.2	39.6	57.5	11 7	14.6	12.5	34.1
Printing Materials and Equipment	5	48 4	58.0	58.4	70.1	78 8	90.8	100.4	108 9	84.5	30 4	23 6	16.1	23.7	35 0
Moving Material Equipment	1	41.7	52 0	50 6	61.0	46.2	83 0	117.0	100.1	82.2	44.5	28.0	24.2	49.2	90.6
Machine Tools	4	63 2	60.3	52 1	54.2	54.2	63.2	117.1	119.7	44.4	14.0	12 5	18.3	22.2	89.3
Excavating Machinery	1	103.4	129.3	98.4	129.1	112 2	98.6	98.8	102 7	67.4	19.3	6.1	6.1	7.6	70.2
Die Casting	1	69.6	199.4	115 5	79.2	62 5	78.0	108.3	113.7	91.1	38.1	34.5	6.5	144.6	216.1
Producers' Goods Index	---	*59.1*	*64.1*	*73.4*	*80.6*	*88 4*	*93.7*	*109.3*	*97.0*	*69.7*	*40.4*	*33.1*	*41.0*	*49.1*	*80.3*

receives no return on his investment and works for low wages. In normal times, however, the farmer buys a large amount of machinery on the instalment plan. During the twenties, when farm income was not severely depressed, the farmer was under a strong inducement to mechanize. The drift of the younger farm generation to the cities had held farm wages (1926) 128 per cent above pre-war figures, and prices of feed, etc. had increased 46.4 per cent. Farm prices were only 27 per cent (average 1921-1925) above 1910-1914 prices. The farmer met this situation by the purchase of machinery, farming more acres, and employing less labor per acre.

The farm-machinery industry took full advantage of this situation. Its index of distribution rose from 47.5 in 1925 to 124.5 in 1930. Then came the depression, particularly severe in agriculture, with a fall in farm income of over 50 per cent. Farm wages also sharply declined. The value of agricultural machinery produced fell from 168 million dollars in 1929 to 17 million dollars in 1933. This decline in buying power was reflected in a decline in the index of farm-machinery distribution from 124.5 in 1930 to 41.2 in 1934. During the recovery period, although agriculture received the special attention of the national administration, taking form in crop-control measures and liberal subsidies, with an advance in the farm income index from 58 in 1933 to 86.3 in 1936, the farm-machinery companies did not regain their former level of distribution. In 1936, the index of the farm-machinery industry stood at 115.5, compared with 124.5 in 1930.[19]

The *Business Machines* index lagged behind the general Producers'-Goods index during the first period, overtaking its trend in 1929. During the depression and recovery periods, the trend of business machinery closely followed that of Producers' Goods. These companies duplicate each other in many lines, and they also specialize in various fields. Thus International Business Machines is prominent in automatic electrical bookkeeping and accounting equipment; in card punching, sorting, and tabulating

[19] The showing of this industry during the recovery period is helped by the inclusion of Caterpillar Tractor as an agricultural-machinery producer. This allocation was made on the authority of the company. If the option, given by the company, of including the company in the internal combustion engine industry had been taken, agricultural machinery's showing since 1933 would have been poor.

machines; in industrial weighing equipment for counting, sorting, and checking materials, and in similar specialized devices. Burroughs Adding Machine specializes in bookkeeping and calculating machines; Underwood Elliott Fisher and L. C. Smith & Corona in typewriters; Remington Rand in record-keeping and record-protecting devices, loose-leaf ledgers and stationery. Addressograph Multigraph, Telautograph, and National Cash Register have their special fields. There is a considerable amount of overlapping in typewriters and calculating machines, but in general the boundaries of these patent-protected areas of specialization are respected. In recent years these companies profited from the intensification of the general movement to reduce costs. The increase in costs was due to wages and hours limitations and Social Security taxes. It was also due to the necessity of making elaborate reports to the new government agencies.

The *Railway Equipment* industry of seventeen venerable corporations rose with the railroads and accompanied them in their decline. These companies had reached maturity before the war. Their index of distribution did not advance with the general trend of Producers' Goods from 1923 to 1929. It started at 79.2 and rose to 102.3 in 1929, a very moderate increase for that period. The railroads had ceased to grow. Their equipment purchases during the twenties, after an increase caused by the necessity of repairing the war damage, gradually declined. In 1923, 4,360 locomotives were installed; in 1929, a year of railway prosperity, 1,229. New freight-car additions declined from 232,000 in 1923 to 95,000 in 1929. These railway purchases of 1928-30 were in respectable figures, but the demand for railway service was stationary. The railway-equipment companies were feeling the breath of the coming storm. With 1931 came catastrophe. Railway-equipment purchases fell to very low figures. From 1931 to 1935, only 1,963 locomotives were installed, an average of less than 400 per year, and freight-car purchases during the same period amounted to 79,727, less than the number purchased in a single year, 1930.

Specialized to one demand, and one group of buyers,[20] the railway-equipment companies, after 1930, showed a rapid decline in

[20] Some of the railway-equipment companies have introduced correctives and are reaching new markets. See pp. 413-414.

distributions. The distribution index declined from 102.3 in 1929 to 33.1 in 1933. In 1936, the index had increased only to 36.1.

The four corporations classed as *Multi-Industrial Machinery and Products* defy formal classification, except under this catch-all title. Fairbanks Morse, for example, manufactures internal combustion engines, scales, pumps, and electrical equipment. American Chain and Cable, in addition to a full line of chains for all purposes, including tire chains, produces valves and fittings, wire rope and cable, and railroad and automobile specialties. Ingersoll Rand produces rock drills, air compressors, pneumatic tools, pumps, Diesel engines, hoists, air-conditioning equipment and turbo blowers. Foster Wheeler, the remaining corporation in this group, is a company "where no single line constitutes 50 per cent of its volume for any extensive period of time." [21] Steam-producing equipment and oil-refining equipment constitute its major outlets. The trend of the multi-industrial corporations shows no outstanding characteristics during the first and second periods. During the recovery period, however, it runs far ahead of the group trend, rising from 24.8 in 1933 to 107.5 in 1936.

The distributions of the *Steel Mill Equipment and Steel Products* industry (although Blaw-Knox makes products for other industries) show the conventional trend up to 1930. In spite of the limitation of its field, however, these companies, serving the growing requirements of the light-steel industry, which was expanding even during the depression, was able to make the best showing, from 1930 to 1936, of the machinery groups. The index fell to 28.0 in 1933, and it rose to 204 in 1936—over 100 points above the index of electrical equipment, and over 125 points above business machines. Measured by its depression and recovery performance, steel-making machinery has made one of the best records among the Producers'-Goods industries. The excellent performance of this industry reflects the shift of light steel from the hand-operated to the continuous-production stage.

The distribution trend of the *Petroleum and Natural-Gas Equipment* companies, follow closely the trend of demand in these two fields. The demand for this equipment arises first, from the maintenance of existing wells and pipe lines, and second, from the development of new oil and gas fields. With the closer control of

[21] Letter from Foster Wheeler Corporation, March 16, 1939.

production in recent years, this demand has been reduced below its former levels, in spite of the large increase in the supply up to 1935. This industry enjoyed great prosperity during the twenties. The distribution index rose from 54.5 in 1923 to a high of 155.3 in 1928. From this point it rapidly declined to 4.0 in 1933, and recovered only to 53.1 in 1936. During the first period, the index ran far beyond the Producers'-Goods trend. During the last two periods, the trend was persistently below. Competition is active in this field. During 1935 and 1936, these industries, again prosperous, spent large sums on drilling, and the index rose from 6.7 in 1934 to 53.1 in 1936.

Truck, Bus, and Cab Manufacturing presents an unsatisfactory picture. The index showed a substantial gain during the first period, rising from 88.3 in 1923 to 117.2 in 1930. Since 1931, the index has remained low. In 1936 it was below the figure of 1931. These vehicles are made on a large scale by companies in other groups. General Motors, International Harvester, American Car and Foundry, Ford, and Chrysler are important competitors.

The *Printing Materials and Equipment* industry includes five companies active in a variety of fields. The industry's trend follows normal lines. It increased from 48.4 in 1923 to 108.9 in 1930; declined to 23.6 in 1933 and advanced to 35.0 in 1936.

The *Moving Material Equipment* industry is represented on the Exchange by only one company, Link Belt, but it was placed in a separate, single classification because it is representative of the industry. The company specializes in equipment for mechanical moving of materials, formerly moved by hand or horsepower. The company's customers include industries where raw, semi-finished, or finished materials are handled in quantity, and where mechanical handling can be substituted for manual handling. Its field of demand includes every industry where products, no matter what their weight or size, must be moved, and this means almost every industry. In the breadth of demand, the moving material equipment industry is comparable with electrical equipment and chemicals. In recent years, with rising labor costs, the demand for this equipment has grown stronger. The index of distribution shows the effect of this new development. During the twenties, the Link Belt Company made a relatively poor showing. From 41.7 in 1923, the index, after an important gain,

stood at 46.2 in 1927. From this point it rose to 117 in 1929. During the depression the trend of this industry closely followed the group trend. Then came the N.R.A., the C.I.O., and the National Labor Relations Act. Labor was in the saddle. Labor costs sharply advanced, especially in the unskilled-labor field. Such companies as Link Belt offered a way out. The distributions of this company went substantially beyond the Producers'-Goods trend. From a low of 24.2 in 1934, the index rose to 90.6 in 1936.

In the chapter on "Demand in Producers' Goods," under the general discussion of expanding and declining industries, the importance of the *Machine Tool* industry was explained. Its members produce machines to make machines. Its demand lags behind the demand for machinery. The lag in the substitution of new machine tools for tools which are still serviceable is considerable. Since many of these mechanisms are standard and interchangeable, competition in the machine-tool field is severe. Obsolescence in machine tools is great, but much of this obsolescence is centered in industries such as railroads, street railways, and railway-equipment industries, which do not have the money to make the extensive tool replacements which are indicated.[22]

The distribution trend of this industry, represented by four companies listed on the Stock Exchange, is disappointing. During the first period, the machine-tool index indicated less vitality of demand than many other members of the machinery division. During the depression, the machine-tool index fell far below the Producers'-Goods index. Indeed, with a showing of 12.5 in 1933 and 22.2 in 1935, it made a poor showing, both in depression and recovery. Not until 1936 was a substantial improvement shown in the distributions of machine-tool companies, when the index rose to 89.3, which is well below the figures of 1929 and 1930.

Excavating Machinery is represented by only one company, Bucyrus-Erie, on the Exchange. This company manufactures power shovels, drag lines, and dredges. With construction mainly confined to government projects, there has been little demand for excavating machinery. Until 1936, the index remained at a lower figure during the recovery period than for any other company in the Producers'-Goods group. From 102.7 in 1930, the index fell

[22] See Chapter XVIII, p. 339 ff. for details.

to 6.1 for 1933-34. A sharp revival in private building in 1936, explains the rise in dividends earned from the sale of excavating machinery to 70.2 in 1936.

The *Die Casting* industry is represented by one company, Doehler Die Casting. Stamping has competed successfully with other methods of metal fabrication, and stamping requires dies. This company has made an excellent record, and the distribution index of this company increased from 69.6 in 1923 to 113.7 in 1930, a rate of increase well in advance of the Producers'-Goods trend. It fell to 6.5 in 1934. From this point the gain was rapid. In 1936, the index stood at 216.1, one of the most rapid expansions in the list.

The group of 32 *Building Materials and Equipment* companies includes five subdivisions. The disbursements of this group in 1925, at the height of the building boom, and in 1936, are given in the table on page 190.

Building permits, which are supposed to correspond to the demand for building materials and equipment, fell from $4,393,000,000 in 1925 to $355,000,000 in 1933, 8 per cent of the 1925 total, and had increased only to $1,047,000,000 in 1936, less than one-fourth of their amount in 1925. The index of distribution to investors of these 32 companies, which supply a large part of the materials and equipment used under these building permits, measured from the 1928-30 base, declined only from 78.9 in 1925-1933, and rose to 44.0 in 1936. Listed companies in this group did better than might have been expected from the decline in building.

The trend of the *Building and Construction Equipment* industry closely followed the Producers' Goods trend until 1932. In the worst of the depression and during the recovery period, it fell well below the group trend. At the low point in 1934, after recovery had begun, the equipment index stood at 14.9 and it recovered only to 48.9 in 1936. The low for the Producers' Goods index was 33.1 in 1933. It rose to 80.3 in 1936. The composition of this building-equipment industry shows why it so closely follows the construction figures. The three largest companies are engaged in the production of sanitary ware and other plumbing supplies. These chiefly depend upon residental construction, which has been substantially lower in amount than general building construction. Fifty million dollars invested in 7,000

BUILDING MATERIAL AND EQUIPMENT GROUP

CASH DISTRIBUTIONS, 1925 AND 1936

(000 omitted)

	1925	1936
Building and Construction Equipment	$27,544	$17,392
Synthetic Building Materials	7,762	12,225
Paints	5,046	7,627
Cement	6,934	4,949
Cast-Iron Pipe	2,456	1,620
	$49,742	$43,813

INDEX NUMBERS OF CASH DISTRIBUTIONS

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Building and Construction Equipment	13	56.9	61 8	78.9	83 7	79 9	87.4	104 8	107 9	70 9	28.6	16.8	14.9	17.7	48.9
Synthetic Building Materials	9	39.8	60.7	74.3	73 1	99 7	115 0	86 7	97 4	68 7	36.1	32.5	54.5	67.2	117.0
Paints	3	74.2	75.1	76.9	88.1	86.8	81 6	100 0	118.3	75.0	70.4	59.2	77.0	89.5	116.2
Cement	4	45.6	67.2	75 1	70 9	108.1	99.7	111 9	88.4	70 6	36 2	24.5	27.7	34.9	53.6
Cast-Iron Pipe	3	54.3	78.8	86.3	102.0	123.6	105 4	94.9	99.6	88.7	75.8	41.7	51.2	42.3	56.9
Producers' Goods Index	---	*59.1*	*64.1*	*73 4*	*80.6*	*88 4*	*93 7*	*100 3*	*97.0*	*69.7*	*40.4*	*33.1*	*41.0*	*40.1*	*80.3*

dwellings represents a far greater demand for bathroom and kitchen fixtures than arises from the same amount invested in a few courthouses, Federal Reserve Bank buildings, or large factory structures. Even as late as 1936, total residential-building contracts were less in amount than non-residential. None of these plumbing-supply companies, in 1936, approached the high figures of 1929-30. The same connection between building permits and distributions can be shown for all the companies in this industry, with the exception of Minneapolis Honeywell Regulator Company, which made a remarkable showing, a fact explained, in part, by the large sales of its mechanisms to industrial plants. The remaining members of the industry are awaiting the rise of building construction to its former levels. It is still about one-third of the maximum and 40 per cent of the ten-year average, 1922-1931.

The *Synthetic Building Materials* industry, in late years, has moved against the trend of the division to which it belongs. This appears in the following comparison which gives the low and high points in the investment distribution index for each period for Producers' Goods, synthetic building materials, and building materials and equipment:

	First Period		*Second Period*	*Third Period*		
		Increase		*Decrease*		*Increase*
Producers' Goods		*Points*		*Points*		*Points*
(1923-29)	59.1–109.3	50.2	109.3–33.1	76.2	33.1– 80.3	47.2
Synthetic Building Materials						
(1923-30)	39.8– 97.4	57.6	97.4–32.5	64.9	32.5–117.0	84.5
Building and Construction Equipment (1923-30)	56.9–107.9	51.0	107.9–16.8	91.1	16.8– 48.9	32.1

The synthetic building-materials index, during the first period, increased slightly more than the general index of Producers' Goods. It fell behind the general building group during the depression, but during the recovery it rose 84.5 points as compared with 47.2 for the Producers' Goods, and 32.1 for the building-materials and equipment division. In vitality of demand, in ability to expand rapidly when business recovery gives even a slight stimulus to construction, synthetic building materials outranks all others in its general class.

The companies in this industry sell substitutes for natural

materials. In the field of substitution, they have made rapid strides. The better and cheaper materials, as always, displace the costly and less durable. In repair work, which always goes on, and which has been large during the recovery period, these synthetic compounds are preferred. Insulation is a relatively new development. Long used on steam pipes, it has spread to walls and roofs, and is standard equipment in the higher-price classes of new residences. In winter, insulation saves heat. In warm weather, it lowers inside temperature. We can see why the failure of building construction to approach pre-depression levels has not interfered with the attainment of pre-depression distribution levels by this group. The products are sold for use in existing buildings. Repairs, replacement, and betterment demand are playing into their hands.

The three large *Paint* companies have made an excellent record. They went ahead of the trend in the first, second, and third periods, and in 1936 they reached 116.2, compared with 80.3 for Producers' Goods. As a whole, these paint companies sell under well-advertised trade marks, and they cover the entire field of home and industrial paints, varnishes, lacquers, and enamels. The Glidden Company also has a profitable food division. Like synthetic building materials, paint does not depend exclusively upon new building. It is in large measure a repair material, and the demand for repairs is more stable than the demand for construction. Even the idleness of depression, which gives leisure for home repairs, adds to the demand for paint.

Cement is a generally used building material. Improvements in the direction of quick setting enables its use in all weathers. It has been crowding out lumber, brick, and steel from various construction uses. Because of its durability, it also enjoys a large use in repair work. Twenty-five per cent of the output (1938) goes into road building which has been rapidly expanding. In 1930 the total mileage of "high type" roads, which includes concrete highways, was 84,112. In 1936 this mileage had increased to 113,695. General building absorbed 30 per cent, a use which was adversely affected by the decline in building construction. Twenty per cent goes to dealers for all uses, and the remainder is scattered among various outlets. Only 8 per cent was credited to W. P. A. and P. W. A. While the total production of Portland

Cement in 1933 was only 63 million barrels, a fall from 161 million in 1930, it recovered to 113 million barrels in 1936.

The cement index, due to the reduced demand from building construction, while it was somewhat above the general trend line of Producers' Goods in the first period, fell below this trend line during the depression, and recovered less during the recovery. It stood at 53.6 in 1936 compared with 111.9 in 1929.

The principal use of *Cast Iron Pipe* is for water lines, small sewage lines, and medium-pressure gas and water lines. The principal customers, in volume of dollar demand, are municipalities. The principal source of funds is the proceeds of municipal bond sales. State and municipal bond issues for new construction have sharply declined in recent years. The index numbers of the cast-iron pipe companies, which responded to a combination of a rise in building construction and the expansion of municipal water lines during the twenties, increased from 54.3 in 1923 to 123.6 in 1927, during the depression fell to 41.7 in 1933, and recovered only to 56.9 in 1936.

The trend of this industry during depression and recovery is below the trend of cement. In fact, it shows the most unfavorable trend during the last two periods.

PRODUCERS' SERVICES

Producers' Services, the next primary class of business distribution, is the graveyard of the investors' hopes. In this group in recent years the investor has taken more losses than in any other. The combined interest and dividend payments of the Producers'-Service industries during the expansion period increased less than any of the five primary classes; during the depression it fell less than Consumers' Goods and Consumers' Capital Goods; during the recovery period, however, it did not recover, and in 1936 stood at the lowest point of its trend. The combined distribution index of this group rose from 75.5—it was already large—in 1923 to 103.7 in 1930; fell to 71.1 in 1933; and in 1936 stood at 68.3.

Throughout the preceding discussion, and in the chapters which follow, many allusions have been made to the railroads. It is not necessary to repeat and anticipate these references.

PRODUCERS' SERVICES GROUP

Cash Distributions, 1936

(000 omitted)

Railroads (except Coal and Iron Ore)	$519,421
Telephone	239,313
Railroads, Coal and Iron Ore	88,474
Tank Car, Construction and Operation	5,054
Telegraph	4 918
Marine Transportation	2,670
Building Construction	1,071
Shipbuilding	588

Index Numbers of Cash Distributions

(1928-30=100)

	Companies	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*
Railroads(exceptCoalandIronOre)	53	78.0	86 0	87.8	90.8	93 4	98.3	100.4	101.3	86.6	65.5	60 5	60.3	56.4	55.2
Telephone	2	54 1	60 7	69 5	74 9	79.4	90.7	96 7	112 6	124 2	121.8	120.1	121 4	118.6	118.5
Railroads, Coal and Iron Ore	5	97 2	77.2	79.7	100 4	95.3	95 8	100.0	104.2	98.6	87.2	86.5	84.7	93.7	114.5
Tank Car, Construction and Operation	2	61 3	64.1	63.1	69 7	75.4	86 2	95.7	118.1	130.7	83.1	73.0	69 0	73.3	84.0
Telegraph	2	109.5	84.8	86.4	91 4	98.3	96.2	99.7	104.1	94.3	53.6	48.4	60.9	31.9	29.4
Marine Transportation	4	82 9	75.5	72.6	75.2	62.0	70.7	82.7	146.6	75.9	51.8	48.7	45.0	41.6	41.2
Building Construction	6	44.3	32.3	75.3	69.9	96.4	90.8	98.9	110.2	71.5	24.4	22.7	13.4	11.0	10.1
Shipbuilding	2	84 4	105 8	56 6	134.6	96.6	97 8	117.3	85.0	61.7	48.0	44.4	43.3	27.9	32.4
Producers' Services Index	....	*75 5*	*80.8*	*84 0*	*88.5*	*91.1*	*96.6*	*99.7*	*103.7*	*93.4*	*75.4*	*71.1*	*71.1*	*67.9*	*68.3*

We are dividing the railway-transportation companies into two categories: *Coal and Iron Ore Railroads,* and *Railroads (except coal and iron ore).*

The distribution trend of the *Railroad* industry (except *coal and iron ore*) is disappointing. After a substantial increase from 78.0 in 1923 to 101.3 in 1930, the trend has been steadily downward: 86.6 in 1931, 60.5 in 1933, and 55.2 in 1936. Business recovery was powerless to reverse the trend. As will be shown in the discussion of correctives, it is theoretically possible to restore the financially embarrassed companies to solvency, and even to a measure of prosperity. As yet, however, the measures necessary to accomplish this desirable result have not emerged from the field of academic discussion. There is no question that the railroad performs a necessary public service, nor is there any reason to anticipate their physical abandonment.

In the *Telephone* industry, American Telephone and Telegraph dominates the field. (The only other company is partially controlled by this company.) It performs an indispensable public service at decreasing rates and increasing unit costs. Unlike other mass-production industries (for example steel, electricity, automobiles), increasing volume, except in the field of long-distance transmission, does not result in correspondingly increased profits. Large increases in telephone installations mean increased investment and expense. During the pre-depression period, the trend of distributed profits was rapidly upward, rising from 54.1 in 1923 to 112.6 in 1930, with a further advance to 124.2 in 1931. This was due to a large increase in capital stock, in turn due not only to stock sales but to conversion of bonds into stock. From that date, the index slowly declined, standing at 118.5 in 1936.

During the depression, this company paid part of its dividends from past accumulations. In 1936, a small surplus over dividends of $16.1 millions was reported. The number of telephones in the Bell System was 18,365,000 in 1927, and 18,362,000 in 1936. This company enjoys a partial monopoly. Its rates are regulated. Its gross revenues vary with the national income. Its taxes have increased in recent years. Its operating costs are comparatively inflexible.

The Coal and Iron Ore Railroads have made excellent records,

showing the strong position of this group whose members still enjoy the favored position upon which the profits of the entire railroad industry was once founded. The coal and iron ore railroad category, which includes the companies deriving in 1936 at least 50 per cent of gross revenue from the transportation of these products, conformed closely during the expansion period to the general railroad trend. Bulky raw materials, unless originating on water, are generally shipped by rail. Competitive agencies, although they have taken over a substantial share of the anthracite tonnage, have not seriously invaded the bituminous-coal field. In spite of the national decline in bituminous production, which has affected all rail carriers, the companies which specialize in this traffic have shown profits, substantial and sustained. These carriers also have been able to make a good record of *dividends,* while disbursements of the general railroad category have been mainly composed of *interest,* often paid at the expense of maintenance.

The index of this category shows an advance during the first period from 97.2 to 104.2, a decline during the depression only to 84.7 in 1934, and an advance to 114.5 in 1936. Much of this dividend-paying tonnage comes from West Virginia. It consists of coal whose superior quality gives it a differential advantage in a highly competitive market. These carriers make the best showing in the class of Producers' Services during the recovery period.

The *Tank Car Construction and Operation* industry, consisting of General American Transportation and Union Tank Car, has made a record of distribution which, in the class of Producers' Services, is second only to the coal and iron ore railroad industry. The distribution index rose from 61.3 in 1923 to 130.7 in 1931. It declined only to 69.0 in 1934 and rose to 84.0 in 1936. These companies perform an indispensable service with highly specialized equipment which they manufacture and lease to users. These companies operate large fleets of cars for the transportation, among other commodities, of petroleum products, alcohol, alkalis, acids, milk, and liquified gases. The fleets also include refrigerator cars, stock cars, and other types.

After a long period of stationary profits (from 1923 to 1930), the *Telegraph* industry, represented by two companies, Western

Union and Postal, entered a period of financial decline. The distribution index stood at 109.5 in 1923, 104.1 in 1930, 53.6 in 1932, 60.9 in 1934, and 29.4 in 1936. During 1935-1936, the severity of the decline in the index numbers was increased by the bankruptcy of Postal Telegraph. The long-distance telephone is reducing the demand for telegraph service, and as shown in detail in a later chapter, the rise in the wages of unskilled labor in recent years has substantially increased operating expenses.[23]

The *Marine Transportation* industry includes one company engaged in the trans-Atlantic service and three in coastal and intercoastal traffic.[24] During the first period, the trend of distributions is distorted by a special surplus distribution of 80 per cent in 1930 by American-Hawaiian Steamship. Up to 1929, International Mercantile Marine's distributions (interest) had been stable, standing at $2,619,000 in 1923 and $2,910,000 in 1929. The sale, during the depression, of foreign subsidiaries, whose proceeds were applied to debt payment, was in line with its policy of confining its operations to American ships. The remaining companies in this industry enjoy freedom from the competition of foreign ships, which are excluded by law from American coastwise traffic. The coastal traffic has been well maintained during the depression, gaining at the expense of the railroads. Foreign commerce has sharply declined. In spite of this quasi-monopoly in the coastwise trade, this industry has made a poor showing. The distribution index, during the first period, varied from 82.9 in 1923 to 62 in 1927, and 82.7 in 1929. During the depression it fell to 48.7 in 1933 and continued its decline to 41.2 in 1936. The explanation is found in labor troubles and higher labor costs, as well as rate wars with the railroads and among themselves.

The distribution of the *Building Construction* industry closely corresponds to the trend of building construction. These companies were prosperous during the twenties. The distribution in-

[23] See pp. 308, 309.

[24] Inter-coastal traffic is identified with traffic carried by water in interstate commerce which the Shipping Act defines as carried by common carriers—engaged in the transportation by water of passengers or property on the high seas or the Great Lakes on regular routes from port to port between one state, territory, district, or possession of the United States and any other state, territory, district, or possession of the United States, or between places in the same territory, district, or possession.

dex advanced from 44.3 in 1923 to 110.2 in 1930. During the depression, the index fell to 22.7 in 1933. It failed to respond during the recovery period to the modest increase in building activity. In 1936, the distribution index stood at 10.1. Competition is severe in this industry, and the margin of profit has sharply dropped. Government work, both performed for government agencies and supervised by government agencies, is so unprofitable that some of the large construction companies have withdrawn from this field. A substantial revival in private construction will be required to restore the earnings of this group of formerly prosperous companies.

The *Shipbuilding* industry since 1929, when the index stood at 117.3 as compared with 84.8 in 1923, has gone rapidly downward, the index standing at 32.4 in 1936. Its decline reflects the low condition of the ocean carrying industry, the general overbuilding of ships by all countries during and after the war, which has not been absorbed by retirement of obsolete units, and the high costs prevailing in American shipyards. Only government orders have kept the industry alive. At the date of this writing, these orders have been largely increased both for war vessels and commercial ships. Government orders, in the absence of private business, have been executed at low margins of profit. It is alleged that the contracts recently placed for the construction of war vessels have been more liberal.

CHAPTER VIII

DECLINING AND EXPANDING INDUSTRIES

AS THE BASIS for the discussion of investment policy, and to bring together into a serviceable, unified arrangement the trends of demand which have been shown by the series of index numbers in the preceding two chapters, we have now to classify the one hundred and eleven industries which furnish the materials of our study into a pattern of decline and expansion. Referring to the title of this book, the declining industries represent the "ebb," and the expanding industries the "flow," of American private investment.

In making this separation between declining and expanding industries, we must recognize the trends of investment distribution for each of three periods, and in each industry, we must keep in mind the significance of the trend of distribution for each period. This trend, expressed in index numbers, is both absolute (an advance or decline) and relative, compared with the primary-class trends. Both of these standards of deviation must be kept in mind.

The significance of the trends of each period in the final placement of an industry in the declining or expanding group must not be overlooked. These distributions of profits to investors come out of the national income. If the national income is rising, profits in those industries that are operating in accordance with the trend of demand are easier to make than when the national income is falling. The index of national income expressed in terms of the 1928-30 base shows, (1) an advance from 88.3 in 1923, to 105.7 in 1929, (2) a decline to 49.8 in 1933, and (3) an advance to 78.6 in 1936. The national income, during the first period, advanced 17.4 points. It declined 55.9 points during the depression, and it advanced 28.8 points from that low level during the recovery. In 1936 the national income was 27.1 points lower than in 1929. In 1923 the index number was 27.7 points

above the figure of 1934, from which the recovery started. The average national income during the seven years of expansion was $76.5 billion, and during the seven years of depression and recovery was $52.9 billion. An upward trend of profits during the depression and recovery periods, combining decline and advance, is of more significance than an upward trend of profits during the period 1923-1930.[1] The fund or flow of national income out of which these profits were taken was smaller during the second seven years than during the first. For the same reason, the influence of a downward or stationary trend of distributions during the first period, when profits were relatively easy to make, unless the trend is sharply reversed during later years, presumably indicates that the industries whose dividends were declining from 1923 to 1930 are declining industries. Cane sugar, anthracite and bituminous coal, railway equipment, iron and iron ore, fertilizers, leather, marine transportation, and telegraph are illustrations of this stationary or declining trend during the first period.

During the depression period, and considering the trend of individual industry distributions in relation to the primary-class trend (for example, cigarettes in relation to Consumers' Goods), those industries which show small declines are entitled to favorable consideration. They were able to resist the influence of the depression. During a period when the national income was going down over 50 per cent, these industries yielded little ground. They are entitled to a preferred position. They have a *prima facie* claim to rank as expanding industries. The list of "depression proof" industries, a term formerly much used in stock-market circles, is imposing. Cigarettes, chewing gum, snuff, non-alcoholic beverages, corn-products refining, paper specialties, paints, glass, cork and metallic containers and enclosures, tobacco, electric power and light, are industries which show relative stability of investment distributions.

The trends of distribution during the recovery period furnish the most significant indications of the position which an industry should occupy in the final classification. Here, the extent of the advance from 1933 to 1936 is not controlling in the classification,

[1] The profits earned in 1929 were reflected in the distributions of 1930. See previous discussion of the lag in distribution as compared with the movement of profits, page 137.

but rather the net result of decline and advance. The cigarette industry, for example, showed a small decline during the depression and a small advance during recovery. It should have a combined credit which places it among the expanding industries. Other industries in the same situation, which can offset their resistance to depression influences, against their moderate advances during recovery, are chewing gum, snuff, corn-products refining, packaged foods, electricity, paints, vegetable oils, telephone, and coal and iron ore railroads.

Of significance in the classification of an industry as declining or expanding is the extent of its recovery after the ordeal of the depression compared with the recovery of the primary class to which it belongs. If the distribution index of any industry continued to decline during recovery, or remained stationary, or showed an advance substantially less than the primary-class index, the presumption is in favor of a classification in "declining" for that industry. If the distribution index shows an advance substantially greater than the advance in the primary-class index, and especially if the 1936 figure is higher than the 1930 figure, the industry can be ranked as expanding. Non-alcoholic beverages, rayon, beet sugar, Porto Rico raw sugar, consumers' paper specialties, ball and roller bearings, synthetic building materials, steel-making machinery, electrical manufacturing, light steel, alloys and raw materials, glass, metallic and cork containers and enclosures, chemicals, drug chains, mail order, decentralized department stores, variety chains, and instalment finance, among others, have shown substantially greater recoveries than the primary classes to which they severally belong.

We come now to the declining industries. Here we have first those industries that declined during the expansion period, that declined along with all industries during the depression, and that continued to decline, or, compared with the primary-class trends, showed a small advance, during the recovery period. To these must be added those industries whose distribution trends moved in general conformity with their respective primary-class trends during the first and second periods, but which, during the recovery period, failed to increase as much as the primary-class trend.

On the basis of these general rules, we have grouped the 111

industries of our study into financially declining and expanding industries. This classification is not in any sense a *rating* of industries in terms of investment distribution, as shown by comparative resistance to depression or response to recovery. Such a classification would involve a weighting of the results of three periods in their several contributions to the final result. It would also involve a detailed study of the influences that have affected the movement of profits in the different industries and a separation of those influences as between demand and management. Such a study is manifestly impossible to complete before the changing business scene would destroy its value. The reader who has followed the brief descriptions of the individual industries can form his own conclusions as to the rank and rating of particular industries. Our classification, based on comparative trends of distribution to investors, is, therefore, without any series of priorities. It is based on our judgment of the results achieved by each group in each period.

To bring out more clearly the distinction between expanding and declining industries, the trends of distribution in 111 industries are graphically represented on the accompanying charts, 50 declining and 61 expanding. Even a hasty examination of these two pictures will show fundamental distinctions between the two divisions. In the declining-industry chart, we observe that the trends during the first period are uncertain. Most of the lines advance, but many decline. Others rise and fall within wide limits. While the general direction is upward, the general impression is that of a halting and uncertain advance. The national income was rising. As it rose, the pull of demand throughout the business structure was strongly upward. In many cases, however, the change of buyers' preference was too strong for this general stimulus, and the trends are downward. The atmosphere at the moment was doubtful. Great changes were impending.

Then came the depression with its sharp downward trend of profits, sweeping and comprehensive. For the declining industries it was a debacle. Without much distinction between primary classes, all of the lines go down together. The chart presents a massive picture of collapse.

In the recovery period, for the declining division, there is no general recovery. Only 12 industries in 1936 had a rise above 60

on the scale of the index numbers. Nearly half—24—of the group remained below fifty. Some industries continued their depression decline during recovery. Those groups which had been least affected by declining demand, and which responded to the general improvement of business after 1933, showed partial and irregular recovery.[2]

Another observation relating to the declining industries must be made. A few industries classed as declining are put in this class because of the long-term trend of their distributions, thus ignoring their good performance during the recovery period which ends in 1936. Anthracite and cotton, wool, and silk textiles, are the cases in point. They began their decline in the first period. For textiles this decline, as already shown, was extreme. These industries, in 1935 and 1936, showed rapid increases of dividends which represented a distribution of the profits from the concentration of several years buying into a limited period, a so-called inventory profit. Following the increase in dividends, the demand declined.

The peculiar record of anthracite, with large interest payments unearned, but paid out of current assets, has been referred to in former pages, and need not be further examined here.

Building materials and equipment, building construction, and cement are declining industries, and so appear upon the chart. Their demands, as already explained, are derivative, related to the building industry, so called, and to the expansion of capacity

[2] In the declining-industry division certain specific comments must be made, modifying the conclusions which might otherwise be drawn from an examination of the index numbers illustrated by the charts. Our standard of classification, to repeat previous explanations, is a *financial standard*. It is based upon investment distribution. It takes no account of *physical* sales. We assume that, in general, declining dividends indicate declining demand, and, in most cases, this assumption is in accordance with the facts. There are, however, cases where *financial* decline is accompanied by *physical* expansion. Demand in these cases is increasing, but profits, to whose movement distributions correspond, are decreasing. Such deviations from the rule can usually be explained by difficulties encountered in the control of supply. They occur in oil refining, newsprint, rubber, solvents, full-fashioned hosiery, and truck, bus, and cab manufacture. These industries, using the investment-distribution standard, we classify as declining. On the face of the record, they are declining. Their distributions to investors show a downward trend. And yet, in terms of physical production and sales, these industries are expanding. If they can overcome the obstacles which have held down their prices and profits, a problem in the control of supply, they will pass over to the expanding group. Even to-day, with poor records of distribution trends to hamper them, securities of well-managed companies in these *physically* expanding industries sell at high prices.

in the electric-power and telephone industries. When these two last mentioned industries renew their plant expansion programs, the depressed industries mentioned at the beginning of this paragraph will revive.

Snuff, on the basis of its dividend record, is one of the most stable of all industries on our list. The demand is slowly declining. Though stationary, on the basis of the distribution index, snuff is placed in the declining division. As will be shown in a later chapter, stationary demand usually precedes declining demand.

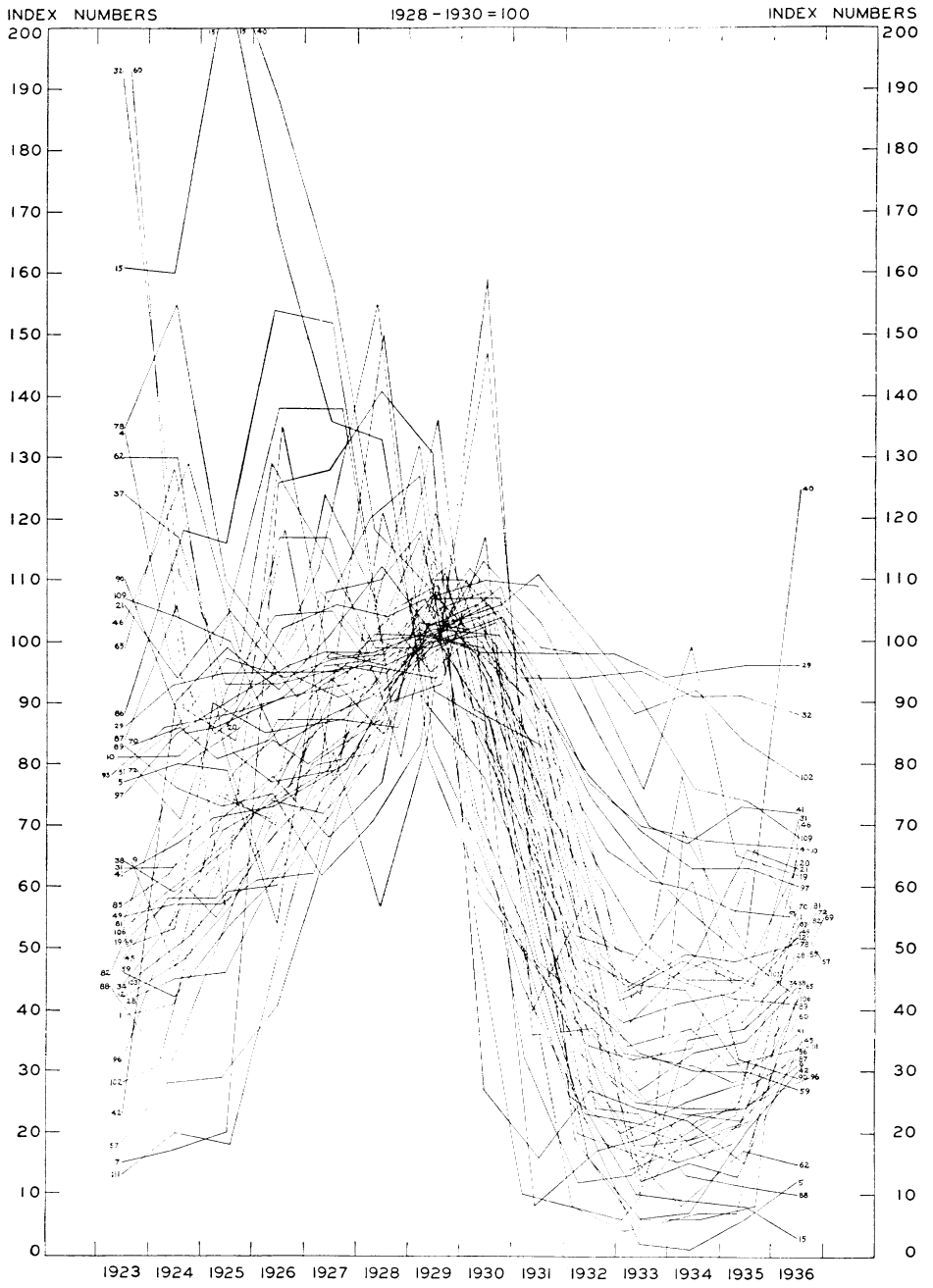
The chart of expanding industries presents a sharp contrast with the depressing showing of the declining industries. Here is a picture of expanding demand. During the first period, the trend was upward. In the depression, while all industries showed some decline, in many cases the declines were less than the primary-class trends. The massive down-sweep of the declining industries is not duplicated by the expanding industries. As a class, these show greater resistance to depression. In some cases the decline was very small.

Finally, in recovery, these expanding industries made a rapid recovery which in 18 cases carried their distribution indices far above the maxima reached in the first period. It will be observed, also, that while in the declining industries only six out of 50 stood in 1936 above 70, all of the expanding industries were above that figure, and 48 of them stood above 90. The trend chart of the expanding industries presents a picture of vitality and growth. These companies, technically no better managed than their unfortunate rivals in the declining division, because they were operating in accordance with the prevailing trends of demand, made a noteworthy showing of recovery.

The prevailing mood of pessimism as to the future of the so-called capitalistic system—the system of free enterprise with the minimum of public interference—finds little support in a deliberate examination of these two charts. Many groups of companies have indeed declined. It is difficult to believe that most of them will recover their former prosperity. They are the victims of demand obsolescence. The buyer of commodities and services is deserting them.

There is nothing new in this. Industrial progress, from its

DECLINING INDUSTRIES



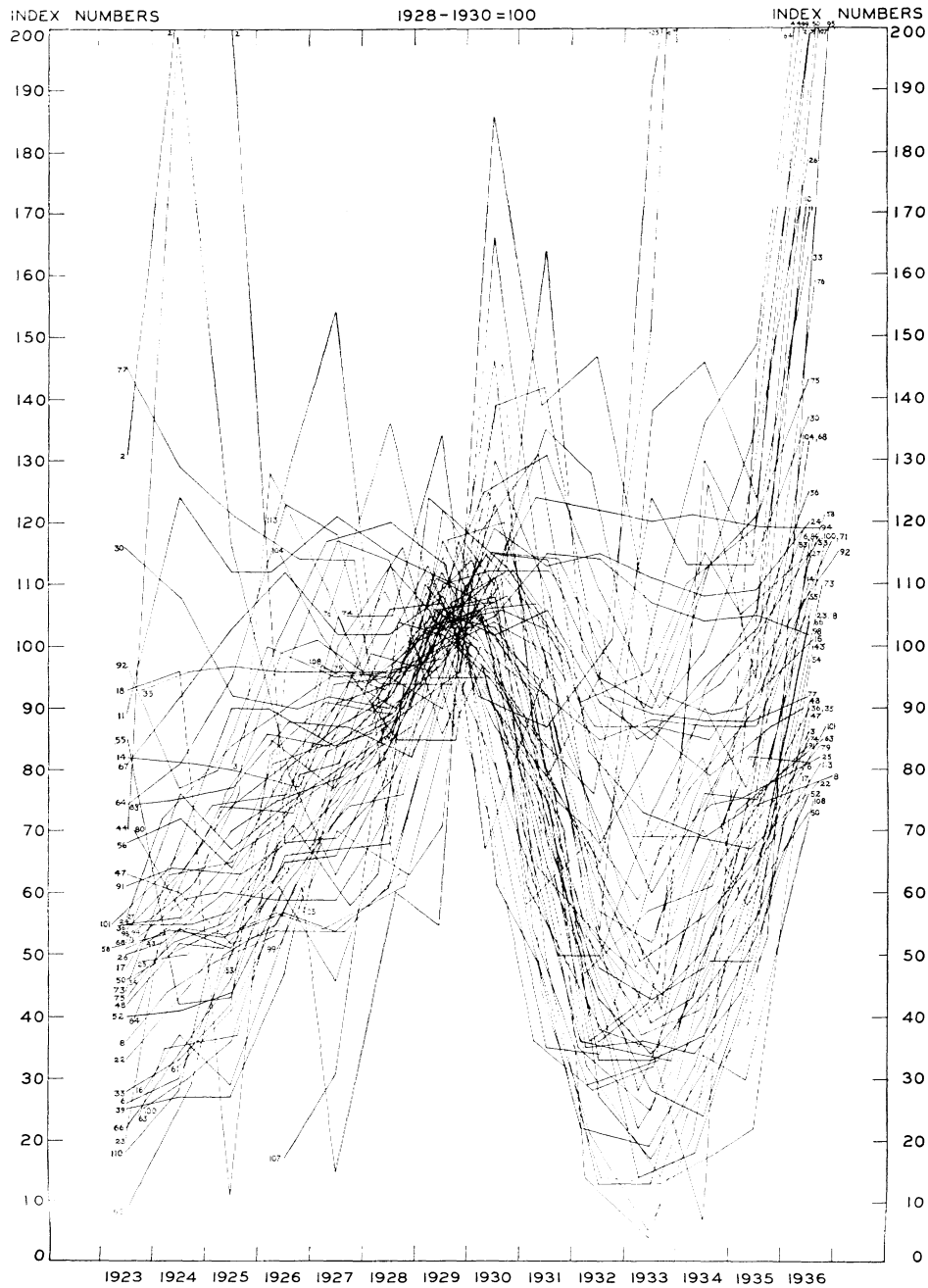
LEGEND

Declining Industries in *Italics*, Expanding Industries in Roman.

1. *Personal Accessories*
2. Hard-Surface Floor Coverings
3. Consumers Goods and Services Machinery
4. *Soft-Pile Fabrics*
5. *Sporting Goods*
6. Automobile Manufacturing
7. *Furs*
8. Domestic Powered Accessories
9. *Bedroom and Kitchen Equipment*
10. *Cane Sugar Refining*
11. Beet Sugar
12. *Dairy Products* (excluding Borden and National)
13. Porto Rico Sugar
14. *Cuba Raw Sugar*
15. Confectionery
16. Fruit and Vegetable Canning
17. Fresh Fruit
18. *Crackers and Biscuits*
19. *Bakery and Flour*
20. *Meat and Fish Packing*
21. Packaged Foods
22. Refining of Corn Products
23. Cigarettes and Accessories
24. Drugs and Proprietary Compounds
25. Non-Alcoholic Beverages
26. Chewing Gum
27. *Cigars*
28. *Snuff*
29. Tobacco
30. *Oil Refining*
31. *Anthracite Coal*
32. Consumers' Paper Specialties
33. *Publishing and Distributing*
34. Photographic Supplies and Equipment
35. Soaps and Cleaning Compounds
36. *Men's Furnishings*
37. *Fall Fashioned Hosiery*
38. Rayon
39. *Cotton, Woolen, and Silk Textiles*
40. *Shoe Manufacturing*
41. *Underwear* (Men's)
42. Refractories
43. Die Casting
44. *Printing Materials and Equipment*
45. *Excavating Equipment*
46. Machine Tools
47. Mining Material Equipment
48. *Petroleum and Natural Gas Equipment*
49. Steel Mill Equipment and Steel Products
50. *Railway Equipment*
51. Business Machines
52. Farm Machinery
53. Electrical Equipment
54. Multi-Industrial Machinery and Products
55. Chemicals (not otherwise stated)
56. *Chemicals, Solvents*
57. *Chemicals, Solvents*

(Over)

EXPANDING INDUSTRIES



LEGEND (*Continued*)

58. Chemicals, Carbon Black
59. *Xerasprint*
60. *Fertilizers*
61. Vegetable Oils
62. *Leather*
63. Book and White Paper
64. Glass
65. *Iron Ore, Pig, and Wrought Iron*
66. Alloys and Raw Materials
67. Precious Metals
68. Light Steel
69. *Non-Ferrous Metals*
70. *Heavy Steel*
71. Ball and Roller Bearings
72. *Rubber and Rubber Tires*
73. Automobile Accessories (not otherwise stated)
74. Internal Combustion Engines
75. Cork and Metallic Containers and Enclosures
76. Paper Board and Containers
77. Silk
78. *Bituminous Coal*
79. Sulphur
80. Crude Oil
81. *Cast-Iron Pipe*
82. *Cement*
83. Paints
84. Structural Building Materials
85. *Building and Construction Equipment*
86. *Truck, Bus, and Cab Manufacturing*
87. *Shipbuilding*
88. *Building Construction*
89. *Marine Transportation*
90. *Telegraph*
91. Tank Cars Construction and Operation
92. Railroads (Coal and Iron Ore)
93. *Electricity, Gas, and Street Railroads*
94. Telephone
95. Mail Order
96. *Bus and Cab Transportation*
97. *Electric Passenger Transportation (Metropolitan)*
98. Electric Power and Light
99. Decentralized, Non-Metropolitan Department Stores
100. Variety Chains
101. Metropolitan Department Stores
102. *Food Chains*
103. *Coal and Ice Distribution*
104. Shoe Chains
105. Drug Chains
106. *Restaurant Chains*
107. Automobile Accessories (Chains)
108. Furniture Chains
109. *Manufactured Gas*
110. Instalment Finance Companies
111. *Mutual Savings Banks*
113. Personal Services

Note. For technical reasons, numbers 13 and 112 are omitted from the chart.

earliest beginnings, has been a record of substitution, supersession, obsolescence. Stone succeeded wood; copper succeeded stone; bronze, iron, steel followed in order, each a better material for tools and weapons. Why should this age be immune from the inexorable laws of industrial decay?

On the other hand, while the changes in demand have destroyed many industries, they have created many others to replace them. A deliberate examination of these charts will, we believe, lead to a lightening of the prevailing mood of pessimism as to the future of private enterprise. In the record of 61 industries, private enterprise has maintained its long record of growth. Under unprecedented difficulties of regulation, it has achieved high levels of recovery. In his biography of Calvin Coolidge, William Allen White speaks of the Puritan Gods—Thrift, Honesty, and Industry—whom Coolidge had worshiped, as dying and rejected. The recent records of the great American corporations which operate in the expanding industries, whose managements follow the prevailing trends of demand, show that Mr. White was mistaken. The Gods of the Puritans are not dying. In the fields of expanding demand, they continue to shower their blessings upon the faithful.

PART II

THE PURCHASE OF SECURITIES

CHAPTER IX

SELECTING THE INDUSTRY

TO THE INVESTOR, purchase of securities is more important than sale. When he sells, he makes a profit, recovers his capital, or limits his loss. When he buys, he hands over a sum of money which, as long as he leaves it on deposit, will remain intact. When he invests, he receives bonds or shares of stock of corporations about whose operations or prospects he may know little. His money, when it leaves the safe harbor of the bank, is at risk. When he sells, his ship, perhaps battered, comes back to him. In purchasing securities, primary consideration must be given to the industry.

Industries, the demand for whose products or services is declining, must be excluded from investment consideration. These industries, no matter what the inducements of yield and apparent security, the investor, as distinguished from the trader, should avoid. This is indeed a hard saying, but unless our previous reasoning is at fault, it is a true statement. If declining industries will continue to decline, if buyers are deserting the industry, if management is struggling with the insoluble problem of stationary fixed charges and declining sales, only the trader who looks primarily for a quick profit can, with his eyes open, risk his funds, in the hope that he may sell at a profit to some more ignorant investor.

The informed investor, on the basis of the trends in the period covered by this study, cannot *safely* buy for permanent holding any securities of any corporation in any declining industry. If he buys into any of the doubtful classes, he should realize that he is taking a risk of loss. His choice is limited to the expanding industries.

Unless and until these declining-industry corporations have applied the necessary correctives (and had they done so, many of them would not be in the declining group), the investor, if he

desires security, should avoid them. Each one of these industries is in the grip of a deadly disease—declining demand—and it will be difficult to save any of them. The investor desires safety above everything. When safety is reasonably assured, then, and not until then, he looks for a higher return than savings-bank interest. Once the fact of a downward trend of demand for the products of an industry is established, once it is understood that the influences which produce that trend are permanent, fundamental, grounded in consumers' buying motives and in producers' choice of the cheap and efficient, then the investor should avoid that industry. We recognize the fact that the declining industries contain many companies which are still solvent, some of which not only pay interest on bonds but substantial dividends on stocks. Pennsylvania, Union Pacific, and Reading are still dividend payers among the *general railroad industry*. It may be some time before their present dividend rates are endangered. Their bonds are still considered safe, as are the bonds, if we may judge from current yields, of many non-dividend paying railroads. But the trend of demand in the general railroad industry is downward.

This conclusion, as stated at the outset, subordinates arithmetical tests and margins of safety. It outlaws underlying bonds with interest two and three times earned. *Securities of corporations operating in declining industries rarely come back once they have finally gone away.*

The evidence and conclusions of preceding chapters must be drawn upon to limit further the field of selection. Expanding industries fall into two classes: (1) Those that have passed the pioneer stage, that pay dividends out of large and increasing profits; and (2) those that are still in the pioneer stage, whose profits are irregular and whose dividends are uncertain. The life history of every industry shows these two stages. In the early days, machinery and methods are experimental. The demand is there and is rapidly increasing. Opportunities for large profit are numerous. Great sums of venture capital, usually scattered in many small companies, enter the field. Many of these companies, because of mistakes in planning, capitalization, or management, fail. Business mortality in new fields is high. Many other companies are absorbed by their rivals, or into new companies, organized to consolidate them. The industrial-combination move-

ment from 1898 to 1902 absorbed many weak and unsuccessful corporations into the corporate bodies of large, well-financed, and, on the whole, well-managed companies. It was a housecleaning of American industry.

During the pioneer stage, many corporations make large profits. Many are closely held. Their profits are irregular. Because of the necessities of expansion, profits are reinvested. Public participation in large security issues, the admission of large numbers of investors to share in these profits, is unusual. The history of Carnegie Steel, Standard Oil, American Tobacco, National Cash Register, Borden, Swift, and Armour follows this pattern of development. Large profits were made in the development stage, but these profits, when distributed, were received by a small number of owners. Common stock was the rule. Large bank loans were made. Both Rockefeller and Carnegie were early bank borrowers. But senior securities, bonds, and preferred stock, outside the field of public utilities, were unusual. When bonds were issued, large blocks of stock went along with them. Construction companies, especially in the railway and utility fields, absorbed a large part of the profits by various methods of manipulation. This did not present an attractive picture to the investor. He was disposed to wait until securities were "seasoned."

It is true that the "speculative" investor has always figured largely in the early stages of public corporations—railroads, municipal utilities, and a few classes of industrials, particularly mining companies. But the prudent investor is not interested. He waits until the situation is stabilized, until a record of earnings has been established, until equities have been created which will support senior securities, preferably bonds. These will give him, a cautious man, a prior claim to these earnings, secured to him by a first mortgage upon the company's property. He will buy only "seasoned" securities, and, if safety is the first consideration, the investor is right. Not until the post-war period did the convertible debenture bond and the bond with warrants induce him, *on a large scale,* to sacrifice, if only by a little, secured priority to the lure of anticipated profit.

But at what time in the history of the individual corporation and industry should the investor act? At what point, for example, in the long history of the steam-railroad industry could it be

said to have reached investment maturity? The railroad industry was not sound in the forties after the first major test of survival during a sharp panic and depression. Railroad bonds were still difficult to sell in the fifties and early sixties. The railroad industry at that time had already a history of a generation of experience. Its record in the panics of 1837 and 1857, and the short depressions which followed, did not inspire investor confidence. Yet the industry was rapidly expanding. Railroad bonds were more easily sold in the ten-year period ending with the panic of 1873, although the shock to investors' confidence, arising from extensive defaults and receiverships in the depression following the panic of 1873, seriously disturbed the continued investment interest in the expanding railroad business. The railroad industry probably reached investment status in the eighties. Despite the sharp rate wars and the receiverships of a number of the companies, the industry as a whole marched forward rapidly. The decade was witnessed by an unprecedented increase in railroad construction, financed largely by bond issues.

Little thought has been given to the determination of the point at which an expanding industry has assumed a sufficient stability in sales, earning power, and financial strength to warrant the investor's confidence. The pioneer stage of an industry is speculative. Its rapid growth in sales and revenue is usually attended with heavy speculative losses. In this pioneer stage, investments cannot be safely made. This dogmatic statement is one of the few in investment analysis which can be safely made. A survey of the early history of some of the present prosperous and expanding industries will throw light on this problem. The electric light and power industry has manifested the most characteristic symptom of expansion. Its year to year growth in gross and net earnings in the period from 1920 to 1930 was steady and not interrupted by a single decline. Its bonds assumed a preëminent position in the field of private investment as legal for investment by savings banks and other fiscal institutions. No important default among power bonds was made in this period. This is an excellent record. In its exhibition of sustained financial strength, it betters the records made by the steam-railroad industry at its best. Yet in its pioneer stage, in the early years of the twentieth century, the original investors in electric properties are reported to have

lost all, or the greater part, of their commitments in such early American power developments as those at Holyoke, Massachusetts; Lewistown, Maine; and Cohoes, New York, and in the corporate predecessors of Utah Power and Light and Idaho Power.

The story of the American radio industry from its beginning in 1921, affords an instructive case history of rapid expansion in sales combined with financial losses to stockholders. Radio Corporation of America, organized under the sponsorship of Westinghouse Electric and General Electric in 1921, is the leader in an industry whose product and service have a universal appeal. The company's patent position is strong. It controls a prosperous broadcasting company. Gross sales of the company from the outset increased at a rapid pace. Measured by physical sales, the industry is expanding. Not until 1937 did the company pay a dividend on its common stock. Here is an industry of national importance, serving for more than 16 years an expanding market, interrupted only by the depression of 1930-1932. Here is a company, the leader in this industry, freed from debt and fixed charges, sponsored by the leaders in the profitable electrical-equipment industry. Yet Radio Corporation of America has produced little for its stockholders. Many of its competitors went into bankruptcy. Their property was liquidated. A few of the publicly owned companies, such as Crosley Radio and Zenith Radio, managed to pay dividends for a few years, especially in the post-depression period of the middle thirties. This vigorous expanding industry has not yet entered the charmed circle of investment maturity.

Automobile manufacturing is another expanding industry which, in the last twenty years, has changed the face of American society. The three large corporations which now control more than 90 per cent of the output have made large profits. Of these companies, Chrysler was not incorporated until 1925. It was an outgrowth of the unsuccessful Maxwell Motor Car—a company burdened with a bond issue carrying a high interest rate which it was unable to pay. Control of the company was secured by Walter P. Chrysler who built up a prosperous enterprise upon this foundation. The second company, Ford Motor, held at that time a dominant lead in the industry. Its stock, however, was privately held, and was not available for purchase by outside

investors. The third company, General Motors, was then an important factor, but it did not have the commanding position it acquired a few years later. The return upon the common-stock investment in these companies, measured by the dividend return on the market price to the investor from 1921 to 1929, was reasonable.

The profits realized by these three companies were not representative of the industry as a whole. Indeed, in any year prior to 1926, from the standpoint of the dividend record, earnings, and financial strength, Hudson Motor, Packard, Studebaker, White Motor, Nash Motor, and Mack Truck enjoyed a preferential position. Had the canons of sound investment analysis, based upon past records, dividends paid, yields, and current asset and current working-capital ratios been followed, an investment from 1921 to 1926 would have been made in General Motors (the Ford Motor stock not being available for investment), and in the stocks of the other companies noted above. No investment would have been made in Chrysler. Yet of this group of publicly owned companies, General Motors and Chrysler were the only two financial successes. The other companies either went into bankruptcy, or operated on low profit levels.

At what time in the history of the motor-car industry, then, did it pass from the pioneer stage of expansion to a stage of steady business growth, to a stage which justified the inclusion of the common and preferred stocks of these companies in the categories of investment? As represented by its leading and well-financed companies, the industry had no bonds outstanding. (Chrysler inherited the debts of Dodge, which were rapidly paid off.) The debts were created by the weaker companies, some of which eventually collapsed. Investment selection in sound motors was limited to stocks. Guided by the accepted standard for valuing industrial stocks, the investor could not have purchased the stock of Chrysler in the early days of its prosperity. The company paid its initial dividend in 1926. Five years thereafter the investor, under the theoretical standard of earnings prescribed by New York law for investment in railroad bonds, might have purchased the stock. Hudson Motor by the summer of 1928 had a six-year dividend record. The stock could then have been purchased for investment purposes. The investor, however, would have paid

a high price. He would have witnessed a rapid decline in earnings, the disappearance of dividends, and the creation, for the first time, of a mortgage-secured debt. His loss would have been heavy.

In 1928 the investor could have bought the common stock of Studebaker. A few years later he would have seen this company in bankruptcy. He could have bought the stock of Packard only to have missed his dividends from December, 1930 to February, 1936. He could have bought the common stock of White Motor, only to see his dividends disappear in 1932. He could have purchased the stock of Mack Trucks. Here he would have fared somewhat better. The company paid a small dividend of a $1.00 a share in the depression years, as well as in the years of subsequent recovery from 1931 to 1936. Most of these dividends, however, were not earned; they were paid from past earnings. The financial position of the company, however, was not weakened.

With the exception of the stock of General Motors, the securities of the other publicly owned motor companies, which were well regarded in 1926, have been disappointments. Other companies once prosperous are now in liquidation. The second most prosperous of the publicly owned companies in which investors could have purchased an interest, was just beginning to build up a successful business on the ruins of a dead enterprise. In 1926, the success of Chrysler could not have been anticipated.

Except for investment in General Motors, the commitments made by the investor in the automobile-manufacturing industry in the period prior to 1926, on the basis of accepted investment standards, would not have been profitable.

The question confronting the investor in the automobile industry still remains unanswered. At what period in the pioneering stage of the industry did the common stocks become suitable for investment holdings? The five-year dividend standard set up by the state of New York for bond qualification does not serve. More losses than gains would have resulted by the application of this test. Perhaps the test of the ability to weather a serious depression might be applied. During the depression which followed the inflation of 1919 and 1920, Packard, Nash, Hudson, White, and a number of others paid dividends. In the next depression, however, most of these companies passed their dividends. The

predecessor of Chrysler did poorly. Aside from Nash and General Motors, purchase of the stocks of the motor car companies which weathered the depression of 1921 to 1922 would not have given the investor a reasonable return.

The investor, therefore, must be a student, not only of industrial trends but of the wisdom of management of a particular corporation. The soundness of the industry is not a criterion of the soundness of any management within the industry, even though at times the management may control a commanding share of the sales. To extract from the experiences of the motor companies of the twenties and thirties the managerial reasons for the relative success of General Motors, Ford, and Chrysler would be instructive. In terms of managerial judgment, the reasons for the collapse of Studebaker and Hudson Motor Car particularly, whose standing in the motor car business was high until the early thirties, would be revealing. The sweeping increase in the share of the total motor-car business captured by General Motors and Chrysler from 1926 to 1929 was a business sensation of the day. It was probably due to the unwillingness of Henry Ford to meet a changing public taste. Ford temporarily retired from the market, and General Motors and Chrysler went up into the promised land and possessed it. On the basis of any rules of investment analysis and forecasting, this stroke of luck could not have been anticipated.

Computations of ratios—current assets, operating, plant, and inventory turn-over ratios—do not more than throw incidental light on a complicated problem. An analysis of numerous ratios in a treatise on investments (published in 1928) of the securities of General Motors, Packard, and Studebaker, showed that Packard had the lowest operating ratio and that Studebaker had the highest. General Motors was the first in plant turn-over, Studebaker the lowest. Studebaker had the best ratio of current assets to current liabilities, offset, in part, by a relatively low ratio of working capital to total investment. In the ratio of working capital to total investment, Packard had the lead. The conclusions from an examination of various ratios were carefully hedged by the authors in the statement that "investment analysis, through statistical study of the immediate past of the corporation, while always useful, has its greatest value when change is slowest, and

the companies tend to shift their position in the industry only over long periods."[1] The results demonstrated the soundness of these reservations.

After the expanding nature of an industry has been demonstrated, such statistical analyses are of help in considering the value of an investment. A superior financial position, a low ratio of fixed charges (or preferably the elimination of fixed charges) an experienced management, the demonstrated ability to introduce correctives, and the possession of numerous differential advantages then become important. But the main question still remains to be solved. When has the pioneering industry left its speculative period? When can it be recognized as an expanding industry? To this question, from investment analysts, there comes no answer.

Another paradox of investment value appears. The investor in search of sound securities must become a student of rapidly changing situations. He must observe the transformation of a now speculative industry into a stable industry. Statistical analysis, financial credit analysis, can be of little help to him. As an investor, he cannot be expected to participate in the large profits of an industry that is passing through the pioneer stage. He therefore could not expect to share in the dividends paid by the automobile industry through General Motors and Chrysler before 1929. Not until 1929 or 1930 did the two leading publicly owned motor-car companies reveal a record of consistent dividend payments over a series of five or six years which could qualify their stocks as investments. And if the common stocks at this time had been purchased on an investment basis, on the past record of earnings and dividend payments, the investor would have paid very high prices, which, even by 1937, would not have restored the capital value of his commitment. His total dividends in the years from 1930 to 1937, inclusive, would have given him only a small return on his initial investment. The investor would have been obliged to combine the cautionary attitude of a conservative investor looking to past earnings, dividends, and financial stability, with the imagination, the vision, and the genius to make wise selections in a confused and cloudy situation. The lat-

[1] Badger and Guthmann, *Investment Principles and Practices,* Revised Edition, p. 381.

ter attributes are sometimes possessed by the active businessman and the professional security trader.

This may be a counsel of perfection demanding an impossible mixture of speculative and investment qualifications.

The analysis shows that the putative profits, theoretically available from investment in common stocks, are based upon statistical imagination. Numerous studies of profits made by investments in common stock include the investment equities of corporations now engaged in expanding and prosperous industries. The investigator assumes the investment of a given fund—ten, twenty, thirty, in some cases even more than forty years ago. He assumes that the investor, at that time, on the basis of the facts and records then available, could have concluded the industry was expanding, that the pioneering stage of the industry had passed, that the financial difficulties of the individual corporation in the expanding industry had been surmounted, and that the corporation had gathered unto itself the differential advantages which would enable it to pursue a successful career. These are assumptions contrary to fact. The purchase of such stocks as Chrysler in 1926, Woolworth in 1897, General Electric in 1905, United States Steel in 1903, have shown large profits. From the investor's viewpoint, what of it? These purchases at these early dates were speculations, not investments. When did the can-manufacturing industry leave the pioneer stage, and when did the stock of the American Can Company, based upon the canons of financial stability, become an investment? It certainly had not assumed these characteristics at the time of its organization in 1901. A number of financial reverses ensued. In the light of facts available, it could not have been assumed, in 1901, that investment in American Can would be safe. Corn Products Refining, another prosperous enterprise, ably managed, well financed, the leader in an expanding industry, was incorporated in 1906 as the successor in reorganization to another enterprise. Can it be safely assumed that the investor then could have understood that the industry was expanding and that the company in the future was to be ably managed? The answer, by all prudent investment tests, is clearly "no." Many other corporations which have made brilliant successes in their early days encountered serious difficulties.

If the standards of stable investment analysis, based upon past records; sustained earnings; dividends and interest paid continuously over a reasonable period, say five years; persistence of earnings and financial strength during a sharp business depression—are followed in determining the time when a given industry has reached an investment status, the premises upon which many of the statistical inquiries of the profitability of common-stock investment are based must be modified. If investors had followed investment standards based upon past accomplishments, the profits theoretically available to the investors in the twenties in the automobile, automobile accessory, food chains, and light and power industry, could not have been realized.

Our question is still unanswered. The date of investment maturity cannot be readily determined. A research into the framework of business enterprise against its background of industrial, technological, scientific, and institutional changes is essential. No generalized statements will enable the investor to recognize the arrival of the transitional stage from speculative pioneering to investment expansion. In his search for reasonable freedom from risk of principal, the investor must indeed look to the past. But he cannot accept the past as the sole criterion. The past is the basis for investment action. The future, as it develops, may improve over the past. The industry may be safely expanding, and its securities remain sound vehicles for investment holding. But the future may change. A recognition of the symptoms of decay will then give the investor the opportunity to reconsider the value of his securities as the symptoms persist and accumulate. The transitional period preceding the entry into the stage of expansion is as important to the investor as the final transitional stage from expansion to decline. The entry into the expanding industry must not be too early. The risks of complete loss are too great. It must not be too late, since the forces of decline and decay may already be eating away at the vitals of corporate earnings. The proper time to make an investment in *the* corporation of *the* industry, in the final analysis, cannot be subjected to one final, iron-clad rule. A record of past earnings, of past dividends, of the persistence of financial strength during a depression, of the ability to capture a large share of the existing market, are all helpful. But the prudent investor, taking all these facts into consideration,

must, at a particular time, make an individual decision. He cannot assume that all other things are equal, and concentrate his analysis exclusively upon any one factor. The trend of demand for the industry as a whole must be favorable—that is, fundamental. There must be no diagnostic symptoms of decay. Selling prices must be declining even as volume is expanding. But the decline must reflect declining unit costs. Reckless price wars destroy earnings. The corporation must be well supplied with cash or assets easily convertible into cash. Judged by all the accepted tests of technical, industrial, and corporate management, it must be a well-managed enterprise.

The investor's task, therefore, is fundamentally two-fold. He buys safely, after the pioneering risks have been assumed by the professional speculator, and by the uninformed non-professional speculators. He sells safely; he sells to professional speculators and non-professional speculators. He buys after a record of earnings and financial strength has been developed. He sells before a record of financial decline has been established. He buys not too early. He sells not too late. The maxim of Pope sums up this discussion:

> Be not the first by whom the new are tried,
> Nor yet the last to lay the old aside.

CHAPTER X

SELECTING THE COMPANY: I, DIFFERENTIAL ADVANTAGES

INVESTORS do not buy the securities of industries. They buy the stocks and bonds of individual companies in these industries. One company in a representative group is better than another. It has shown a more rapid growth, larger earnings, larger dividends, the ability to maintain a simple capital structure, to avoid labor disturbances, to cultivate friendly relations with public authorities by coöperating with them and following their suggestions. Some companies keep at the front of the new-product procession. Their research expenditures are large and productive of new products. Their cash balances are ample. Measured by such standards, other companies in the same group, although expanding and prosperous, are inferior.

In a particular industry, whether it be expanding or declining, some corporations do better than others. The competition between individual managements in specific industries is that form of competitive life envisaged by the classical economists. Some of these corporations operate on the margin of production. Their costs are high. The costs of their competitors are lower. In a given market, with a given price level, the low-cost producers can earn a profit—assuming operation within an expanding industry—and the high-cost producers earn nothing. It might be supposed, in fact has often been claimed by economic writers, that enterprises will not operate long at a loss; that this is impossible. This observation is true but not practically serviceable.

To withdraw capital from a losing venture is often possible when plant and machinery are held under a short lease, as in stores, or cigar manufacturing. In such a situation, much of the owner's capital can be withdrawn when the business does not pay. Possession of the property is surrendered by the tenant. Raw materials are worked up into finished product and sold. Debts are paid and accounts collected. The enterpriser then withdraws

to find a new location for his remaining resources. Another illustration of liquidation is furnished by the electric-power distributing companies, some of which have been sold to municipalities or to the T.V.A.

Such an opportunity to escape from a losing situation is not often available. Business corporations, as a rule, operate with large amounts of capital fixed in land, buildings, and machinery. This fixed capital, except at a heavy sacrifice, cannot be sold or leased. Even the realization on raw materials or receivables, by quick sale or collection, can be made only at substantial discounts from current market prices. Liquidation sales are usually distress sales.

The descent from prosperity to depression is usually marked by the change of liquid capital into fixed form and by the loss of most of the remaining liquid funds. As long as a corporation can pay operating expenses, and indeed very often when it cannot pay maintenance expenses, neither management nor stockholders as a body will concede defeat. They wait for something to turn up, some miracle of rejuvenation to occur, and they hold on to the end of their cash resources.

Many declining industries, nevertheless, are important to the public welfare. They supply transportation, heat and power services, and essential raw materials. Nevertheless, they cannot pay interest and dividends to bondholders and stockholders. But as long as they earn operating expenses, they continue to function. The investor, because he is committed in their securities, is interested in analyzing their financial statements and in forecasting their prospects. In discussing differential advantages within industries, we shall therefore examine not only the expanding industries but the declining industries as well.

Differential advantages represent those factors which, within a given industry, enable one corporation to report a higher profit or a smaller loss than its competitors. The greater profit is achieved by the well-managed company in the expanding industry; the smaller loss is realized by the well-managed concern in the declining industry.

It is difficult to apply these considerations bearing upon differential advantages to a localized industry. Street railways, manufactured gas, water, and electricity are industries whose oper-

ations are confined to a single community and which enjoy the protection of a franchise. The costs of, and the demand for, the product or service cannot readily be compared with other companies within the same industry. The forces of competition do not compel a readjustment of cost and demand factors to penalize inefficient management. Obsolete machinery, unwise labor policies, defective internal administrative organization, do not bring the swift punishment exacted in competitive business. It is, therefore, difficult to trace, in the utility field, a relationship between poor management and financial results.

In the competitive industrial field, however, the possession by one company of advantages which, for a time at least, are not possessed by competitors, will lead to an increase in earnings, or will diminish the rate of loss.

Differential advantages may be classified into supply differentials and demand differentials. Under the first are cost items—raw material, transportation, taxes, wages, special discounts and concessions, plant modernization, and affiliated interests. On the demand side, two differentials appear. The first is the shift of production from a declining to an expanding market, and the second, the seizure of a larger portion of a given market for a given product or service. The first *demand* differential will be examined in the chapters on Correctives.[1]

Some attention must now be given to the other. In a given market in a stabilized consumers' or consumers' capital goods industry, the most important advantage which a management can develop is the demand differential of consumers' preference. It is difficult to establish a permanent superiority in quality. Soap is soap, no matter by whom made; cigarettes are cigarettes; antiseptics are antiseptics. These products are made by the same processes, with the same machinery. The differences in quality and composition are small. Superior management induces the consumer to purchase a product not on the basis of factual superiority to competing products but because of *putative* superiority. The product is identified with a trade mark or slogan which seemingly gives to a standardized article a superior and exclusive value. The ability of the cigarette, soft-drink, and chewing-gum companies, for example, to earn large profits is due, in part, to advertising

[1] See Chapter II, pp. 25, 26.

which identifies a trade name with a product and so builds up a profitable association of ideas.

If a particular corporation can produce an article with distinctive features, and if these features are well advertised, its position in the trade may be improved. In the consumption-goods industries, in particular, the development of a distinctive article may lay the basis for enduring prosperity. The advantage is based upon a peculiar twist of the human mind. The buyer accepts a product because he has been attracted by a process of continuous and insistent repetition. A sweet and stimulating drink is taken out of the competitive field and elevated into a psychological monopoly.

The branding of an article with a distinctive name, to create a settled market, is a practice widespread in consumers' and consumers'-capital goods. In tobacco, drugs, pharmaceutical compounds, cosmetics, personal and powered household accessories, this managerial policy has become a fixture. The profits arising from the sale of the branded article is illustrated by, "the fact that in 1930 a quantity of Bayer's Aspirin which cost 85 cents wholesale was identical except in name with aspirin which could be bought wholesale for 15 cents." [2]

This differential advantage—consumers' preference built up by advertising—is important. In the field of Consumers' Goods and Services, it has been a factor in sustaining the investment values of the securities of many companies.

This differential may not be permanent. The competitive field is open. Other companies, by large advertising, supported by sound sales policies, may popularize a new trade name for an old product and so raid an established market. Some corporations have lost a part of their earnings to new-branded articles which invade their field. The decline in the earnings and dividends of the Lambert Company, manufacturer of Listerine, is a notable illustration. Many companies operating in the field of trademarked articles are constantly expanding their lines. General Foods, Beech-Nut Packing, and Standard Brands in the packaged

[2] "The Relation of Price Policy to Fluctuations of Investment," Corwin D. Edwards, Economic Adviser, Federal Trade Commission, in *American Economic Review* (Sup.), Vol. 28, No. 1, March, 1938, p. 59; referring to M. R. Bendiner, "New State Laws for Price Maintenance," Editorial Research Reports, Vol. II, No. 6, August 12, 1935.

food industry; American Home Products, Parke-Davis, E. R. Squibb and Sons, Lehn and Fink, United Drug, in the field of proprietary articles, are illustrations. Some of the most prosperous enterprises, however, have specialized on one product or on a very few. Coca Cola, Wrigley Chewing Gum, and Chesebrough Manufacturing are outstanding successes. These companies have stuck to their lasts. They have not changed. They have concentrated their advertising and selling expenditures in specialized fields.

This differential advantage of consumers' demand can be achieved only by extensive advertising. Advertising expenditures are gambles. There is no rule by which success can be assured. An expenditure for betterments and additions is usually based upon a demonstrated showing of economies. A new machine, a new mechanism, a new engine, or a new tool is better than an old article. It can produce at lower cost. The only uncertainty in the situation is the maintenance of a sufficient volume of business to make the improvements pay. If the volume of business declines, operating economies are reduced, or, if the drop is sufficiently serious, eliminated. This follows from the additional fixed charges on the investment. No such analysis can be applied to advertising expenditures. Sometimes they succeed, often they fail. The recent advertising battles between the cigarette companies abound with illustrations of the uncertainty of advertising to produce results, either to retain the market or to enlarge it. Yet a consumers' good or service company which does not advertise is not often successful. The trade-mark differential is the most valuable of all differential advantages in the field of Consumers' Goods and Services.

For companies operating in this class, advertising expenses are important. Some data are available to indicate the relative selling and advertising costs of the successful articles of the corporations which have achieved this differential advantage. One of the most profitable pharmaceutical corporations is the Bristol-Myers Company. Its successful financial career, prior to 1919, was built up around a large number of products. At one time, its line covered most of the important formulas in the United States Pharmacopeia, over 3,000 different articles. This variety, after 1920, was replaced by some half a dozen fast-

selling products. By 1928, the company had built up a reputation among the consuming public on such articles as Ipana, Sal Hepatica, Gastrogen Tablets, Ingram's Shaving Cream, and Ingram's Milk Weed Cream. In the four years prior to 1928, the company spent $4,000,000 for advertising purposes. The advertising manager for four of the principal products of this company stated that Ipana tooth paste magazine advertising alone totaled more than 712,000,000 pages a year. The effect of advertising by this company is shown for example in the sales of Sal Hepatica. This article was first introduced in 1895, but it was not extensively advertised until 1926. In the early thirties, it was said to control about 50 per cent of the market for saline laxatives. Gastrogen Tablets, an article which serves the purposes of bicarbonate of soda, was first advertised in 1925. Its sales doubled in three years. Ingram's Shaving Cream was purchased from another company, and more intensive advertising was followed by an increase of 50 per cent in sales in 1928.[3]

Another illustration of the connection between increased sales and increased advertising appropriation is found in the history of the Clicquot Club Products. H. Earle Kimball assumed the management of this company in 1905, when production approximated about 4,000 cases monthly. An advertising program was first undertaken in 1905. In one year the shipments increased from less than 50,000 to 80,355 cases. In 1907 the sales increased to 126,053 cases. At that time the company "had little to start with—aside from a product, a package, and a name that stuck in the memory like a thistle burr." The advertising expenditures in 1908 were increased to $14,008, and in 1909 to $18,443. By this time the sales had increased to 107,359 cases. The advertising appropriation was continuously increased, and sales rose steadily. They reached 1,453,927 cases in 1924. By 1925 the annual advertising expenditures had increased to $919,346; and in the following year sales made a spectacular advance. Almost 2,000,000 cases were sold in that year. This company also advertised its product through spectacular electric signs. After 1925 the company introduced a weekly radio broadcast.[4]

[3] Details on Bristol-Myers are taken from *Journal of Commerce*, May 17, 1935.

[4] Details on Clicquot Club are taken from *Journal of Commerce*, March 4, 1936.

This company, as well as a majority of the others in similar fields, sold no securities. It used no outside capital for advertising purposes. The advertising appropriation fed itself from the resulting increase in sales. There are few exceptions among the successful companies to this general rule. Extensive advertising campaigns are usually financed out of current earnings and resources.

In drug manufacture, a reputation, based upon scientific attainments, purity and excellence of product, and reliability and dependability of service, characterizes particular corporations in numerous industries. This is notably so in the drug-manufacturing industry. Here the customers and clients are laboratories, hospitals, colleges and universities, schools of medicine, and individuals engaged in the medical profession. Well-informed buyers stand at the gates. These buyers demand high standards of purity and quality. An impurity, be it ever so slight, may endanger health and even life. A reputation in this field, such as that possessed, deserved, and exploited by Parke-Davis and E. R. Squibb & Sons, once acquired after years of satisfactory service, is difficult to impair. Such a reputation is an important differential advantage. In the drug-manufacturing field, such concerns as Merck, Mallinckrodt, Charles F. Pfizer, are cases in point. These companies have long records of sustained earnings.

In the Capital-Goods Industries, an established reputation is a valuable differential advantage. General Electric, by skilful and ingenious advertising and publicity methods, has, in the minds of many users, elevated its products into a preëminent status. The accomplishments of its research laboratories in the fields of pure and applied science are extensively publicized. The G. E. symbol, in the minds of many, has become a standard of perfection.

Little is known of another significant demand differential—that of trade affiliations. If the product is standardized, many major market outlets are likely to be controlled by existing producers. It is then difficult for one corporation to command a greater share of an existing volume of business than another. Coal, refined sugar, newsprint, iron ore, non-ferrous metals, refined petroleum, and agricultural raw materials as a group are among the commodities included. Under these conditions, com-

petition works itself out in devious ways. Affiliated interests, so called, play a part in directing and, on occasion, diverting the flow of demand from one corporate group to another. Common banking control of a group of buying and selling companies frequently is important. Common financial interests in coal production and railroad coal-using enterprises, in refined petroleum and refined petroleum equipment companies, in building construction and in building material organizations, influence the placing of contracts "within the family."

A method of marketing known as reciprocal buying—the granting of business in exchange for other business—is widespread. Public investigations in the last twenty-five years have paid a great deal of attention to reciprocal buying. Legislation has attempted to curtail this method of business getting. In the steam-railroad business, Federal legislation has required competitive bidding for the purchase of equipment and supplies. The Interstate Commerce Commission for many years has urged that railroads sell their securities on the basis of open bids rather than by the customary arrangements through their fiscal agents. Federal agencies have attempted to break up arrangements between coal companies and steam carriers by which the railroads, because of traffic considerations, or for the purpose of helping "on-line" mines, have paid more than the current market prices for coal. The Federal Coördinator of Railroads in 1933 observed that there was "no sound reason why railroads should subsidize mines by paying more than the market price for coal." [5] According to government reports and records of law suits, the practices of reciprocal purchase exist in other industries.

The ownership of a substantial stock interest in one company by another is frequently an important influence in regulating the flow of demand. How much chemical business Du Pont, for example, secures from General Motors, in consequence of the former's ownership of a substantial stock interest in the latter, has never been revealed. It can hardly be denied, however, that this contribution of General Motors to Du Pont is substantial. It would be surprising to discover that General Motors makes heavy purchases of important chemical products and services

[5] Statement of Federal Coördinator *in re* Railroad Purchases, October 6, 1933, p. 2.

from the competitors of Du Pont as long as the rule of equal quality and price is maintained.

In the metallic group, control of the copper fabricating enterprises by the copper companies is general. Anaconda Wire and Cable, American Brass, and the Chase Companies probably purchase most of their copper requirements from their parent companies. In the coal business, the ownership of mines by important coal users, such as power, railroad, and steel companies, is sufficiently general to warrant the use of specialized terminology to describe such relationships. "Captive" coal mines are those which are owned by large coal consumers.

Extensive stock holdings by General Electric in numerous nonaffiliated companies is probably explained, in part, at least, by its ability, because of such share ownership, to increase its share of business secured from these companies.

The extent to which the possession of the differential advantage of the assured outlet through affiliated interests contributes to the prosperity of a given corporation cannot be estimated. Those who are in touch with the affairs of a corporation have accurate information on the subject which they keep to themselves.

The supply differentials are more numerous, though probably less important. The differential advantage of raw-material ownership is of decreasing importance. In some industries it still plays an important part. In the field of alloys, this differential advantage is noteworthy. International Nickel dominates the supply of nickel; Climax-Molybdenum of molybdenum; and Aluminum of America of aluminum. The earnings of these three enterprises have increased. They show all signs of profitable enterprises. They operate in expanding industries.

This exclusive control of raw materials is not often found. An examination of other industries shows no corresponding control of raw materials by a single dominant enterprise. Coal and coke, limestone, natural gas, iron ore, wheat, corn, and tobacco, sugar, cotton, woolen, and silk, timber, oil, and flaxseed, etc., are widely distributed. No single country and no single industrial enterprise controls the supply to an extent sufficient to compel industrial users to purchase at sellers' prices.

A raw material "monopoly" is subject to serious limitations. An increase in prices subjects the commodity at some point to com-

petition by synthetic substitutes. Sulphur is produced as a by-product of zinc and copper smelting, and gasoline from refinery gases. Synthetic resin has displaced the natural product, and synthetic lacquers the natural gums and resins. Synthetic rubber seriously threatens the natural product. Rayon is ousting silk and cotton from long-established markets—the latest and most threatening development being the use of rayon yarn in automobile tires. Now the Du Pont Company announces a new fiber, superior, it is claimed, to natural silk. In Italy and Germany, casein wool is being developed as a substitute for natural wool. Plastics are gradually nibbling at the market for numerous raw materials.

The differential advantage of raw-material ownership, even in the absence of exclusive control, may nevertheless be important. The differential expresses itself in many forms. Raw materials are extracted at different costs in different regions. The supply in one area may be approaching exhaustion; in another area it may be increasing. A corporation with a heavy investment in the extraction of raw materials in areas in which costs are rising is at a disadvantage compared with another company operating in a field in which costs are falling. The well-managed industrial enterprise follows the raw material to the low-cost areas. The carbon-black industry, for example, began with the use of natural-gas reserves in West Virginia and Pennsylvania. It followed natural-gas discoveries westward into Louisiana and later to Kansas, Oklahoma, and Texas. United Carbon and Columbian Carbon have followed the westward trend of raw-material production.

The wood-pulp and paper industry has, within recent years, been transformed by the changing economics of raw-material costs. First, the spruce and the fir of the New England and the Lake states were used as a raw material for ground wood and sulphite pulps. The increase in costs of wood pulp made from these raw materials, due to the progressive exhaustion of supply, stimulated the use of other timber. The hemlock of the Pacific Northwest was found to be useful. The twenties therefore witnessed a rapid development of the industry in Washington and Oregon. Later, the pulp industry shifted towards the Southeast. Research laid the foundation for the exploitation of yellow pine.

Most of the new southern pulp and paper mills are devoted to kraft pulp and finished kraft products—paper bags, wrapping paper, and paper board. Some kraft is made in northern mills. Much of it is imported. Since 1927, the cost of making kraft paper in the South has been reduced by $33.00 a ton.[6]

This difference in costs of southern kraft, compared with imported and northern domestic spruce pulp, gives the southern mills a differential advantage. This advantage, however, is not permanent. It is regional, and is not limited to particular companies. Many companies have built, or are building, in the Southeast. International Paper, Scott Paper, Champion Pulp and Fiber, Mead, Container, West Virginia Pulp and Paper, Union Bag and Paper, and Kieckhofer have built pulp mills in the Southeast. Some northern mills, which own their own timber and produce their own pulp, are shifting from kraft to specialties. Some of the larger companies which have built plants in the Southeast, have closed some of their northern plants. International Paper has closed a plant at Rumford, Maine, which, until recently, was considered the last word in efficiency.[7] Union Bag and Paper has abandoned one of its plants in the North, and will supply its plants in New York State with pulp produced from its plant in Savannah, Georgia.

We must not, however, jump to the conclusion that the low-cost southeastern mills will necessarily prosper because of cheaper raw material, nor that the northeastern pulp mills will, for the same reason, decay. The southeastern mills may have increased their productive capacity beyond the capacity of the market. A fall in prices may make profitable operations, at the new price level, difficult. In fact, northeastern non-integrated paper mills may benefit from this migration to the low-cost areas. These companies may buy kraft pulp from the southeastern mills at low prices fixed by the competition of southeastern producers. Non-integrated mills may shift their purchases from imported to southeastern pulp. There is no direct and simple line of reasoning in financial and investment values. What appears to be a benefit may turn out to be a loss, and a threatened loss may turn out to be an advantage. It is not beyond reason to expect that the invest-

[6] *Paper Industry,* November, 1937, p. 949.
[7] *Chemical Industries,* November, 1937, p. 456.

ment in the southeastern kraft mills may for some time lower the cost of the non-integrated paper mills in the northern states.

Differences in raw-material costs exist in other industries. Copper mines in Michigan and Montana, compared with mines in Arizona, Chile, and Africa, have high production costs. The second group can make a higher profit at a given price. Anaconda Copper, the leading producer in Montana, some years ago attempted to offset this cost handicap by developing large copper plants in Chile. In the alluvial districts of the East Indies, tin is produced at lower cost than in Bolivia. Differential advantages exist in beet sugar, cane sugar, rubber, anthracite coal, and bituminous coal. The relative prosperity of the Glen Alden Coal Company is explained in part by the geological formation of its flat-lying seams, which permits a higher percentage of recovery of the profitable domestic sizes of anthracite. The Island Creek and Pond Creek mines in West Virginia, because of the superior quality of their product, are able to market their coal in competition with Illinois and Indiana mines located at the doors of the western markets.

The second supply differential advantage is transportation cost. Until the third decade of the twentieth century, plant location on the railroad, with spurs and private tracks connecting the plant and the railroad main line, was a necessity to most industries. In some industries such as bituminous coal, iron ore, by-product coke, and steel, these advantages remain. But the last 20 years have witnessed a change in transportation. To many industries, railroad service is no longer indispensable. The truck, for short hauls, on many articles, has replaced the freight car. The high rates for inland movement have stimulated the localization of industry along the waterways. Most of the new paper and pulp mills referred to above, have been built on deep water. The new chemical plants, recently built in the southeast, are accessible to water transportation. Estimates have been made of the increases in population, trade, and production in the areas located on, or close to, available water highways, as contrasted with the inland areas in which water transportation is not available. The comparisons favor the waterside locations.

In some industries, a company confined to railroad service is handicapped in competition with rivals which use low-cost water

service. The steel companies in the Mahoning Valley have long complained of the increased costs of their products due to high railroad rates on inbound raw materials. The handicap against these steel plants, dependent exclusively on railroad service, due to inbound raw-material freight charges, is estimated at $2.00 a ton. A representative of the chamber of commerce of one of these communities points out that competing steel companies with accessible water transportation "assemble practically all of their coal by water at a cost per ton under 20 cents, in some instances as low as 12 cents, as compared with our cheapest (using 100 miles of waterway) of $1.37 a ton. Between 3½ and 4 tons of coal are used in a ton of finished steel products. We pay 42 cents per ton for moving limestone 9 miles to our furnaces and they pay the same 42 cents for moving limestone from the same quarries 55 miles to their furnaces... they [referring to the water accessible steel companies] shipped their finished products down the Ohio and Mississippi Rivers by barges at a very low comparative cost to wit: $3.10 from Pittsburgh to Memphis as compared with $5.55 from Youngstown to Memphis (and we use the railroads for only 35 miles)." [8] Steel companies in the Mahoning area, notably the Republic Steel and the Youngstown Sheet Steel and Tube, suffer from this handicap.

The increasing industrialization of the southeastern states has increased the competitive importance of high railroad rates. The high transportation cost is not as serious a handicap in industries such as textiles and shoes, producing a finished article in which transportation cost is a small proportion of the selling price. In heavier products, the freight on which forms a larger percentage of the total selling price, the handicap is more serious. Industries such as steel and cast-iron pipe, which move large quantities of raw material over the railroad, are injured by this differential. The southeastern states, on products moving to the consuming markets of the north, have, for some years, endeavored to secure reductions in rates. They want a radical change in the southeastern rate structure. The southeastern industries demand rates that will enable them to place their products in the important northern and eastern markets on a basis of transportation

[8] Hearings before the Committee on Commerce, United States Senate, 74th Congress, First Session, on H.R. 6732, 1935.

costs equal to that (distance considered) paid by their competitors. The "destination basis" of the railroad-rate making is a phrase recently added to railroad-rate terminology. This new idea in rate making is important in many southern industries.

In many industries, in order to reduce transportation costs, corporations have changed to other forms of transportation service. High transportation cost is generally associated with steam-railroad service. Many inland newsprint mills, for example, have dried up in competition with their large competitors who have had the advantage of water transportation. These newsprint mills and the railroads have suffered because of the high transportation burden. The railroads have made many reductions in the newsprint rates to enable these mills to hold some of their business. Large shippers, in recent years, have resorted to water transit to reduce transportation costs. The small motor-ship, operating from the eastern seaboard through a system of canals between New York City via Albany and Buffalo and thence over the Great Lakes, is carrying an increasing volume of business. In recent years, flatboats have been built to move automobiles over the Great Lakes.

Comparative transportation costs in all of its ramifications present a group of influences bearing on the relative earnings of competitive industries and of competitive units within a given industry. The struggle to maintain a differential advantage in transportation costs is never ceasing. It constantly assumes new forms. The advantage to one corporation may represent only a small portion of its total costs; in other industries, a substantial percentage. In any event, it rarely gives an individual corporation an advantage over any long period. What one well-managed company in an industry can do, another can probably duplicate. The tendency is cumulative, much in the same way as a business depression or a business boom is cumulative. Sometimes one or more of these differential advantages may, for a long period, benefit a particular enterprise. That may be due to the enjoyment by the other enterprises of other competitive advantages which are more important in the final assessment of corporate earnings. The southeastern textile mills may not migrate to other regions even if the transportation handicap is not removed, because of the relatively greater importance of other

favorable differentials, such as lower wages and lower taxes as compared with the handicaps of higher transportation costs.

The comparative tax burden laid upon industries in different states is the third differential advantage to be considered. The importance of the tax differential has been increased by relief and welfare problems. States and communities have the option to raise their revenues either from the general consuming tax-paying body or from business profits. A tax burden spread over the entire consuming body, in the form of a sales tax or an income tax with low exemptions, may be socially undesirable. On this point we express no opinion. In its effects on corporate earnings and investment values, the growing concentration of taxation upon business profits subjects corporations located in that taxing area to a handicap. The states of New York and Pennsylvania have, within recent years, pursued tax policies which have increased the operating costs of corporations located within their borders. In New York, the president of the Eastman Kodak Company of Rochester, New York, in 1936, stated that the higher comparative tax in that state had stimulated the expansion of the company in other states. The increase in employment by this company in recent years "has been at a much greater rate outside the state than within the state. There were a number of factors which caused us [Eastman Kodak Co.] to make the decision to make these new developments in other states, but the comparative tax rate was one of them."[9] Tax burdens in Pennsylvania within recent years have been higher than in most other industrial states. Evidence has recently been developed by a legislative commission to show that the tax burden in Pennsylvania is an important cause of the failure of numerous corporations to locate or expand in that state. In New England, the Pepperell Manufacturing Co. has repeatedly complained of the adverse effect of the local tax burden. The 1936 report referred to a tax assessment in Biddeford, Maine, of eight times the corresponding tax in Fall River, Massachusetts. If the complaint made by the company concerning the inequity of this tax is not successful, "it will probably be necessary in order to assure competitive cost of production, to liquidate the Biddeford property,

[9] Statement of F. W. Lovejoy, President, Eastman Kodak Company, February 26, 1936, before the Public Relief and Welfare Committee, New York State Assembly.

or to move the equipment to a location more favorable for manufacturing ... no cotton textile company can operate on a competitive basis under a burden of local taxation many times greater than in a neighboring state." [10]

In their influence on the earnings of the steam-railroad companies, the different tax burdens imposed by the states play an important part. The low earnings of the Central Railroad of New Jersey and the Lehigh Valley are in part due to the heavy railway taxes in New Jersey. The New Jersey 1935 tax of $8,998 per mile compared with an average for the entire country of $1,062. The District of Columbia followed with $3,937 per mile of road, Rhode Island with $3,570, and New York with $3,039. No other state reached the $3,000 per mile figure.[11] Such a differential represents a handicap against railroad properties located in New Jersey. The railroads can do nothing except to appeal to the courts for relief, and this procedure is not only slow, but its results are doubtful.

The effects of state policies are even more important in the field of comparative wage costs. States have enacted legislation which imposes varying minimum wages, maximum hours, and other labor provisions. The woolen and worsted mills in Massachusetts, for example, operate under a 48-hour law, in competition with mills in Rhode Island which operate under a law permitting longer hours. Competitive wage rates in the silk industry affect adversely the weavers of Paterson, New Jersey and benefit the weavers in Pennsylvania. In the rubber and rubber-tire industry, the unionization of the Akron factories has raised the labor unit costs to a point which makes competition with mills located in other districts difficult. The vice-president of the B. F. Goodrich Company, in negotiations with the trade-union of Akron, Ohio, has recently called attention to the fact. In the absence of wage reductions in that city, the company must reduce Akron Tire production from 2/3 to 1/2 of the company's output. This official stated further that the two major Akron competitors had decentralized their operations in 1936 and 1937 so that neither of them make more than 1/3 of their tires in Akron. By withdrawing from the high-wage district of Akron,

[10] *Journal of Commerce*, September 11, 1936.
[11] New York *Times*, June 10, 1937.

Goodrich's two competitors "have an advantage of millions of dollars in cost as compared with our [B. F. Goodrich Co.] present Akron costs." That the wage handicap of the B. F. Goodrich Company may have some effect on the earnings of the company is indicated by the following table:

SALES AND PROFIT MARGINS OF LEADING RUBBER COMPANIES [12]

(*ooo omitted*)

Year	*Goodrich Sales*	*Firestone Sales*	*Goodyear Sales*
1937 *	$149,972	$156,823	$216,174
1936	141,097	135,702	185,916
1935	118,669	121,670	164,864
1934	103,872	99,130	136,801
1933	79,293	75,402	109,656

	Net Profits	*Profit Margins*	*Net Profits*	*Profit Margins*	*Net Profits*	*Profit Margins*
1937 *	$4,774	3.2%	$9,269	5 9%	$17,600	8 1%
1936	7,319	5.2%	9,143	6.7%	10,831	5 8%
1935	3,430	2.9%	5,649	4.6%	5,452	3.3%
1934	2,535	2.4%	4,155	4.2%	4,554	3 3%
1933	2,272	2 9%	2,397	3 2%	6,021	5.5%

* Profit figures for 1937 are before inventory write-down with the exception of Firestone which wrote down only raw-material inventories and did not reveal the amount. Goodrich had a net loss of $878,580 for the year after write-downs of $5,652,935, leaving profit before write-downs of $4,774,355.

The wage differential between the various states in the North and East, important though they are, are slight in comparison with the differentials between the northern states and the southeastern states. The discrepancies in the labor costs per unit of output have contributed to a shift of industry to the South. A large percentage of the coarse cotton-textile business has already left New England for the Southeast. An increasing number of the fine-textile mills are migrating in the same direction. The full-fashioned hosiery industry is shifting from the North to the South. In 1929, 7 per cent of the full-fashioned equipment was located in the South. It had increased to 14.1 per cent by 1932 and to around 24 per cent in 1936.[13] Seamless hosiery, up-

[12] *Wall Street Journal*, March 7, 1938.

[13] Hearings before a subcommittee of the Committee on Labor, House of Representatives, 74th Congress, 2nd Session, on H.R. 9072, 1936, p. 581.

holstery fabric and silk manufacturing are further divisions of the textile group in which the same shift to the South has taken place. The difference in labor costs between these two geographical areas is substantial. Labor costs in a typical, northern, full-fashioned hosiery plant amounted in 1936 to approximately $2.10 per dozen. In an average mill in North Carolina, Tennessee, or Georgia, they ranged from $1.50 to $1.65 per dozen. The average selling price per dozen was from $5.50 to $6.00. Inasmuch as a price advantage of 50 cents a dozen is sufficient to capture the business, a wage discrepancy of $1.50—$1.65 becomes serious.[14] The average wage differential enjoyed by the South in the silk industry is revealed in the following table:

AVERAGE WEEKLY WAGE DIFFERENTIAL ADVANTAGE FOR SPECIFIED OCCUPATIONS OF SOUTH OVER OTHER SILK MANUFACTURING REGIONS AUG. 1934.[15]

Occupational Class	*Differential Advantage of South Over—*		
	Paterson	*Middle Atlantic States*	*New England*
Loom fixers (M)	$ 9.14	$4 17	$5.56
Warpers (M)	10.80	4 41	6.80
Warpers (F)	3.69	1.21	3.08
Weavers (M)	2.41	.63	.36 *
Weavers (F)	3.65	1.20	2.68
Spinners (M)	7.42	6.99	6.68
Spinners (F)	1.38	2.39	2.00
Winders (F)	2.06	2.47	2.36
Quillers (F)	2.36	2.00	2.21
Pickers (F)	.92	.60	.84 *
Redrawers (F)	1.24	4.73	4.57
Bobbin boys	.71	1.26	2.01

* Data for male weavers and female pickers indicate a differential advantage for New England. Source. B. L. S. Textile Report, Pt. II, p. 47.

In the coarse-print cloth division of the textile industry, the wage differential enables the southern mills to produce print cloths ½ a cent per yard less than the New England mills.[16]

The differences in wage costs do not in all cases correspond to, nor is it the result of, a difference of wage rates. The differ-

[14] *Ibid.*, p. 225.
[15] *Ibid.*, p. 63.
[16] *Ibid.*, p. 753.

ences in wage rates, in many cases, are greater than the differences in wage costs. Many of the cotton products manufactured in southern mills are plain goods which are made on automatic machines which require few skilled workers. Many of the products made in the northern mills are of the finer type of merchandise made on less automatic machinery which requires more skilled operators. On the simple, coarse textiles, both the wage and the labor cost discrepancies in favor of the South are substantial. They are sufficient to give the southern mills in these lines an important differential advantage.

Since the cotton- and silk-textile industries are declining and unprofitable, it is not to be expected that the existing advantage would make the southern mills profitable. The southern wage differentials do serve, however, to reduce their losses as compared with the northern competitive mills, and, in some cases, enable the southern units to operate on a small profit.

How long this wage differential will remain, is an open question. Within recent years and especially since the N.R.A. days, a strong movement has developed to reduce the wage differential to absorb differences in living costs to the employees in the two sections, and yet, small enough to prevent the southern mills from competing successfully in the northern and eastern consuming markets. The recently passed Federal Wage and Hour law is a step in the direction of eliminating these southern advantages; so is the effort, as yet unsuccessful, to extend the control of the textile unions to southern mills. That these efforts will be continued until a substantial portion of the southern handicap is removed, is probable. To the extent that the earnings of the southern corporations are due to the lower labor costs, their financial position rest on an insecure foundation. In assessing the value of his securities, in capitalizing current earnings and dividends into market values, the investor should give attention to the transient character of the important wage differential.

CHAPTER XI

SELECTING THE COMPANY: II, PLANT MODERNIZATION

SPECIAL DISCOUNTS, concessions, additional services, internal arrangements with advertising and other agencies, constitute another advantage of one company over another. Little exact information on this point can be secured. The ability of R. H. Macy to show a return to its stockholders is attributed to its cash policy, which the company claims enables it to sell at lower prices than its competitors. This assumption is disputed by competitors. The success of the food chains has been attributed to the concessions received from manufacturers and sellers. The investigation of the Federal Trade Commission showed that there was some relationship between the allowance received from manufacturers and the earnings of the large chains. These special allowances, in excess of the recognized allowances for quantity purchases, have now been forbidden by the Patman-Robinson Act.

A differential advantage, the importance of which is rapidly increasing, relates to modernization of plant and equipment.

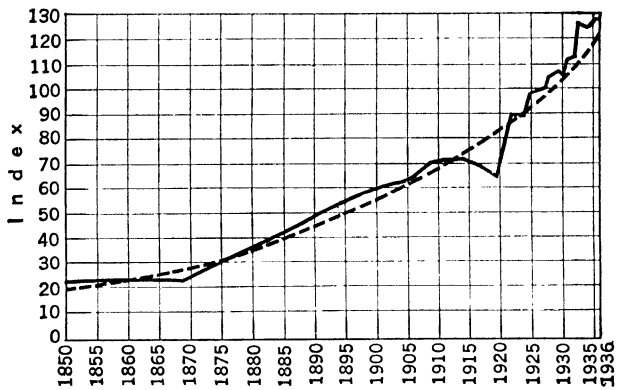
The rate of progress in the improvement of plant facilities has been accelerated within the past twenty years. The following chart, prepared by Ford, Bacon and Davis, Inc., shows the output per man-hour in a selected list of manufacturing industries from 1850 to 1936. The acceleration of the rate of increase since 1920 is clearly shown in the graph on page 241.[1]

On the basis of the standard denominator of output per man-hour, progress in recent years has advanced at the rate of 3 per cent a year. A unit installed only ten years ago may have costs —other conditions being equal—30 per cent higher than the costs of a modern plant.

Every industry shows a record of modernization in some

[1] *How Fast is Machine Progress Surging Ahead?*, Ford, Bacon, and Davis, Engineers, p. 1.

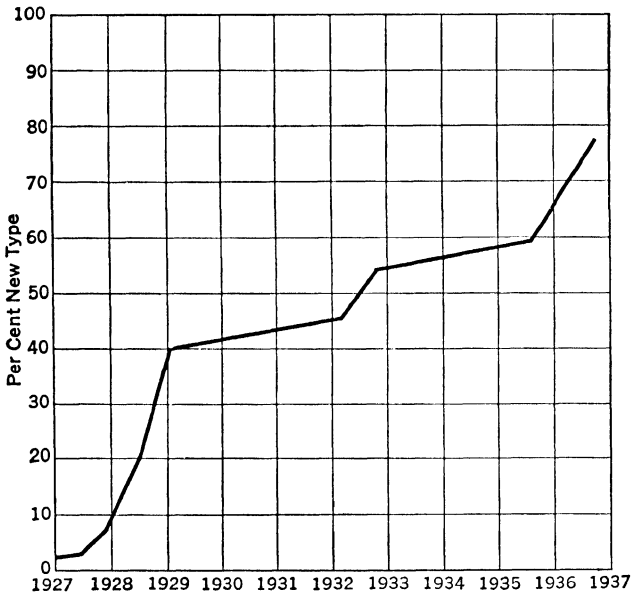
plants and obsolescence in others. In some of the declining industries, the contrast is marked. In a given industry, labor, mechanical skill, managerial ability, wages, and other cost elements may be standardized. Most companies follow the accepted pattern. Into this competitive industrial picture, a new company enters. It installs modern machinery, and reduces costs sufficiently to enable it to undersell its competitors.



OUTPUT PER MAN-HOUR IN A SELECTED LIST OF MANUFACTURING INDUSTRIES

Wide differences in the extent of plant modernization exist in declining industries. These corporations usually have little cash. They are often burdened by debts. Their margins of profit are narrow. In severe depressions, operating losses accumulate. A corporation working under these conditions usually has neither the cash nor the credit to modernize. A corporation in a declining industry, however, may have the important differential advantage, which we shall touch upon hereafter, of good financial management. A company may have built up a large supply of cash. It may have no debts. Such a concern can modernize and thus reduce its unit costs in competition with its competitors. A recent census made by the Crompton and Knowles Loom Works, a leading manufacturer of textile-mill equipment, reveals some information on this point in the textile-weaving industry. The looms in the cotton, worsted, and woolens sections are more obsolete than in the silk and rayon sections. In view of the interchangeability of silk and rayon looms, this condition is explainable

in terms of our distinction between declining and expanding industries. The rayon industry is expanding; the cotton, woolen, and worsted industries are declining. In the northern states only one-fourth of the total cotton looms are less than ten years old. The southern section of the industry, which has grown up most rapidly in recent years, has fewer looms in the older age groups. Nine out of every ten Crompton and Knowles cotton looms are more than ten years old, and looms over ten years old are gen-



RATE OF MODERNIZATION IN AN IMPORTANT NORTHERN COTTON MILL. NUMBER OF LOOMS OF NEW TYPE EXPRESSED AS PER CENT OF TOTAL LOOMS IN PLACE

erally obsolete. To quote this report: "While replacement programs have not been undertaken generally, the most successful mills have made great progress in modernizing their plants. A typical example is recorded in the graph . . . [above]." [2]

Mechanical obsolescence has plagued the Paterson fine-silk weaving industry, for many years the leader in this field. A survey prepared for the Industrial Commission of Paterson for 1937

[2] *C. & K. Box Loom Census*, 1937, p. 11 (Published by Crompton & Knowles Loom Works, Worcester, Mass).

states that the comparative inefficiency of the local mills is one of the reasons for the loss of much of the industry to other states. A well-equipped mill, according to this report, should yield an efficiency of 98 per cent. Only one mill for which data could be obtained met this standard. Most mills rate between 81 per cent and 85 per cent, but others rate below 70 per cent.[3] Few of the Paterson mills are profitable. Sweatshops characterize the industry. The proprietors of many small local enterprises do not earn the wages which they could command as employees of other concerns.

Numerous silk corporations, however, in other states operate at a profit. The Duplan Silk Company is a notable case in point, although its earnings are due largely to its shift from silk to rayon weaving. The declining silk industry in Paterson cannot afford to modernize in order to place itself in a competitive position. The cost of new automatic looms to replace the present antiquated looms is estimated at between $5,000,000 and $10,000,000.[4]

Similar differences in the rates of modernization prevail in steel manufacturing. The basic open-hearth furnace, the standardized mechanism for converting pig iron into steel ingots, has been in use for fifty years. Many of the older concerns have not replaced their obsolete furnaces. Others, notably Inland Steel, Republic Steel, and, within the last two years, United States Steel, have made heavy replacements. The best basic open hearths probably melt steel for $3.00 per ton less than the marginal furnaces, which operate either in boom times or as accessory melting units, producing steel for special work.[5]

Plant modernization cannot, however, take the place of good management. The Crompton and Knowles Census, to which reference is made above, states that "in the final analysis, the prices and profits of any business will depend on the comparative efficiencies of its operation, as against those of its competitors." Modern machinery is only one of the factors in low cost. In a rapidly expanding industry, it is true, modern equipment gives an important differential advantage to those plants which possess

[3] Report of the Plain Goods Industry, by Herbert S. Swan (1937), prepared for the Industrial Commission of Paterson.

[4] *Ibid.*

[5] *Iron Age*, June 3, 1937.

it. Modern equipment, by lowering costs, is also a factor in inter-industry competition. But to say that business profits depend, "in the final analysis," upon comparative operating efficiencies, is an over-statement. The conclusion is based upon the assumption of equality in trends of demand, in financial strength, and other differential advantages.

The differential advantage of superior modernization among corporations within a given industry, moreover, is not permanent. If the industry is prosperous, any important reduction in costs is paralleled by competitors. Many companies in expanding industries are well supplied either with cash or with credit. The demonstrated efficiency of new equipment soon leads to its adoption by competitors. If the new machinery is controlled by a corporation which offers to install it on a royalty basis, the speed of its installation throughout the industry is accelerated. In the shoe-manufacturing industry where machinery is generally leased from the manufacturer, for example, new machinery is rapidly introduced. Other mechanisms, such as the Hollerith Tabulating Machines, cigar-making machines, and some bag-filling machines are also installed on a royalty basis.[6]

In such expanding industries as light steel, rayon, Diesel engines, automobile manufacturing, and chemicals, the pace of modernization is very rapid. Few concerns are able, by installing new machines, to achieve more than a temporary advantage. The speed with which the new continuous rolling mill has been installed in modern steel plants, and the cost-reduction programs of the leading automobile manufacturers are familiar illustrations. Plant modernization may produce a temporary advantage. The investor, however, must be careful not to interpret a reduction in expenses, and an increase in net earnings, due to this cause, as a permanent trend. What Inland Steel did in 1930, through the installation of a continuous rolling mill other steel companies have also done.

Industrial Rayon has recently perfected a new continuous process for the production of regenerated cellulose to replace the present batch process. An investment of $11,500,000 is reported to have been made by this company in the construction of a plant

[6] Harry Jerome, *Mechanization of Industry*, pp. 304-5.

at Painesville, Ohio.[7] Any decrease in cost made by this company should not be counted upon by its stockholders as a permanent differential. Du Pont Rayon, American Viscose and North American Rayon may be expected to follow.

[7] "Viscose Rayon Spun Continuously," by T. R. Olive, in *Chemical and Metallurgical Engineering*, December, 1938, p. 668.

CHAPTER XII

SELECTING THE COMPANY: III, CASH RESOURCES

THE ABILITY to install machines capable of reducing unit costs, or of improving quality at the same cost, as well as the ability to take fullest advantage of other differential advantages, is normally a function of another differential. A modernization program requires substantial expenditures. A company may issue securities to finance such a program. This is the rule in declining industries. Long-term bond financing for betterments is one of its characteristics. When earnings are stationary, stock cannot be readily sold, while bond financing may be easy. The issue of $30,000,000 of bonds by Jones and Laughlin Steel in 1936, after a number of years of operating losses, is a case in point. Resort to borrowed capital for this purpose is dangerous. A depression in business, which perhaps may be unexpected—most depressions are unexpected—may weaken the competitive ability of the borrowing company. Because of the decline in production, expectations of cost reductions may not be realized. Interest on bonds makes a serious drain upon a company's financial resources. The continuation of the improvement program by the steam-railroad industry in 1930, at the request of President Hoover in a national effort to stem the oncoming depression, created an additional burden of interest charges. Many of the weaker railroads hastened their march into bankruptcy by borrowing in 1929 and after.

The best method of financing a plant-modernization program is by the use of the corporation's own cash. This policy is characteristic of the expanding industries. Successful corporations, with the exception of regulated public utilities are accustomed to build up large cash reserves which can be utilized for plant modernization. A well-managed company is not inclined to borrow money for capital improvements (although the existing low money rates have stimulated some borrowing). The differential

advantage in plant efficiency is, in this respect, derivative. It is made possible by the possession of the primary differential of superior cash reserves.

The realization of differential advantages by corporations within an industry, therefore, is usually dependent upon the maintenance of a strong financial position. A long purse is necessary for victory. Cash is needed to fight the battle. Low production costs, high efficiency, sustained demand, excellent salesmanship, are useless without cash. The rules for the measurement of cash and reserves are well known.

A large cash balance is difficult to obtain and maintain. A certain type of managerial skill and ability is necessary to establish and maintain this cash advantage. The ability to envisage cash necessities is different from mechanical and selling skills. An engineer well qualified to reduce costs, and to increase efficiency, is not necessarily a good financial manager. The same observation applies to selling ability. The superior salesman and advertiser is not necessarily the superior engineer and cost reducer. Nor is he, for that matter, the superior cash restorer and cash preserver.

A corporation with a long record of sustained financial strength through some error of financial mismanagement may become embarrassed. The cash differential which for many years served to sustain its trade status and earnings may be lost. Every deflation period reveals an additional crop of sound companies which lose this differential. In the sharp decline of prices that succeeded the post-war inflation from 1919 to 1920, most of the Cuban raw-sugar companies which had inflated their inventory and receivable accounts by incurring large bank loans fell into difficulties. Some of these enterprises are still paying the price of their financial mismanagement. The Fairbanks Company, an important manufacturer of valves, scales, and wheelbarrows, in 1919-1920, borrowed heavily to finance receivables and inventories. In 1921, the dividends on both preferred and common stocks in this company were passed. They have never been resumed. Paid in part by the sale of its profitable scale business, the bank loans have been reduced from $9,000,000 to approximately $300,000. The Cuban raw-sugar companies, in most cases, never liquidated their indebtedness. The stockholders accepted heavy losses, and the bondholders, who introduced new money into the business after

the initial price crash of 1920 and 1921, lost most of their investment. The banks, which advanced funds for working capital, suffered heavily. The losses incurred by the American Sugar Refining Company were followed by a bond issue, which was finally paid off in 1936. The large surplus of the Central Leather Company, represented in 1920 largely by inventory, was eliminated by the price crash in the following year. The savings of many years were wasted by a single financial blunder. Disaster overtook many companies whose operations required heavy investments in raw materials. American Woolen, Botany Consolidated Mills, American Hide and Leather, Riordan Pulp and Paper, Union Bag and Paper, are illustrations. Cause and effect, however, cannot be directly traced. The effect in the form of permanently reduced earning power cannot always be attributed to a given cause of financial mismanagement. The consistent downward trend in the earnings of American Woolen, Botany Consolidated, American Hide and Leather, for example, is due partially to a secular decline in the trend of demand for the products of the industry; although financial errors made the adjustment to new conditions more difficult.

Machine and equipment industries afford further examples. National Acme financed its expansion program through bank loans. These were funded into a bond issue. The company spent the current income of a number of years to pay off principal; meanwhile the stockholders lived on hopes instead of on cash. Worthington Pump, to mention another, incurred heavy losses with disastrous effects on its dividend-paying ability.

Such reverses rarely impair the earnings of companies that preserve their cash balance. Cash is the primary differential advantage. It determines the extent to which a corporation in a declining industry can shift to prosperous markets. New products and new processes require heavy selling expenditures. Rearrangement of production facilities requires heavy plant expenditures. A corporation, with only a reasonable supply of working capital, passes its dividends. It is indeed fortunate if it has no bonds outstanding. With a heavy bonded debt, and with inadequate liquid capital, the corporation, even in an expanding industry, must pass its dividends to save its life. The shift of the automobile-accessory companies to other lines in the later twenties and early thirties

was accompanied in many companies by a passing of dividends. Stewart Warner, Briggs Manufacturing, Mullins Manufacturing, Bendix Aviation, Timken Detroit Axle, passed dividends and utilized cash to shift their activities to new outlets. The dominant companies with superior financial strength, with heavy cash reserves, do not resort to this Draconian method. The continuous introduction of new products by Du Pont, Union Carbide and Carbon, Air Reduction, General Motors, and General Electric, for example, were accomplished with no disturbance of their dividend policy. In depression, because of business conditions, dividends were reduced; and in prosperity, they were increased.

Of all forms of differential advantage, then, financial strength is primary. It is the universal lever with which, assuming other favorable conditions exist, a corporation in an expanding industry can lift itself out of difficulties. By transferring its activities to an expanding line, it enables a corporation whose product has entered a period of long-term decline to lift itself out of a coming permanent depression. In a declining industry, cash affords the opportunity for salvation, in an expanding industry, for the exploitation of new products and processes. In the one case, heavy losses may be avoided; in the other, large profits may be realized.

To recast, in application to the present discussion, with slight deviations from the text, two familiar proverbs in summary of the foregoing contrast between cash and debts, "Cash is the principal thing, therefore with all thy getting, get cash," and again, alluding to debts, "Her house is the way to Hell, going down to the chambers of death."

CHAPTER XIII

SELECTING THE COMPANY: IV, MANAGEMENT AND EXPANSION

THE DIFFERENTIAL ADVANTAGES enumerated in the preceding chapters are introduced and developed by the management—officers and directors. Successful management operates in an industry which is profitable—an expanding industry—to develop differential advantages over its competitors. These two factors, an expanding industry and differential advantages within the industry, usually form the foundation of prosperity. The corportion in an expanding industry which has achieved and retained the maximum amount of differential advantages, is the most profitable enterprise. Its securities usually represent the best haven for invested funds. Financially declining industries may remain in operation for many years. They produce notable services. They are important to the public. They pay large sums in wages and taxes. They buy large amounts of materials. But they pay little interest and less dividends. For corporations in declining industries, the first test of management is the ability to shift from a declining to an expanding demand. If a corporation, because of the nature of its business, must remain within the declining industry, then the test of success is the number of minor differentials which it can achieve and retain as compared with its competitors. Even if an industry as a source of income to the investor is doomed, able management, in particular cases, may delay the inevitable.

Successful management is relative. One corporation may be successful over many years. Another company in the same industry may be unsuccessful. Mistakes, usually financial, during the expanding period, may so affect the strength of the enterprise as to reduce its relative earnings. The history of the steam-railroad industry affords instructive examples. The Gould railroads laid the basis of the Gould fortune. They also laid the basis for heavy losses by bondholders and stockholders. Such properties as Den-

ver and Rio Grande Western, Missouri Pacific, International Great Northern, Wabash, as well as Erie have, within the past sixty years, with intervals of moderate prosperity, endured a succession of disasters. Default, reorganization without foreclosure, reorganization after receivership, with reduction of interest charges and assessments on stock, have characterized the Gould railroad family.[1] The Vanderbilt roads, on the other hand, until the recent financial difficulties of the industry, have been successful. The financial histories of New York Central, Michigan Central, Lake Shore and Michigan Southern, Chicago and Northwestern, were uneventful. From the Civil War period until 1935, none of these companies defaulted. Some of them, until 1931, had paid dividends for more than a half century.

In the light and power industry, the Electric Bond and Share properties have made notable records of success. Before the holding-company debacle in the early thirties, both the operating and the holding-company properties maintained excellent records of dividend and interest payments. Since that time, some of the holding companies have passed or reduced their dividends. None of the Electric Bond and Share group, however, have defaulted in interest. This record, interpreted in the light of recent holding-company experience, is creditable. Electric Bond and Share, the controlling holding company, grew up as a subsidiary of General Electric. General Electric management has been generally successful. Its leading competitor, Westinghouse Electric and Manufacturing, encountered two disasters in 1890 and 1907 due to financial blunders.

In the chemical field, the Du Pont management had an excellent record. A corporation under Du Pont management is presumed to be sound. Du Pont is a leader in the chemical industry, one of the most important expanding industries of the day. Its acquisition of a large interest in the common stock of General Motors has proved very profitable. In 1928, representatives of the Du Pont interests secured an interest in the stock of United States Rubber. This enterprise had a heavy funded debt, an inadequate research department, and an excessive and obsolete

[1] We do not assert that the misfortunes of these Gould railroads were wholly due to Gould management. Other influences, particularly general overbuilding in the territory served, were at work.

inventory. Between 1929 and 1936, under new management, the debt was reduced by $76,991,000 and the interest charges by $3,941,000. By 1937, United States Rubber was described as "probably the outstanding example of efficiency in the rubber industry as regards manufacturing, distribution, inventory and credit control. Inventory turnover in 1936 was four times annually, or on the average of every 90 days, contrasted to only three times in 1929, thus materially reducing possibilities of loss from raw material price decline." [2] According to official statements, the production costs are as low as those of any company in the industry. The result was a profit of $6,532,000 in 1935, and $10,172,000 in 1936, compared with a loss of $18,064,000 in 1930.

In the synthetic building-materials industry, Sewell L. Avery has made a notable record. United States Gypsum, under Mr. Avery's management since 1905, has paid dividends on both preferred and common stock. This company, in accordance with the best traditions of an expanding industry, has no debt. In 1931, the elevation of Mr. Avery to the presidency of Montgomery Ward was followed by an increase in sales, net income, and dividends. In 1931, the company had a deficit of $8,000,000; in 1937 a net income of $19,210,029. In a depression he successfully managed two nation-wide enterprises. On the other hand, men of high caliber, in charge of corporations in declining industries have struggled long, but in vain, to avert disaster. Their efforts have only delayed the inevitable; while the superior abilities of managers no more skilful, but centered in an expanding industry, continue to shine like the stars.

Mismanaged and financially unsuccessful corporations in expanding industries, often under new management, become successful. The history of the Gould railroads which, from one generation to another, have suffered from financial mismanagement, does not parallel, for example, the history of Reading, Atchison, Topeka, and Santa Fe, Norfolk and Western, Chesapeake and Ohio, Union Pacific, and Northern Pacific. These roads were reorganized after receivership in the nineties. Stockholders and bondholders made sacrifices to rehabilitate them. Philadelphia and Reading Railway, a prosperous enterprise, was

[2] Oliphant's "Studies in Securities," No. 156, June, 1937.

wrecked by the burden of debt incurred by Francis B. Gowen, in connection with the purchase of coal lands. The company was reorganized three times: in 1883, in 1888, and again in 1896. The final reorganization was followed by the stabilization of competition within the industry, and the Reading went on to many years of prosperity. It is one of the few railroad companies which maintained common-dividend payments through the depression. The other railroads mentioned, which were reorganized in the middle nineties, also entered a long period of prosperity. Except for Northern Pacific, they continued to pay dividends in the thirties, when the railroad industry was acutely depressed.

Many prosperous industrial enterprises in the past two decades were investment problems from 1900 to 1917. Corn Products Refining, American Can, among the important companies, paid no common dividends for many years. The stocks fell to low nominal values. In the last fifteen years they have paid handsome returns. They have no bonds, and their stocks rank high.

The thumb-nail sketch of success and failure in prosperous industries shows that a favorable trend of demand cannot, in the early years of a corporation, assure profits and dividends. On the contrary, such periods are sometimes characterized by capital losses. Expanding industries in their early stages of growth—pioneer industries—are looked upon with suspicion. The companies are experiments. They have no record of success. The prudent investor avoids their securities.

This skepticism is often justified. The heavy losses by early bondholders in American railroads present an interesting illustration. The depression of 1873-1879 was characterized by the collapse of many small, locally financed companies, and by the failure of some larger roads such as Northern Pacific and Erie. The early history of the power industry, particularly in the hydroelectric branch, was marked by failures. Indeed, before 1920, new power companies found long-term financing difficult. After the World War, the rise of the radio and electrical-refrigeration industries resulted in more losses than gains. Many small radio companies crashed in the midst of the inflation boom; and the leading company in the industry, Radio Corporation of America, paid no dividends. The expanding demand for electrical refrigerators in the same period brought little investment return.

The two leading independent units in this industry—Electrical Refrigeration Corporation, later Kelvinator, and Servel—presented a ragged and an irregular dividend record. The former company lost most of its working capital. Its life was saved by the sale of a large block of common stock at low prices to a banking group. Servel was reorganized after a receivership.

A typical record of pioneering expansion and investment losses is afforded by the history of the former enterprise. The Kelvinator Corporation was the only survivor of a number organized prior to 1920. Arnold H. Goss had, by 1920, acquired control of these concerns. He had invested $287,000, but the business had operated at a deficit of $650,000 up to February, 1921, when profits were first reported. The profits made by Mr. Goss in the Texas oil fields, the automobile accessories, and the chain drug-store business, were invested in Kelvinator. In 1926, Mr. Goss sold his drug chain to Liggett and Co. to raise additional funds for the expansion of Kelvinator.

In 1925, Mr. Goss embarked on an expansion program. He built a plant costing $6,000,000. He purchased another from Leonard Refrigerator for $6,000,000, and still another from Nizer for $6,000,000. Unexpected additional expenses added another $6,000,000, making an investment of approximately $24,000,000. The consolidation of Kelvinator, Leonard, and Nizer into Electric Refrigeration, followed.

This expansion program was financed partially by stock sold through a New York banking group. The stock advanced from $10 to $93 a share. It then slid back to $6.00 per share. Mr. Goss was ousted from the presidency, and the corporation was intrusted to C. King Woodbridge. The corporation did not prosper under this new management. In 1929, George W. Mason became president. Mr. Goss lost his investment in the company and many of the original stockholders also suffered heavily. Under the management of Mr. Mason, the company was restored to a dividend-paying basis.[3]

These failures of expansion by pioneering industries are typical. They result from efforts to preëmpt a large portion of the business in a rapidly expanding industry. Expansion, under these

[3] These facts are based upon an account of the career of Arnold H. Goss in *Air Conditioning and Refrigeration News*, Oct. 26, 1938.

conditions, may build up an overhead which cannot be absorbed by increasing sales. Expansion by acquisition of existing companies, or by building of new plants, is usually done in periods of prosperity. Then business and investor confidence is high. In the early stages of a boom, money rates are low. In the later stages, they are high. High rates do not impair the ability of prosperous companies to sell securities. Rapid expansion, for example, was the major cause of railroad failures, both in the seventies and in the nineties. The railroad net was built up through territories which did not provide, at the time, adequate traffic to carry the increased interest charges. The same reason explains the failure of many power and light companies in the first decade of the century.

The failure of many expansion programs in the pioneering stages should not be always ascribed to blunders of management. At the time these expansion programs were developed, they were approved by the best judgment in the industry. Some of them, such as those of Chicago, Burlington and Quincy, Great Northern, Pennsylvania, and New York Central, were justified by success. Others cannot be condemned as "failures." It is questionable for example whether a "conservative" policy of expanding the Norfolk and Western, the Atchison, and the Chesapeake and Ohio would have resulted in the prosperity which marked their careers after reorganization. Rapid expansion in the early stages of an industry is frequently necessary. Fixed charges, it is often claimed, might have been avoided by a policy of restrained growth. They might have been kept well within earnings. This reasoning is sound when applied to a monopoly in which competition does not force the pace. In a competitive industry, such restraint may prove to be a serious error. The westward expansion of the Atchison beyond its original territory in Kansas, for a long time unprofitable, was compelled by the competitive construction of the Denver and Rio Grande and the Southern Pacific. If Atchison had failed to extend its lines east to Chicago and west to San Francisco, then, devoid of originated transcontinental traffic on the west and adequate terminal facilities on the east, it would have been placed in an inferior position in the industry. Had its early management refused to take chances, the remarkable increase in the earnings of Atchison after its reor-

ganization, due largely to transcontinental long-haul traffic, probably would not have been realized.

The recent expansion programs of the pulp and paper companies can be justified by the same reasoning. The investment in new pulp and paper plants in the South since 1935 had exceeded $100,000,000.[4] A substantial part of this sum was secured through stock and bond sales. Southern Kraft (a subsidiary of International Paper), Champion Pulp and Fibre, Scott Paper, Mead Corporation, National Container, and West Virginia Pulp and Paper have financed the construction of new mills by selling bonds. The increased supply of kraft pulp, paper board, and bags resulting from these new mills has already resulted in overproduction. The flooding of the market has precipitated a price war. Price of kraft pulp has dropped. The southern kraft mills may lose more in reduced prices than they gain in increased volume. These managements may, therefore, be criticized for reckless overexpansion.

The increased supply from these new mills can be estimated, but the increase in the demand cannot be predicted. Lower prices are likely to increase demand. Kraft containers and container board have partially replaced both cotton and lumber containers. Writing and book paper made from kraft pulp have invaded the competitive sulphite market. The expanding demand may justify the increase in capacity. At any rate, no producer of kraft can safely fall behind in the race for lower costs and prices by failing to expand in the southeast. These expansions involve risk. Failure to expand involves other risks. Expansion of an industry rarely proceeds along conservative lines. Increases in capacity, especially in the early stages of growth, come in spurts.

As shown above, during the expanding stage of an industry, expansion by consolidation and construction is often forced by competitive necessity. The demand is growing. If a company does not expand, it will lose its share of the new business. It may fall hopelessly behind its competitors. When the industry is mature, when it has ceased to grow, then expansion by consolidation or construction may reduce costs, either by obtaining cheaper raw materials or by reducing overhead. In a declining

[4] Statement of Pulp and Paper Section, Forest Products Division, Department of Commerce, as reported in *Journal of Commerce,* March 29, 1939.

industry, expansion is likely to be financed by borrowing. Fixed charges are thereby increased. Against these charges are to be offset certain cost reductions, or increased business diverted from competitors. If demand declines, then these fixed charges become a burden upon earnings. Expansion, financed by bond issues, in an industry where demand is not increasing, is dangerous.

Serious losses from such expansions have occurred in mature investment industries. Losses of some steam-railroad companies since 1930, for example, have been increased by the expansion through consolidation in the twenties. The Baltimore and Ohio for several years has been hanging on the brink of insolvency. Its financial difficulties have been increased by the investment in properties whose acquisition was designed to give the company a new through line from Chicago to New York. The company bought stocks of the Buffalo, Rochester and Pittsburgh, and of the Buffalo and Susquehanna. These acquisitions carried its line to Senemahoning, 75 miles west of Williamsport, Pennsylvania. At Williamsport, connection was to be made with the lines of the Reading System, of which Baltimore and Ohio has working control, and through that road and its controlled subsidiary, Central Railroad of New Jersey, through shipments could be made between Chicago and New York. The proposed route was 83 miles shorter than the existing route. The expected saving was $800,000 per year. The intervening construction between Senemahoning and Williamsport was not built. Neither of the acquired properties pay any dividends.

The Van Sweringen system, to take another illustration in the same industry, was originally established on the basis of two eastern trunk-line systems, the New York, Chicago and St. Louis and the Chesapeake and Ohio. To these roads was added the Wheeling and Lake Erie, the Chicago & Eastern Illinois, the Erie, and the Père Marquette. The Van Sweringen lines in the east were fed by the immense coal traffic and earnings of the Chesapeake and Ohio. In 1928 and 1929, the Van Sweringens acquired the Missouri Pacific, and through it, a one-half interest in the Denver and Rio Grande Western. On the face of things, the Missouri Pacific, in the twenties, seemed prosperous. It served one of the expanding areas of the country. Early in the depression, however, the Missouri Pacific collapsed. The company went

into receivership in 1933, and still remains under the protection of the court. Later the Erie and the Chicago & Eastern Illinois failed.

Similar losses flowing from the effort to acquire control of other railroad properties with heavy fixed charges were incurred by the Pennsylvania Railroad through its controlled Pennsylvania Company and its affiliated Pennroad. The acquisition of controlling stock interests in the Wabash and the Lehigh Valley, and, through the Pennroad, of other companies, have shown, on balance, a loss.

Expansion by methods involving a rise in fixed charges, even in an expanding industry, is hazardous. Every element in the new combination must "click" with the others. If there is failure at any point, there is danger of disaster. Rapid expansion in the prosperous variety chain-store industry in a number of cases, for example, resulted in losses. In other cases, equally rapid expansion brought substantial gains. In the unsuccessful list, F. & W. Grand Five and Ten Cent Store had, by 1929, a good record of earnings. Toward the end of the boom, it increased its rate of expansion. Through a stock-exchange plan, it acquired control of the Isaac Silver Stores, and of the Metropolitan Chain Stores. Both the original F. & W. Grand and the acquired Metropolitan financed their new retail outlets in part by the sale, through subsidiaries, of real estate mortgage bonds. The rapid decline in sales and prices in 1931 led to a default, and the stock of the company fell to nominal values. By a series of clever and complicated financial operations, control of the property was purchased by a new group. Title passed to the H. L. Green Company. This successor company has been successful. Its stockholders have reaped handsome profits. The losses of the security holders in the Grand-Silvers-Metropolitan units have been balanced in part by the gains of the security-holders of H. L. Green. The prosperity of the industry has continued. In this prosperity, however, the security holders of the corporate predecessors of H. L. Green have little share.

McCrory Stores, in the same industry, passed its interest early in January, 1933, after a dull Christmas season. The company went into receivership and was reorganized without judicial sale. The former controlling interests in the company are no longer in

control. The expansion program of this company was conservative compared with the more vigorous expansion program which preceded the failure of another variety chain, the McClellan Stores.

The financial difficulties of retail stores in the thirties affected varieties, department stores, shoes, drugs, restaurants, cigarettes, and tobacco. These difficulties arose from taxes and interest charges on owned properties; from the excessive rentals on leased properties; and from inventory losses. Never before, in any other depression, had this problem of rental charges been so serious. Even to-day, after such bitter experiences, corporate balance sheets do not contain data expressing rental obligations on leased properties as capital liabilities, although they universally show obligations on owned properties. In the income account, rentals are often lumped with operating expenses. Investment analysis of retail companies has paid little attention to this omission of clear statement. No serious trouble in the expansion programs of retail chains, because of high rental charges, had been anticipated. No warning was given to the investor. The investor had been prepared, by previous deflation experiences, for inventory losses, and to some extent for losses in receivables and instalment contracts. The major financial reverses in this field, however, occurred from the unsuspected source of rentals. Rentals played an important part in the bankruptcy or receivership of United Drug, McClellan, and Metropolitan Chain Stores. Rentals also contributed to the decline in earnings of Childs, W. L. Douglas Shoe, G. R. Kinney, Saks, and other retail companies.

The investor, in companies with high rentals, is in the dark. He can turn to no accepted rules for the proper relationship between rentals and gross revenue, operating expenses and net income available for interest and dividends. Information in this field is the property of the real-estate appraiser and broker. Even now, after the experience of ten years, data on the burden of rental charges that a retail business, with a given amount of sales, can safely carry are not available.

The variety chain-store business, despite several major failures, is prosperous. The expansion program of the sound variety chains did not lead to financial losses. Woolworth, W. T. Grant, G. C. Murphy, S. H. Kress, maintained dividend payments throughout

the depression. Other enterprises, such as Neisner Brothers and J. L. Newberry, suspended their dividends for some years. In the recovery years, their earnings and dividends increased.

Similar discrepancies in the results of expansion programs in expanding industries are found in other lines. The growth of Chrysler and General Motors was featured by sustained increases in profits and dividends. Yet the expansion of Studebaker, Graham Paige, and Hudson led to financial difficulties and to changes in management.

In the prosperous business-machine industry, the formation of the Remington Rand Company in 1927, a consolidation of several companies, was followed by passing of dividend payments. A similar consolidation in the same year of the Underwood Typewriter into the successor Underwood Elliott Fisher company was followed by ten years of prosperity.

The profitable packaged-foods industry is another illustration of successful expansion in a field of growing demand. The decade of the twenties was marked by consolidation of a large number of food companies. Many smaller companies were combined into three large enterprises of which Standard Brands and General Foods were successful, although General Foods has a much better record. The Gold Dust Corporation, now Hecker Products, on the other hand, was less successful.

In the effort to explain the success or failure of the expansion programs of particular industries and companies, some help is given by a consideration of the forms which these expansion programs assumed. The race for cheaper raw materials is an impelling influence in those industries where raw material has a large share in production cost. It is responsible for the migration of the pulp and paper industry from New England and the Great Lakes states, first to the Pacific Northwest, and recently to the Southeast. The expansion of the mining and metals industry is also an expression of this fundamental influence. The development of new copper deposits, first in Montana, then in Arizona, then into Chile, and in recent years, in South Africa, represents a search for low-cost ores.

In the manufacturing, fabricating, and converting industries, a revolutionary mechanical development is often an important influence toward expansion. The most recent illustration is the de-

velopment of the continuous rolling mill. A capacity of more than 13,000,000 tons of steel sheets made by the old type rolling mills is now becoming obsolete. Every important steel manufacturer has either completed or scheduled expansion programs for the construction of these mills. The new mechanism substantially reduces the cost of rolled steel. No producer can ignore the economies arising from its use.

Is the sheet-steel industry now overexpanded? Will an increased demand for sheets enable the industry to operate the new mills at more than 60 per cent of capacity? This is the break-even point. Below 60 per cent, the continuous mill probably operates at a loss. Again, there is no rule by which an investor can judge the wisdom of these installations. Close observation into the effects of the competitive forces affecting the demand for sheet steel is essential. Particularly important is an analysis of the commodity competition between steel and other materials of fabrication and construction. Perhaps this branch of the steel industry is, at this time, overexpanded; and, perhaps, until the demand can overtake the new capacity, serious losses may occur. It may be safer, nevertheless, for a steel company to expand now, and so reduce its costs than to sit by and permit its competitors to take whatever business may be available. The resulting increase in fixed charges and other forms of overhead, which are substantial in some cases, must be offset against the economies of these investments.

Expansion programs may also respond to the necessity of preempting a given territory in competition with competing enterprises. We have seen that this necessity drove the steam-railroad industry into expansion. It is also a major influence in explaining the rapid rise of the public-utility holding company. The competition between Cities' Service, Middle West Utilities, Associated Gas and Electric, Electric Bond and Share, and Commonwealth and Southern, among others, for the acquisition of operating companies, in certain cases to effect operating economies, but in some cases, to produce financial profits, explains the high prices paid for many of these properties. This explanation, of course, in particular cases, may not be a justification of the wisdom of the course pursued.

Raw-material producers have often been compelled by competi-

tion to integrate forward in order to control markets for the products made from these materials. The acquisition of a given outlet for the products of one company brings into play competitive influences which force other companies to follow. This influence is visible in the copper industry. The purchase of American Brass and Anaconda Wire and Cable by Anaconda Copper was profitable. In order to preserve business outlets, other large copper enterprises acquired brass-fabricating units. The purchase of the Chase Companies by Kennecott, and of Habirshaw Cable and Wire Corporation by Phelps Dodge, followed.

The same trend is also visible in the oil-producing and refining industry. The urge for expansion came from both production and marketing forces. In order to create adequate outlets, crude producers built refineries and acquired existing refineries. In order to assure adequate supplies, refiners drilled new wells or bought existing crude producers. Well-balanced crude and refined enterprises acquired retail outlets. The result was the development of a limited number of integrated oil units. The formation of Socony-Vacuum in 1931 is a conspicuous illustration of well-integrated expansion. This company is a union of Standard Oil of New York and Vacuum Oil. In 1926, Standard of New York had already acquired Magnolia Petroleum and General Petroleum. Consolidated Oil, successor to Sinclair Consolidated, is another example. This company expanded rapidly during the depression. It acquired in 1932, by an exchange of common stock, Prairie Oil and Gas, a leading crude producer, and Prairie Pipe Line. In the same year, Consolidated also acquired Rio Grande Oil and Penn Mex Fuel. In 1935, through a subsidiary, it purchased an interest in Richfield Oil.

Standard Oil of Indiana, in 1925, acquired a minority interest in the common stock of Pan American Petroleum Transport. This stock interest was afterwards increased to a majority. In 1933, Standard of Indiana completed the purchase of American Oil, a large distributor. From 1927 to 1934, this company also acquired stocks of Pan American Eastern Petroleum. In 1930, Standard of Indiana purchased McMann Oil and Gas, and in the same year, through Pan American Petroleum and Transport, acquired Lago Oil Transport, an important crude-oil producer.

Standard Oil of New Jersey, the largest unit in the industry, in 1919 purchased from the owners a large block of common stock in Humble Oil and Refining, which later grew into one of the largest crude producers. Beginning in 1928, Standard also purchased a majority interest in Colonial Beacon Oil, large refiners and distributors, and, in the same year, Creole Petroleum, a large foreign producer of crude. In 1927, Standard acquired the Oklahoma and Tuscarora Pipe Lines and Carter Oil. This company has expanded in natural-gas production and transportation and it also has acquired most of the foreign producing properties owned by Standard of Indiana.

These leading oil companies did not confine their expansion programs to the purchase of existing companies. They also invested large sums in the construction of refineries, in the acquisition of crude oil reserves, in pipe lines for transportation of crude oil and refined petroleum, in ocean-going tankers, in inland-waterway barges, and in additional marketing facilities.

Similar expansions in oil and copper, and also in other growing industries, such as glass, chemicals, rayon, kraft, natural gas, rubber, business machines, variety chains, electrical refrigeration, to mention the most important, have been, in the main, profitable. Expansion was carried on for the most part from surplus earnings or from stock sales or exchanges. Few disasters occurred.

When expansion, as in rayon, radio, newsprint and electric refrigeration, results in temporary overcapacity and in reduced profits, the management of an individual corporation cannot be condemned. No individual management of a particular company can resist the influences which drive the industry forward to meet a rising demand. The successful corporation in a profitable industry is not always the company which refuses to expand. All companies in such an industry are under pressure to expand. The successful management is the one which has expanded wisely. Refusal to expand may be as dangerous as overexpansion. In the rayon, radio, and electrical refrigeration fields, profitable and unprofitable companies expanded rapidly in the boom of the twenties. The companies which did not expand, which did not bring out new products, frequently are counted among the smaller, less important, and less successful enterprises. In rayon, for example, Belamose and New Process Rayon; and in newsprint,

Price Brothers, Minnesota and Ontario Paper, and Great Lakes Paper, did not expand as rapidly as some of the other companies. Some of these "conservative" companies find themselves in no better financial position than their expanding rivals.

Investment analysis can not predetermine the wisdom of the expansion program of a given management under any given set of conditions. There are certain rules, however, based on observed experience, which may be helpful. An expansion program is more safely financed without recourse to borrowed funds. Inability to pay interest and rentals in a period of declining business, when the effect of overexpansion is greatest, is likely to lead to the loss of control by the original investors. Even a small debt has sometimes resulted in the transfer of control from stockholders who have large sums invested in the business to bondholders or bank creditors who have small sums invested. If the industry is prosperous, and the trend of demand is rising, then the seizure of a business in financial difficulties becomes attractive to creditors. Under these conditions, the creditors may be expected to exploit their advantages to the utmost. The passing of control in the reorganization of F. W. Grand-Silver, McClellan, and McCrory Stores to new interests are illustrations.

If, however, the expansion program is financed by the sale of common stock, or out of earnings, the equity in the business of the corporation can, in periods of adversity, rarely be captured by outsiders. Pending the increase of demand to a point which will utilize the company's increased capacity, dividends may be passed, and the corporation may use its earnings to maintain itself. Some industries, in expanding fields, have financed themselves through the issue of bonds. From time to time, price wars have undermined earnings. Many branches of the paper industry furnish illustrations. Many bankruptcies have resulted from the combination of large debt and price cutting. The resort to borrowed funds for expansion in the kraft industry should therefore be viewed with suspicion. The margin of safety for the interest charges on the new bond issues, based upon the earnings of 1933-1936, appears to be adequate. The effect of the new capacity, however, has not been tested. The recent decline in demand was attended, as usual, by a severe break in prices.

The rapid expansion of the chemical industry, on the other

hand, has been financed largely without resort to borrowed funds. In the event of an operating deficit, in order to maintain their interest payments, paper companies will be compelled to reduce their cash working capital. Chemical companies, under similar conditions, will preserve their cash and pass their dividends.

The use of current funds for expansion, even at the cost of present dividends, is to be recommended. No new obligations or prior claims are created against an increasing plant capacity which may or may not produce additional earnings. If additional earnings are forthcoming, then higher dividends can be paid. If a company has a large supply of cash, it can face a period of overexpansion. This must be the ultimate protection for the security-holder. It is the most important instrument which has enabled the dominant enterprises to retain and improve their positions.

CHAPTER XIV

SELECTING THE COMPANY: V, CHANGES IN MANAGEMENT

SOUND MANAGEMENT is the most important differential advantage. Only an able personnel can introduce and maintain the advantages which enable a corporation to succeed in competition, and adapt its production to changing trends of demand.

If a corporation is unsuccessful; if, for a long time it is unable to pay dividends, it is logical to assume that the owners will change the management. This does not always or even often follow. A management may perpetuate itself for a long time, even though, judged by the record of profits and dividends, it is not successful, and should be replaced.

If a large stock interest is held by the members of the board, by officials, or by others close to the enterprise, it is difficult to oust the management. The proxy machinery gives the officials control. Stockholders either sign the proxies which they receive, or ignore them. The stock owned by, or allied with, the management, therefore, exercises more power than its relative amount would indicate.

In the men's furnishings and underwear industry, for example, one of the largest corporations, Robert Reis & Company, Inc., has paid no dividends on its preferred and common stocks for many years. Even in the boom years of the twenties, large arrearages on the first and second preferred stocks accumulated. The management owns all of the 7,500 shares of the second preferred, and a substantial proportion of the 22,500 shares of the first preferred. Despite the absence of dividend payments for the past ten years, there has been no change in management.

In the department-store field, Gimbel Brothers' expansion policy, accompanied by large increases in gross sales, has not been followed by common dividends. In fact, the sales increase was followed by the elimination of the preferred dividend in the de-

pression and in early recovery period. A substantial block of the stock is held by the Gimbel family, who participate in the management of the company. The growth in sales of Warner Brothers, an important unit in the motion-picture industry, have not since 1930, produced any dividend payments on the common stock. Despite this financial record, the Warner management has retained its position since the organization of the company.

Management is helpless to overcome those economic influences which have precipitated an expanding industry into depression. The failure of a corporation with much company in its misery—in a declining industry—should not be ascribed to the mistakes of officers and directors. These men are helpless in the grip of forces beyond their control. What can a management in a transit industry do in order to reverse the trend of demand? It cannot increase fares, because of the resistance of public opinion. It cannot reduce wages, because of the certainty of strikes and labor troubles. It can, indeed, purchase new equipment, raise the standard of service, and reduce unit operating expenses. But this requires money, and money is difficult to raise. Capital is provided, not by the management, but by outside investors. In a declining industry except, perhaps, as a result of a reorganization plan, money from investors is difficult to secure. In recent years, these provisions of cash in connection with reorganizations have been small, and usually in the form of well-secured equipment loans. Contributions by stockholders, even as subscribers to loans, do not often appear. A plan may so reduce the fixed charges as to provide a wide margin of safety. If the fixed charges under a plan of reorganization are earned five times, as compared with a deficit before the reorganization, additional capital may be forthcoming. Or, a reorganization plan may eliminate all interest. In that case, a small bond issue, secured by a new mortgage on the basis of the available earnings, may prove sufficiently attractive to secure new funds. Real-estate reorganizations abound in illustration of this practice. The investor will not look far ahead. If the margin of earnings over interest is high, the bond may look good, and it may be bought. It is one of the most common and most dangerous working rules in investment circles, that a bond is good because its margin of safety is high. A continuous fall in earnings by the industry is not given sufficient consideration.

Drastic reorganizations in steam railroads, for example, when they are completed—with heavy reductions in fixed charges, which are contemplated—will probably result in higher bond ratings. Such reorganizations may make it possible to sell small new bond issues to install betterments, such as light-weight cars and Diesel-electric switchers. New capital after reorganization has also been introduced in such declining industries as Cuba raw sugar, railroad equipment, bituminous coal, woolens and cotton.

These financial readjustments, however, represent the contributions, not of the management, but of the investment banker, save as management, as in the Celotex reorganization may influence stockholders to coöperate. A favorable financial atmosphere is thus created which enables a management, in possession of this new capital, to install betterments. The records of declining industries in their later stages give little hope that the industry may thus be rescued. The assumption by the new-bond investor that the sales of the reorganized company will not continue to decline is contrary to the facts. For a short time, gross earnings may be stable; in fact, may even increase. If betterment financing features reorganization, the immediate reduction in costs, which the use of new equipment permits, may lead to an increase in earnings available for fixed charges. The continued recession in the volume of business, however, soon reduces the margin and causes fresh financial difficulties, and a new reorganization becomes necessary. The succession of failures and capital reorganizations in steam railroads, street railways, and textiles, during the last twenty years, after the industries had entered the period of decline, reflects these forces. In the electric-railway business, successive reorganizations of the Interborough Rapid Transit and of street-railway companies in Kansas City, St. Louis, and Pittsburgh, have featured this declining industry. A second surgical operation in each case has been necessary. In the woolen industry, Botany Consolidated was twice reorganized. Every declining industry shows the same tendency. The opinion of the "soundness" of a reorganization plan is based upon the business of the company at the time of reorganization. Then, a decline in business, due to a decline in demand, falling upon a fixed operating overhead, impairs and then destroys the margin for interest. Bankruptcy and reorganization again follow, and the process is con-

tinued as long as there is any income remaining, as long as there is anything left to reorganize. A series of amputations, due to a persistent leg infection, may prolong the life of the patient, but eventually there is nothing left to amputate, and the man dies.

In all these difficulties, however—and this is the important point at issue—the management continues.

This complacence of stockholders in the face of failures and losses does not apply to the declining industry in the early period of its decline. At that time hope for the industry remains. The financially sound and well-managed corporations have encountered no serious reverses. Their ability to pay interest has not been impaired. If a decline begins to develop in a period of prosperity, the margin of safety for fixed charges is likely to increase. This was the case with the steam-railroad industry in the twenties. The rapid increase in industrial production gave the railroads a slight increase in net ton miles. Only passenger business showed a loss. The increases in operating efficiency, due in large part to capital improvements, increased net income to the highest point ever reached. The emergence of the most fundamental symptom of financial decline, that of a relative decrease in demand for railway service, went hand in hand with an increase in earnings available for interest and dividends.

In such a period, hope for improved earnings, based upon expectations of a decline in expenses, creates a basis for managerial changes. Such changes, it is expected, will enable a company to reduce expenses and increase earnings. The reorganizations of the steam railroads from 1914 to 1923 were marked by changes in management. The reorganization plan of the New Orleans, Texas, and Mexico, for example, included a provision for a new management. J. S. Pyeatt was appointed President. He had a record of success, and his subsequent management of this property justified his selection. The reduction in operating expenses, associated, as it was, with increases in the volume of business due to the development of the northbound citrus-fruit and vegetable traffic, increased earnings. Up to the depression, the margin of safety for the bonds increased. Managerial changes occurred in reorganizations of the Chicago, Rock Island and Pacific (1916), the St. Louis and San Francisco (1916), and the Denver and Rio Grande (1924). It is significant, however, that the shift of Mr.

Pyeatt to the Denver and Rio Grande in 1924 was not followed by the same increase in earnings that followed his elevation to the presidency of the New Orleans, Texas, and Mexico in 1916. Matthew G. Sloan had been successful as president of Brooklyn Edison. He left that company to become president of the Missouri-Kansas-Texas. He did not, because he could not, in the declining industry, repeat his successful record in the expanding industry.

In the anthracite industry, a shift in management was made by Philadelphia and Reading Coal and Iron. W. J. Richards retired in 1926, and A. J. Maloney took the helm. The new management floated a $30,000,000 junior bond issue. The proceeds were used to install machinery to reduce cost and improve quality. Based upon current sales, a reduction in unit costs was anticipated; and the reduction in expenses, if realized, would have increased the margin of safety for all of the bonds, mortgage bonds, as well as debentures. A continued decline in the demand for anthracite, however, was not anticipated. This decline occurred. The increased efficiency of the new machinery was not sufficient to overbalance the increased unit costs due to smaller volume.

Managerial changes in the early stages of decline in other declining industries show similar disappointments. In silk, cotton, woolens, fertilizers, leather, meat packing, vaudeville, and the animate theatre, changes in management did not reverse the underlying downward trend in demand and earnings. The continued production of an article for which the demand is sagging is the root of the difficulty.

A change in the management of a declining industry cannot often be expected to aid the investor to retrieve his losses. This conclusion is subject to the qualification that a new management may effect a radical shift from a declining to an expanding good or service.

The problems of managerial adjustments in the expanding industries are different. Here the corporation is favored by an upward trend of demand. At the same time, it may be wrecked by bad management. The failure of a particular management to record a profit and pay dividends is usually charged to managerial blunders. An able personnel can introduce new policies which will stop losses and again place the company on a profitable basis.

A notable illustration of losses arising from wasteful management is furnished by Paramount-Publix. The management which assumed control of this company in November, 1931, under the leadership of Mr. John D. Hertz, who was elected chairman of the Finance Committee, made drastic reductions in operating expenses. A $23,000,000 cut, from $133,000,000 to $110,000,000 in twelve months, followed. The major saving was $5,900,000 in rentals on theatre leases. Insurance premiums were cut from 25 to 35 per cent, telephone and telegraph charges were cut by one half. The following comments by Mr. Hertz in his testimony before the Securities and Exchange Commission concerning this saving is interesting:

...I found that our telephone and telegraph charges had cost $800,000 in '31 and that a great portion of that was for telephoning to Hollywood. I found that the wire was open two, three, four hours at a time. Well, that intrigued me very much. So I made a telephone search and I took 100 and some odd telephones out of the Broadway Building that weren't necessary. I took telephones out of every theatre in America that the company owned that weren't necessary. I instituted a system whereby everybody who used a long distance phone had to make out a voucher and state the purpose. I put a girl in charge of the telegraphs, both incoming and outgoing, to check the number of words, and I cut the $800,000 to $400,000 in 1932.[1]

The expenses of the Legal Department of Paramount-Publix were cut by $800,000 per year. The method used to reduce the rental of a theater in Rochester, New York, is as follows:

I found one [theater] in Rochester, New York, which was leased by the Rochester University, through a gift from Mr. Eastman. We were paying $200,000 a year for it, and the lease had four or five years to run. We were buying a lot of film from the Eastman Kodak Company; were one of their large customers. When I got through with that one, the entire lease was cancelled and we got restitution of $52,000 advance rental for the first quarter which we had

[1] Securities and Exchange Commission, Report on the Study and Investigation of the Work, Activities, Personnel and Functions of Protective and Reorganization Committees, Part II, p. 81.

paid.... Another way of doing it was to find perhaps a theatre that wasn't doing well, where there was a lot of property surrounding the theatre, and threaten to close it down.[2]

The former management committed other mistakes, such as the disbursement of approximately $10,000,000 in cash in the repurchase of its own common stock. Paramount, after Mr. Hertz' house cleaning, went through reorganization. It has recovered a large share of its former earnings.

Frequently, a struggle for managerial control may lead to serious losses; indeed, may wreck a corporation. The collapse in the earnings of Hupp Motor Car was, in part, due to an internal struggle over corporate policy. The company's poor working-capital position in 1934 and 1935 was further impaired by the heavy costs arising from law suits by one stockholding group against the management.

Mistakes in the routine administrative conduct of the business are not often sufficient to destroy the earnings of a sound enterprise in a sound industry. With a small cash reserve, or an excessive bonded debt, mismanagement may create losses, which, in its weakened condition, a company is unable to absorb. More serious, however, are the reversals in fortune in a prosperous corporation from mistaken expansion policies. The managerial problem here is difficult. The dangers of overexpansion have been explained in a preceding chapter. How can management deal with the effects of overexpansion? The expanding demand must be followed by an expanding supply. If supply is not increased by a particular company while its rivals expand, this may lead to a loss of patronage which it formerly controlled. Its position in the trade may be weakened. On the other hand, the penalty of overexpansion in supply is likely to be a serious price war, and a resulting break-down in earnings. If the expansion program has been financed through bonds, the paradox of rising sales, declining dividends, and even interest defaults (which have been such a notable feature in the newsprint, the radio, and other industries) usually emerges. Orders increase, but bankruptcy follows. Investment analysis has produced no rule by which a stable relationship between rising supply and rising demand can be main-

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[2] *Ibid.*

tained. Economic theory discusses this problem in terms of a long-time equilibrium—a moving point at which demand balances supply. This theory gives the investor no help in his effort to equate supply and demand at any given time. A disequilibrium between rising supply and rising demand over two, or perhaps three, years may be sufficiently serious to disturb the long-term trend of earnings. It may even lead to failures. It has seriously damaged important industries. Newsprint, full-fashioned hosiery, book paper, paper container and paper board, radio, rayon, raw sugar, and solvents are examples.

Suggestions have been made looking to the solution of this problem. In the early days of the National Recovery Administration, provisions were made in many "codes" by which industrial committees were authorized to regulate the installation of additional capacities. Some of the business pools of the late eighties were devised for the express purpose of restricting competition and preventing overexpansion. A principal advantage of the industrial trusts, before 1906, was the moderating influence of large units in each industry upon destructive price competition. None of these plans can replace sound and mature group judgment. Reliance must be placed in the collective determination of the industry so to expand its supply in line with rising demand, as to maintain stable, even if slowly declining prices. At any given time, however, neither the investor nor the management of a particular corporation can say whether or not an industry is overexpanded.

What can a change in management of an overexpanded enterprise in a physically expanding industry accomplish? To what extent can it reverse the declining earnings of a corporation which has encountered serious losses from overexpansion? If the expansion has assumed the form of excessive receivables or inventories in the face of a decline in prices, the losses may be severe. If the expansion has been accomplished by an increase in short-term debt, then it is probable that some transfer of control from one group to another group of security-holders may take place. Reference to this eventuality has been made in a preceding chapter.

A corporation, however, when its current position is impaired, if its credit is good, may escape trouble by selling bonds. With

the proceeds, bank loans are paid, and the management acquires merit in the eyes of the stockholders, because it has successfully surmounted this threatening danger. Sometimes this is accomplished with, and sometimes without, the necessity of a managerial adjustment. Numerous changes in management do, however, occur at the end of every boom period, or, in the midst of every deflation period. This occurred in 1920 and 1921 in such industries as woolens, leather, rubber, oil, and automobiles. The shift of the control of General Motors from the Durant to the Du Pont interests is a familiar example. If the industry is sound, if demand increases, the managerial errors, in the course of time, are rectified. Excessive inventories and receivables are turned into cash, debts are paid, and recovery may be rapid. Witness the transformation of the old Maxwell Motor into the Chrysler Corporation within three years.

There is no definite rule for the determination of the extent to which a new management can recover the lost earnings of a corporation. Sometimes the recovery is rapid; sometimes slow and prolonged. Much depends upon the speed with which the demand increases. Much depends upon the extent to which the industry is expanding its plant capacity. The losses from possible overexpansion are always serious. No ostrich-like reasoning can either anticipate the arrival of losses, or, once they have occurred, avoid their effects. Nor can an investor anticipate, as a result of a given managerial change, the stoppage of losses and the recovery of earnings. Overexpansion takes place in both the declining and the expanding industry. In the declining industry there is little hope for recovery. Overexpansion in plant capacity, in inventory, or in receivables, in a declining industry, is a tragedy. Those leather, raw-sugar, woolen, cotton-textile, lumber and writing-paper corporations, which expanded their current assets in the inflation periods culminating in 1920 and 1929, have not fully recovered. Central Leather, now U. S. Leather, American Woolen, Botany Consolidated Mills, Consolidated Textile, Long Bell Lumber, American Writing Paper, Armour—corporations included in this category—have had the benefit of changing managements. Unfortunately, the overexpansion coincided with the emergence of a secular decline in demand. Such a combination of factors is too difficult for any given management. No change in

management, under these conditions, can ordinarily save the investor.

In an expanding industry, the problem of overexpansion is not hopeless. With a favorable swing in demand, much can be accomplished. Many important corporations whose losses, due to excessive expansion in plant, inventory, and receivables in the 1919-20 inflation, were heavy, have long since recovered. Goodyear Tire and Rubber, Firestone Tire and Rubber, United States Rubber, the Standard Oil of N. J., Montgomery Ward, and Sears Roebuck, are among the companies included in this classification. With a favorable trend of demand, an able personnel can reduce expenses, cut unit costs, enlarge sales, and realize profits. The payment of short-term debts, or their funding into long-term bonds, gives the well-managed company in the expanding industry the opportunity to diversify, to engage in research work, to find new uses for existing products, and to follow policies necessary to reduce prices and increase sales.

Less important, because less frequent, is the loss associated with unwise diversification. Diversification, the shifting of activities from one group to another in order to follow and, if possible, to anticipate the trend of demand, is one of the soundest tests of corporate management. Successful shifting from one declining to another expanding line may indeed enrich the investor. But diversification along unsound lines may result in heavy losses. The addition of new lines by the well-managed corporation represents a natural development of its own organization, of its personnel, and of its own pattern of mental activity. Du Pont opens new fields in chemicals and related process industries; General Motors in motors and mechanisms; Borg Warner and Briggs Manufacturing in new markets involving metallic pressing, cutting, and stamping operations; Timken Roller Bearing in more diversified uses of its major product; American Radiator and Standard Sanitary in new forms of building equipment; National Lead in new forms of paints and pigments; American Locomotive in equipment fields catering to expanding instead of declining industries, etc. Diversification, however, only to add new products to develop new customers without regard to the characteristics of the industry, is unwise. A new product or a new method of selling may produce serious problems.

One of the most spectacular failures arising from this unfortunate error is that of International Combustion Engineering. This company, in the twenties, was a leader in the expanding field of combustion equipment. It was equipped with an excellent research staff. Its products were in wide demand by steam-power companies and industrial steam and heat users. Its preferred stock was sold as a high-grade investment. The failure of the company in 1929 was unexpected. Both the common and preferred stocks fell sharply to nominal figures. A major reason for the reversal in the fortunes of this company was the heavy expenditures in the development of low-temperature distillation of bituminous coal. This process has long been a dream of scientists. Heavy initial and experimental investments have been made in the exploitation of numerous schemes. Low-temperature distillation is a line divorced from combustion equipment. The specialist in one field is a novice in the other. It proved impossible for the management of this company satisfactorily to manage these two classes of industrial activity. Early in 1933, the assets of International Combustion Engineering were sold by the court. The prosperous combustion-equipment business was purchased by Superheater at a price which reimbursed the creditors for some of their losses, but which left little to the stockholders. The low-temperature distillation business was sacrificed. Superheater reorganized the combustion-equipment business into a new enterprise known as Combustion Engineering. It is now one of the leaders in its line.

Unwise diversification was the chief factor in the impairment of the earning power of Manhattan Electric Supply, engaged primarily, as the name indicates, in the electrical-supply business. The management engaged in a venturesome expansion program in 1924. By 1927 the company found itself in the possession of such unrelated enterprises as Troy Laundry Machinery, United States Manganese, owning a block of high-cost manganese ore, and Trout Mining. The common dividends of Manhattan Electric Supply increased from $280,000 in 1926 to $575,000 in 1927. This was followed by a decline to $325,000 in 1928. The dividends were passed in 1929. A reorganization followed in 1930; and a new company, known as American Machine and Metals, was organized. The new management has confined its activities to

the field of equipment used by enterprises furnishing a service to the final consumer, such as beauty shops and laundries. The company within recent years has been able to pay a small dividend on the common stock.

A new management in each of these companies, victims of diversifications unrelated to their main lines of activity, has succeeded, by casting off the burdens arising from the exploitation of unrelated lines, in partially restoring earnings. This happy result does not always follow.

Sometimes the failure of an important company in a prosperous industry may be due to the inability of the management to take full advantage of the existing knowledge in either production or merchandising activity. Assuming that the company is well financed, that it has a minimum of debt, and an abundant supply of cash, such a handicap can be overcome. Except in pioneering industries, an interchangeability of technical skill, technical knowledge, and merchandising ability usually exists. It is not accurate to say that there is, at all times, a plentiful supply of managerial talent, but the supply is sufficient to warrant the belief that a well-financed company can usually obtain the services of experts. If the failure of the company in a prosperous industry is due to the inferiority of the existing management, it is probably safe to anticipate a recovery of earnings by a change in management. The new managements of Cluett Peabody in 1927, of Van Raalte in 1933, and of Marchant Calculating Machine in 1933, among many others, have taken steps, either in production or merchandising, that have enabled the corporations to reverse the trend of earnings.

In some lines of corporate activity, it cannot be assumed that production and merchandising skill is sufficiently standardized to expect interchangeability. There are numerous service industries in which the personal touch, the intangible human values, are important assets. In the amusement industry, the high salaries paid to moving-picture stars are not an accident. They represent the capitalized value of box-office receipts. It is perhaps not so well known that the active executive of a motion-picture corporation may make or break the enterprise. Sidney R. Kent, President of Fox Film, has thrown some light on this subject. In answer to certain criticisms made of the high salaries paid to

motion-picture executives, Mr. Kent made the following observations:

This is a business of creation and imagination. The best company in this industry is Loew's, Inc.—because some years ago they bought Metro-Goldwyn Corp. and the services of Louis Mayer, Irving Thalberg, and J. R. Rubin. Without those three men I wouldn't give ten cents for the stock. Take three men out of Columbia Pictures and I'd say the same. We pay Will Rogers $8,000 a week and make money out of him. We pay other stars $8,000 or $9,000 weekly and make money out of them. Zanuck (referring to Darryl F. Zanuck) who directs the stars and creates stars is worth $5,000 a week.... It may be more money than bank presidents are paid, but bank presidents can't make moving pictures.

Mr. Kent, upon the same occasion, summarized his activities in rehabilitating the fortunes of the Fox Film Corporation.

When I took this company in April, 1932 it had $37,000,000 in past due debts. I could have written my own ticket. I took $66,000 the first year and $77,000 the second, and I'm not apologizing for my record. We considered a lot of deals to build up the production of the company, but most of the others involved taking over debts. We took 20th Century first because it had no dead studios that we did not need; it had no distribution facilities. We have those. (Fox has 9,500 exhibitor accounts.) It had five or six stars and directing personnel that we needed.

Joseph Schenck is the man who brought out the Talmadges and Buster Keaton and made money out of them and then went to United Artists when it was in the red and put it in the black. Zanuck was for three years production manager for Warner and they paid him what we are paying him. In two years he has established the finest production record in the industry with "House of Rothschild," "Cardinal Richelieu," "Les Miserables," and now "Call of the Wild," which is going very well. The pictures taken over from 20th Century will produce two and one-half times their negative costs when two times is an excellent average.

The first ten pictures that 20th Century produced are carried on their books at $1 each and have brought in $200,000 in the last few months. A special advantage is that Fox's stars have not been going well in Europe whereas 20th Century's stars have unusual foreign popularity.[3]

[3] Quotations are from *Wall Street Journal*, August 16, 1935.

In reaching a conclusion concerning the efficacy of changes in management in recovering investment values, we may observe that a change in management of a corporation in a declining industry in the latter stages of decay can accomplish little. On the other hand, a managerial change in a corporation engaged in an expanding industry can, under favoring conditions, accomplish much. There is, however, no rule, that will enable an investor, with reasonable certainty, to anticipate the success of a new management. Change in this field, as in so many others, does not necessarily mean progress. Change means movement, and the movement may be backward as well as forward. The suggestions which have been made in this chapter on managerial changes are only intended to be suggestive. They cannot be expected to lead to the emergence of a definite rule of investment action. As a basis for discussion, however, these tendencies may be of some help in the analysis of problems arising out of management changes.

CHAPTER XV

SELECTING THE SECURITY

THE INDUSTRY has been selected, and the company within the industry. We have next to consider another problem of investment buying—the security. Shall the investor buy bonds or stock? To answer this question, it is necessary, for the first time in this study, to examine briefly and generally the rudiments of investment, the two main classes of titles to investment income.

In our previous neglect of this branch of the subject, we have been influenced by two considerations. In the first place, every treatise on investment devotes a large amount of space to the description of these instruments. In four volumes of distinction which deal exhaustively with the subject of investment the following allotments of pages to this part of the subject are made: (*a*) 108; (*b*) 163; (*c*) 104; (*d*) 64. The materials of investment are also included in treatises on corporation finance. This branch of knowledge has also been dealt with in sufficient detail in many well-considered volumes, one star different from another in glory, but the general outlines remaining the same. Sometimes the same author will handle the two subjects. It has seemed to the present writers superfluous to deepen further the rutted wheel-tracks of former travel over well-explored territory. We doubt that there is any subject in the field of so-called "business" literature which is more familiar to the informed and interested reader than the field of securities, including in recent years, security analysis.

There is another reason to touch lightly upon the description of securities. In our opinion, the description and analysis of securities, compared with the consideration of the forces of demand and competition that determine the trend of corporation profits, is of small importance. Not only are these technical matters relatively unimportant, but the primary emphasis placed upon them

has tended to divert attention of investigators, investment managers, and legislators from the more important duty of examining the influences which are always at work to put up and put down, to slay and keep alive great groups of corporations and their securities of every form and priority. A familiar quotation originating in another field of criticism and, of course, without personal application, may be used: "Ye pay tithe of mint and rue and all manner of herbs, and anise and cummin, and pass over judgment and the love of God; this ought ye to have done, and not to have left the other undone."

To complete the examination of investment policy, we must here consider, in the light of our previous discussion, the basis of choice between different securities. It is therefore necessary, in order to provide a setting for this discussion, to enumerate and describe briefly the main classes of securities—bonds and stocks.

A bond is a promise to pay interest at regular intervals and principal at maturity—30, 50, even 100 years from the date of issue. In case of default, the trustee of the creditor, under certain conditions, may foreclose the mortgage or reduce the collateral to possession. The trustee owns this security to protect the creditor. The debtor corporation, in the absence of default, possesses and uses the mortgaged property in its business. Out of the earnings, the debtor pays interest, reduces the debt, if a sinking fund is provided, or relies on refunding to pay the principal, incurring a new debt to pay the old debt. The owner of a secured bond has, therefore, two forms of protection: first, the right of action against the debtor, the right enjoyed by any creditor; and second, the possession of the legal title to the debtor's property, conveyed to the creditor by a mortgage, under which, if the debtor fails, the creditors, acting through the trustee, can sell the property either to themselves or to others, thus securing payment either in kind or in cash.

In addition to mortgage or collaterally secured bonds, there are plain (debenture) bonds with no security other than a right of suit and recovery against the debtor; and income bonds, with the principal usually secured, but with the interest to be paid only if earned. This interest may be non-cumulative, in which case any portion of each year's interest not paid dies with the year; or cumulative, when the unpaid interest is carried over as

a claim against future earnings. Most income bonds are non-cumulative, and are issued in reorganization. Original issues are rare.

Stock is the evidence of ownership in a business corporation. It entitles the owner: (1) to vote for directors, and also on certain matters of corporate policy, such as the approval of a bond issue; (2) to receive a share of profits as dividends, if there is a surplus of cash available to pay dividends and if the directors decide that a dividend shall be paid. Stock is of two kinds: preferred and common.

Preferred stock entitles the holder to dividends at a stipulated rate *before* any dividends are paid either on the common stock or on any inferior class of preferred stock. Preferred stock may be either non-cumulative or cumulative. Non-cumulative preferred stock is rare. Bondholders have no voice or vote in a company's management. Preferred stockholders are given various rights of control, even to the selection of directors when preferred dividends for a stated period remain unpaid. Both bonds and preferred stock may carry sinking funds, the first usually an unconditional payment, the preferred-stock sinking fund contingent upon earnings.

Common stock is the residual claimant to dividends. If there are no bonds and/or preferred stock, all dividends paid go to the holders of common shares. With securities outstanding, senior to common stock, these prior claims must be paid in full before the common stockholders receive anything.[1]

Among these different securities, the investor must make his choice. He is governed by three considerations: first, safety of principal; second, certainty and amount of return; and third, stability of market value. These three desiderata of investment incline the investor to the selection of secured bonds. These give him an unconditional claim to interest. This *must* be paid or

[1] In the absence from the capital structure of bonds or preferred stock, *all* disbursements to security-holders go to the common stock. Conventional disparagement of common stock as a safe investment is based upon an assumption, since the actual situation is not often emphasized, that senior securities, especially bonds, are present in the capital structure. These establish prior claims to earnings, some of which, interest, must be paid on pain of bankruptcy, and preferred dividends, usually cumulative, which if large, increase the hazard of the common stockholder. This point will be developed more at length on later pages.

bankruptcy and reorganization, controlled by and in the interest of creditors, will follow. Bonds may be secured by mortgage or collateral. This gives the bondholder protection against the placing of any lien ahead of his own, and, in foreclosure, gives the trustee the right to sell or possess the property subject to the mortgage or collateral indenture. He is also protected by covenants which bind the debtor, on penalty of default, to keep the property insured, in repair, and free from tax liens. Neglect of these precautions impairs the creditor's security. Finally, the bondholder's claim to interest is not only unconditional, but it is a prior claim which insures him of interest if interest is earned, and also, by the deferment of maintenance, for a time at least when interest is not earned. For these reasons, secured bonds are popular with investors; and executors and trustees, unless specifically excused from this restriction by the terms of a will or deed of trust, are required by law to confine their investments in the securities of private corporations, to bonds which meet legal requirements.[2] Life-insurance companies are allowed, under certain restrictions, to invest a portion of their assets in preferred stock.

Institutions and trustees are the largest buyers of securities. Restricted as they are, in the main, to bonds meeting definite technical requirements of security, the concentration of investment demand upon one class of bonds—legals—has maintained the value of these bonds at high prices and within narrow fluctuations. Secured bonds best conform to the traditional requirements of conservative investment.

If there are no bonds outstanding, preferred stock is but little inferior in security to bonds. It enjoys a claim to dividends prior to that of the common stock. This claim is usually cumulative, a provision which bars the payment of any common dividends until preferred arrearages are paid. Preferred stock is, in the main, voting. It may even have a controlling vote. Preferred stockholders must approve certain corporate actions which might impair the security of their holdings; and frequently, when so expressly provided, a minority—25 to 33 1/3 per cent—can veto the issue of any preferred stock or any bonds whose claims would outrank

[2] There has been a tendency recently, where the deed of trust permits, for the trustee to invest in securities other than secured bonds.

theirs. Preferred stock often enjoys the benefits of a conditional sinking fund. In every respect, save the right to sue for unpaid dividends and for the par value of their shares, their position is equal, in some respects superior, to the position of bondholders. These particular advantages of preferred stock have in recent years, as shown by the high and well-maintained rating of the best preferred stocks, come to be recognized by investors. Such provisions facilitate the sale of new preferred stock.

Last of all comes common stock. If there are securities which outrank it, and if payment of interest and/or preferred dividends absorbs a large percentage of earnings available for distribution, common stock suffers from the handicaps of a junior position. Common shareholders, as already stated, are residual claimants. They eat of the crumbs which fall from the master's table; and when corporate earnings are low, these crumbs are carefully gathered for the next meal. In the absence of senior securities, however, common stock receives the entire distribution of profits. It shares with no one. Control of corporate policy rests in the body of common stockholders. Their appointees dispose of the company's profits. They are dealing with themselves.

Chamberlain and Edwards, in their classic volume (the title suggests the viewpoint of the authors) *The Principles of Bond Investment,* state "A simon pure investment is always a loan." In his original volume, published under the same title, Chamberlain stated the matter with even greater emphasis, "A loan is the only true investment." Other writers follow the lead of the pioneer authority. Developing this thesis, the text writers measure the comparative investment quality of stocks and bonds by applying the well-known criteria of investment: (1) security of principal, (2) stability of income, (3) income return, (4) marketability, (5) hypothecary value, (6) tax exemption, (7) freedom from care, (8) acceptable denomination, and (9) appreciation. In only three of these characteristics, and these are of minor investment importance—tax exemptions, acceptable denomination and appreciation—do stocks outrank bonds. In the opinion of these authors, bonds are superior; they are still the only true investment. The law, as already shown, follows the text writers, or rather, the opinions held by the managers of trust funds, which the text writers reflect. Bonds are given the first rank as

investments. Preferred stocks have only recently received grudging and partial recognition. Common stocks are not favored.

The approval of bonds as the best channel of investment is based upon a capitalization pattern based upon a practice which has been controlled by a theory in its turn formulated to explain a practice. The theory is the advantage of trading on the equity. This is generally developed in reference to the borrowing of money, although it also applies to the use of preferred stock. Money is borrowed at 5 per cent, or recently at 3 per cent. This money is used to earn a higher per cent. The difference between the interest or preferred dividend paid and the profit earned measures the advantage of trading on the equity. This practice, before the war, was widespread. It grew up in an economy where capital was scarce and where profits were, with good management, large and easy to make. All classes of business enterprises borrowed from banks. Corporations with fixed property, the accepted security of long-term loans—railroads, electric passenger railways, gas and water companies, lumber, coal, iron, paper and copper companies, real-estate companies, and individual owners of real estate, wherever situated, city, town, and farm—all borrowed. Movable property also served as security for loans. Shipping companies borrowed on their vessels, railroads on their equipment. The prevailing opinion was summed up in 1897 by Thomas L. Greene in the opening sentence of his pioneer volume, *Corporation Finance,* "The businessman or firm must borrow money."

The field of long-term borrowing early developed the secured loan. As corporations grew in size and profits, these secured loans multiplied in gradations of priority. Now came the well-known categories described by the text writers: first-mortgage bonds, first and refunding, collateral-trust bonds, guaranteed and assumed bonds, first and consolidated equipment-trust obligations, terminal bonds, divisional bonds, first and most complex in the railway field, and finally, plain bonds—"debentures"—with various contracts of security all their own. Next in order developed the preferred stock, first on a large scale in the industrial consolidations of 1898 to 1902, then, after the World War, in the electric-power consolidations and the investment trusts, with numerous other group issuers along the way. As a result of this accepted

belief in the profits of trading on the equity, most of those companies and individuals that could borrow did borrow, and many of them supplemented their borrowing by selling preferred stock to get equity money or property which would produce profits substantially above interest or preferred dividends.

Securities are rated in terms of priority. First-mortgage bonds must be paid first, interest and principal. They are secured by an underlying lien on valuable property, which lien could be enforced if the debtor does not pay. They are the best securities, the "simon pure" investments. Following these first-mortgage bonds, come bonds secured by collateral, often first-mortgage collateral, more often by stock collateral, supplementing whatever security might be given by the margin of corporate earnings of the borrower above prior fixed charges. Along with these are the equipment obligations, secured by ownership or lease of cars and locomotives. The leases are assigned to trustees, and the equipment, by this device, is segregated from the lien of the property mortgage. Then come the first and refunding, first and consolidated, and consolidated mortgage bonds, which sometimes have a first lien on something—enough to justify the title, and a second lien on everything else; and finally the "plain bonds," debentures, secured, as the English have it, by a "general and floating charge" on the company's assets and earnings, and often "sweetened," for sales purposes by conversion privileges and warrants. Below these debentures come income bonds with interest payable only if earned, principal usually secured, issued, as a rule, only in reorganizations in exchange for fixed-interest bonds. Various classes of preferred stock follow the bonds, flowering into A and B—a better name than second preferred—stock. Last of all comes the common-stock holder, the residual claimant, who receives dividends only after all prior charges are paid, whose dividends can be suspended when earnings decline, not to be resumed until prosperity returns.

With these materials have the practitioners of the investment art worked. Bankers sold "legal bonds" to institutions. Promoters built up "leverage" by issues of preferred stock, with smaller issues of common stock to absorb increased profits. Corporations offered to their stockholders debenture bonds with conversion privileges. Every one concerned thought in terms of priorities

and preferences. The pioneer investment writer, when he declared that a bond is the only true investment, was dealing with an established pattern of priorities, and within this pattern, his statement was, and is, substantially correct.

Given a structure of priorities, the first-mortgage bond legally ranks ahead of the debentures. Any bond precedes preferred stock, and common stock, in point of security, stands at the bottom; or, as usually stated in terms of structural stratification, at the top, "underlaid" by prior claims and liens. A large amount of space has been devoted to the elaboration of this fact.

And this has resulted, as overemphasis always does, in the erection of the financial devices whose paramount importance is thus stressed, to the rank of institutions, habits of thought, matters of common sense. Of course, a bond is good. It is a bond secured by a first mortgage. The circumstances which make it good are easily lost sight of. It is a first-mortgage bond. That is sufficient. Human affairs are largely regulated by phrases, slogans and mottoes. Our institutional structure is full of names and definitions and maxims which furnish a quick solution to the most complicated problems: freedom of labor to contract with its employer; the right of every man to buy or sell, to plant or refrain from planting, to let the weeds grow rank or to cut them down before they infest the neighbors' fields; the right of the creditor to seize his debtors' property by judicial sale, and no matter if the price, due to a distressed condition of the market, is far below what could be realized under normal conditions, to enter a deficiency judgment for the balance. These are some of the practices which are approved because business has always been carried on in that way. When a rebellion, promoted by people who are injured by these practices, forces the modification of some of them; when labor is given the right to bargain collectively; when homestead laws raise the exemption of the debtor; when the right of contract is limited by a minimum price or a minimum wage; then there is lamentation over these deviations from the tried and true methods sanctified by long usage.

So in the field of finance, because corporations for a hundred years have raised capital by secured loans, and because the secured loan, *issued by the same corporation,* is superior to any junior security, the investor has accepted the opinion that bonds

secured by mortgage or collateral are, largely independent of the particular circumstances of the issuer, or the industry in which he operates, as a class, better than stock. Legislation, as we have shown, follows this opinion. As long as the rules of investment arithmetic are followed, as long as the "value" of the property is substantially greater than the debt which it secures, as long as earnings available for interest over five years are twice interest charges, the railway or utility or real-estate bond is a sound investment.

The bond-minded investor and the legislator, in acting upon this settled conviction of superiority of a secured obligation, ignore certain facts, to some of which attention has already been called: first, changes in the demand for the product; and second, changes in the methods and instruments by which capital is raised and ownership expressed.

A bond secured by a first mortgage on property may be good to-day. Its interest has been paid from the date of issue. Earnings of the debtor corporation are two times fixed charges. The company is well managed. The bonds meet every test of investment analysis. And yet, if the industry in which that company operates is declining, if the buyers are deserting its service or product, the company which has issued these well-secured bonds is in danger of failure. Arguments in favor of the investment quality of the bonds based on preferential liens and margins of safety, traffic densities and monopolies of territory, long interest record, large accumulated surplus and low operating costs, in the final outcome are of little value. If the industry is declining, and unless corrective influences are applied to shift to a field of expanding demand, the bonds issued by the best companies in the industry will eventually decline. Priority of lien will not save the investor. When the industry collapses, all the companies go down with it in the order of their comparative strength, and the securities become less valuable. Priority, as applied to bond issues, may delay this result. Like the victims of a flood, those on higher ground are last to be swept away. They may be rescued before they drown. They may save some of their property along with their lives; but their losses are heavy.

Priority is of little value when the industry is declining, and

yet priority is the only advantage that is conferred by a first mortgage.

Another advantage of mortgage bonds is the title to the property. Earnings give value and security. Property is used to make profits. When this cannot be done, specialized property, unless it can be turned to some other use, is worth little, save in special cases. An apartment house or a hotel can usually be sold for something. But the cases in which substantial amounts can be realized for bondholders by such sales are few. Reduced rentals have caused the default. Reduced rentals, due to shifting of population, mean reduced property values, which are based upon rentals.

Beyond these disappointments in mortgage security when demand is declining, are other circumstances connected with bond issues which impair even the physical security of the bonds. Disaster does not come suddenly. There are warnings. The management tries to avert default by reducing upkeep and replacements expense. When and if the creditors buy the property at a foreclosure sale, or accept new securities of inferior rank or smaller amount under a reorganization plan, they usually find that their property is depreciated. Their first task is to provide money by borrowing, or by using such earnings as are produced, to replace the deferred maintenance.

Here another defect of bond and mortgage administration emerges. By the terms of the mortgage, the debtor is bound to pay taxes and make necessary repairs and renewals. If he fails to do so, the trustee, if ordered to do so by a stipulated majority of the bondholders, and if properly indemnified for his actions, and if provided with the necessary funds, *may*—there is usually nothing mandatory about the matter—foreclose the mortgage or take possession of the property and operate it for the bondholders, or apply for a receiver, or place the property under the protection of the bankruptcy court. The trustee, in practice, pays no attention to this kind of default. For all the trustee does to prevent the abuse of the mortgaged property by neglect, the maintenance provisions of the mortgage might be omitted. Even when a default in interest or sinking fund payments occurs, the trustee usually does nothing. Except to act as a bookkeeper and cashier for the bondholders, releasing unwanted property from the mortgage for sale, receiv-

ing and paying out interest money and carrying out various other mechanical operations, the trustee accepts no responsibility.[3] Beyond these routine duties, which can be performed at small expense, the trustee under a corporation mortgage and deed of trust, of his own motion will not go. There is no way to compel him to go further. The trustee under the mortgage has, in the broadest terms, disclaimed all responsibility for other than the most routine duties. He has "exculpated" himself from all liability. The bondholders, unorganized as they are before default, have no one to represent them. Further, because of judicial interpretations of amendments to the bankruptcy act during the last decade, it has become more difficult to foreclose on a railroad or public utility mortgage.

There is nothing in the formal characteristics of a bond or a mortgage, providing that he knows the contents of these instruments, to inspire confidence in the investor. If the business is prosperous, the bondholders, senior and junior, secured and unsecured, need no protection. When failure occurs from mismanagement, if the industry is expanding, senior bondholders seldom have been called upon to make sacrifices in reorganization. The securities are usually "undisturbed." Here their priority of position is an advantage. Junior bondholders may be called upon to make sacrifices, to accept income bonds or preferred stock for fixed interest bonds; but if the secular trend of demand is upward, recovery follows reorganization, and the position of junior creditors, and often the position of stockholders as well, is restored.

So much for the superiority of bonds over stock. Other things being equal, they give greater security than stock of the same company; but other things are often not equal, and then bonds and stock fall under the same condemnation.

The second, and the more serious, objection to the restriction of investment to bonds is the growing scarcity of bonds. A bond issued by a company in an expanding industry, and with interest limited to a conservative percentage of profits, is a sound investment. Railroad, electric railway, anthracite coal, manufactured gas, farm mortgages, urban real estate, textile, sugar, bituminous

[3] The Barkley Act, approved August 3, 1939, has increased the responsibility of corporate trustees.

coal, meat packing bonds and preferred stocks, have, during the expanding stage of these industries, ranked high. Their quality has been impaired as these industries have entered their declines. As a normal procedure in former periods, while bond issues were in fashion, as one source of investment dried up, another would be opened. "Capital," we are told by the economists, must be supplied by the investor. Investment authorities insist that the corporation, if it wishes to reach the highest level of achievement, must borrow.

Nevertheless, long-term borrowing is conspicuously rare in the expanding industries. Bond financing, trading on the equity, has been mainly used in declining industries. Railroads, street railways, manufactured gas, iron ore, heavy steel, leather, cement, and meat packing are some of the leading borrowers. Telephone, electricity, and paper are among the borrowers in the expanding group.

Since 1930 there has been a decline in interest payments. The supply of sound bonds for investment has been seriously reduced. Those institutions whose investments are restricted by legal requirements to "sound" bonds of private companies are operating in a narrowing field. With railroad, electric passenger railway and manufactured-gas bonds, as classes, discredited; with good bonds selling at high prices; with securities, representing new capital, the main reliance of large-scale buying, even in the expanding groups, decreasing in amount; with real-estate securities under a cloud, the outlet for trust funds is being narrowed largely to public bonds; because of the exhaustion in the borrowing power of municipalities, mainly to the low interest obligations of the Federal and state governments. Unless the situation is changed by enlarging the now narrowing contracted categories of legal investment, the yield on life insurance, commercial and savings-bank funds, and restricted trust funds of all kinds may be further reduced.[4]

Borrowing companies tend to distribute less to investors. Their distributions normally are less resistant to depression, and they are less responsive to recovery. Poorer companies with restricted

[4] Even the 6 per cent policy loans, now reduced on new contracts to 5 per cent, are being taken over from the life-insurance companies by commercial banks in increasing amounts.

profits are forced to borrow. They pay interest on bonds, and they pay dividends on stocks in order to establish credit which can be used for junior-bond borrowing. This policy leaves them no margin sufficient to finance their capital requirements out of earnings. In terms of lien security, priority of payments, the compulsion and coercion of fixed charges, it is true, the borrowing groups have the advantage. In terms of actual payments, the advantage tends to be with the expanding industries.

It is no part of our intention to discuss the reasons for this divergence of financial practice between expanding and declining industries. To treat this subject adequately would require an amount of space not at our disposal. We do not predict that this trend away from borrowing will continue. Light and power companies, their profits limited by law, no matter what the inclinations of management, have been forced to borrow. It may be that an extension of profit regulation into other fields—electrical equipment or harvesting machinery, for example—will impose upon debt-free companies the necessity of selling bonds to obtain new capital. It may also develop that the low interest rates at which sound companies in every line can now borrow, will encourage the placement of large loans, whose proceeds can be invested, to produce a high return to stockholders on their borrowed funds. This large and increasing amount of profits now distributed in dividends may, in the future, admit the claims of interest. So far, however, as the present trend furnishes a reliable guide to future capitalization practice, the groups of prosperous and expanding companies will continue to limit their distributions to the payment of dividends.

A choice is here presented to the companies and trustees that invest trust funds. Shall they continue the present practice and refuse to participate in the profits of the expanding industries because these companies do not issue bonds, and compared with common stock, issue little preferred stock; or shall they secure a relaxation of these requirements and secure from the legislatures such modifications of the requirements of legal investment as will allow them to invest in preferred and common stocks? It is true that if General Electric should issue $100,000,000 of 3 per cent bonds, these bonds would sell above par, and the continuous payment of $3,000,000 would be slightly more secure than the pay-

ment of $3,000,000 as an unsegregated and mingled part of the average dividend payment of $36,008,000 on General Electric Common Stock from 1934 to 1937. That can be conceded. The concession, however, is of no practical consequence unless General Electric will issue the bonds. If this company keeps its capital structure "clean"—a word much in use thirty years ago to describe a bond-free capital structure—the banks and trustees cannot participate in its earnings.

This situation has not passed unnoticed by the investment commentators. In fact it has excited criticism. Thus Graham and Dodd (page 463), in *Security Analysis:*

> It is also desirable from the standpoint of investors generally that strong industrial corporations raise an appropriate part of their capital requirements through the sale of bonds. Such a policy would increase the number of high-grade bond issues on the market, giving the bond investor a wider range of choice and making it deservedly difficult to sell unsound bonds. *Unfortunately the practice of industrial corporations in recent years has tended to produce a shortage of good industrial bond issues.* [The italics are ours.] Strong enterprises have in general refrained from floating new bonds, and in many cases have retired old ones. But this avoidance of bonded debt by the strongest industrial companies has, in fact, produced results demoralizing to investors and investment policies in a number of ways....

The authors list these unfortunate consequences as follows:

1. The restriction of new industrial-bond financing to weak companies.
2. The driving of investors into preferred stocks unsound in theory.
3. The inflation in market value of the common stocks of prosperous companies which do not issue bonds.
4. By the resulting confusion between investment and speculative motives, it served to "debauch" so large a proportion of the country's erstwhile careful investors—in 1927-1929.

This comment is not without humor, although the authors did not intend to amuse. To charge General Electric, Allied Chemical and Dye, General Motors, and Du Pont, representatives of the non-borrowing group of corporations, with responsibility for the panic of 1929 because they refused to admit the investor to par-

ticipation in their large profits except as stockholders, ranks with the celebrated contribution of the school boy who wrote that pins have saved millions of lives by not being swallowed. If this group of profitable non-borrowing companies had followed the old pattern, assumed the burden of heavy interest payments, and distributed a greater share of their profits in dividends, they could not have endured the depression as well as they did, nor would they have preserved the large cash resources which enabled them to expand during the recovery. In guarded language, Myron C. Taylor, in his last report as Chairman of the Board of Directors of the United States Steel Corporation, answered, by implication, the criticisms of the protagonists of large-corporation borrowing.

> In 1929, the financial structure of the corporation was materially changed through the redemption of the mortgage bonds of the corporation to the value of $340,000,000.... That transaction relieved the corporation of a charge of about $31,000,000 a year. *It is fortunately not necessary to speculate as to what would be the condition of the corporation today, had it been required to pay this heavy interest charge during the depression years.* [The italics are ours.]

More up to date is the observation of Dewing, in the last edition of his *Corporation Finance,* although apparently inserted as an afterthought. After a vigorous advocacy of open-market borrowing to obtain current capital, admittedly a more dangerous practice than long-term borrowing, he says, referring to the greater cost of financing out of earned instead of borrowed cash:

> These observations are true. But they comprise a criticism, only if there are no compensating advantages that outweigh the greater cost. The chief ... is the unquestionable stability in which it places the corporation, the independence of all fluctuations in the demand and supply of money, and *the possession of large cash reserves to purchase raw materials and to make advances to the producers of raw materials.* [The italics are ours.] The depression of the following years with its tightened credit conditions found corporations which had followed this policy [mainly stock sales] in an impregnable credit position; their ability to withstand inventory losses and frozen merchandize credits, and a partial and often complete paralysis of demand for their products, attested to its wisdom. The somewhat higher cost of financing through stock sales rather than through borrowings was the price of almost negligible importance, which

such corporations paid for this compact financial structure and impregnable credit position.

In the next edition of his valuable work, we hope that Dewing will drop the advocacy of borrowing, which antecedes and mars these sound conclusions, which reflect the present practice of well-managed corporations.

In concluding our examination of the selection of the type of security, we are faced with a fact, and, as the late judge Oliver H. Dickinson of the United States District Court was accustomed to say in jury charge, "A fact is a stubborn thing." If legal investments continue to be largely limited to bonds, the investor whose funds must be placed in legal securities is denied the advantage of participating in the profits of many prosperous industrial corporations.

To support this contention, we have included the results of a study published in 1938, by the Finance Seminar of the Evening School of Accounts and Finance of the University of Pennsylvania, showing the percentage of return between 1923 and 1936 on the investment of an identical sum in the securities of fourteen industrial groups, seven representing expanding, and seven declining, industries. All companies in the several classifications which were listed on the New York Stock Exchange on May 15, 1937, are included in this comparison with the exception of the railway group, of which 13 of the most prosperous were taken to represent the industry. The period selected includes the three phases of the last complete business cycle. It was assumed that the investor placed $1,000 in 1923 in the *common stocks* of 53 companies in seven expanding industries and the same amount in the *senior securities* (bonds or preferred stock, if no bonds were outstanding) of 48 companies in seven declining industries.[5] For each of these groups, the cash distributions were added to the appreciation, if any, of market value, or reduced by the depreciation of market value. The current values of stock dividends were added to the dividends at the average stock prices for the year in which the stock dividend was issued. The average annual rates of return were as follows:

[5] Chicago and Northwestern, New York, New Haven, and Hartford, Gould Coupler, Baldwin Locomotive, Pressed Steel Car have either been reorganized or are awaiting reorganization.

The increased values, reflecting capital appreciation, cash dividends and the stock dividends, valued on the bases of prices of stocks at end of 1936 for the common stocks of the expanding-industry companies were $158,625.65, or a total average annual increment of 21.33 per cent.

RATES OF RETURN IN EXPANDING AND DECLINING INDUSTRIES

Expanding	*Gain or Loss Plus Dividends*	*Declining*	*Gain or Loss Plus Dividends or Interest*
Automobile Accessories	17.95	Building Equipment	7.17
Business Machines	23.40	Cigars	8.10
Chemicals	40.80	Coal	5 48
Electrical Equipment	15.98	Printing Machinery	5.24
Motors	44.80	Railroads	6.20
Oil Refining[6]	.95	Railway Equipment	5.65
Tobacco, Cigarettes	11.70	Street Railways	7.17
Total Average	21.33		6.23

The investment in the highest-grade securities of 48 companies in seven declining industries showed a capital appreciation of $4,969.78. To this is added the income of $33,936.25 making a total of $38,706, or an average annual increment of 6.23 per cent. The return on the common stocks of companies in the expanding industries was about three and one-half times the return on the senior securities of the declining-industry group.

We do not contend that this comparative record will be duplicated from 1937 to 1950. A record is only a starting point in a complex process of reasoning which includes other, and often controlling, elements. In previous chapters we have indicated signs of obsolescence in motors and cigarettes. Overexpansion and price anarchy may weaken the position of any of these expanding groups and others which are not included in the list. It is, moreover, far from our intention to venture specific recommendations that one or another group offers a profitable opportunity for investment. On the other hand, there is far less reason to believe, from the present outlook of the companies included in the second

[6] The poor showing of the oil industry is partly due to the high prices of oil stocks in 1923, when the assumed investment was made. The separation between the general railroad group, and the coal and iron ore roads had not been made at the time of this study.

group, the declining industries, that they will show 6.23 per cent return during the period 1937-1950. The consumption of cigars continues to decline. The soft-coal industry continues to retreat before the competition of liquid-fuel and water power. Railroads are in worse condition than in 1932. Of the railroad companies named, New York, New Haven, and Hartford, and Chicago and Northwestern went into bankruptcy in 1935. Baltimore and Ohio offers a voluntary reorganization as an alternative to bankruptcy. New York Central is barely earning its fixed charges. The situation of Atchison is much impaired. It has passed its common dividend. Out of the list of thirteen major railroad companies which were examined, only three—Norfolk and Western, Virginian, and Chesapeake and Ohio—are as strong as they were in 1932. Railway-equipment companies have followed railways downward. The street-railway group is substantially weaker. Third Avenue has passed, and Hudson and Manhattan has reduced adjustment bond interest. Interborough Rapid Transit is weaker (in bankruptcy) than three years ago. Unless permitted to increase its fares, Market Street Railway has threatened to go into bankruptcy. The new equipment now being introduced may serve to improve this situation—a point developed in the chapters on corrective influences.

A comparison between the prospects of the two groups supports the conclusion that it is more probable that the representatives of expanding industries will retain their prosperity than that companies in the declining industries will regain theirs.

Investment law and custom reject common stocks. The reasons for rejecting them are based upon instability of market quotations; on the wide fluctuations, not only in prices but in dividends received. How can an institution, it is asked, plan for the future when its revenues come from a source whose yield is intermittent and irregular? This question can be answered by another. How can an institution pay two and one-half per cent interest on deposits when "safe" bonds, whose interest will always be paid, cannot be purchased to yield much more than that low rate of interest? If these institutions insist upon a stable return on their investments, if they are unable to accommodate their disbursements to the fluctuating returns of common stocks, then the interest rates which they pay, on the basis of which they

accumulate their policy holders' reserves, must be reduced below the present levels. If institutions are forced to confine their investments to public bonds, then they must readjust their payments to lower rates of interest.

Comparative safety of bonds can only be argued as an objection to stocks when stocks are issued by the same company, a supposition, as we have shown, which in many prosperous companies is contrary to fact. The record and the present situation show that, so far as safety is concerned, the common stocks of the successful corporations of the expanding-industry groups which do not issue bonds are safer than the bonds of the successful corporations in the declining-industry groups.

We have already indicated that the selection of industries and companies is at best a difficult task. Latent obsolescence, to a greater or less extent, is present in every expanding industry. It has been transformed into active obsolescence in a declining industry. Latent obsolescence, where its presence was only suspected, may at any time break out into an active menace. It is impossible to select a list of common stocks issued by well-managed companies in expanding industries for long-time investment commitments with any assurance that losses will not occur. Investment, like death, is permanent. The entire body of investors in any security, bonds, or stocks, when once committed, must go through to the end. Save as their money is returned to them by sinking-fund redemption, refunding, or mass purchase, they cannot escape. Some of them may shift their burden if they act in time, but they shift it to other investors who take their places. Upon this stable body of investment value operate the forces of change, sometimes to strengthen, sometimes to weaken, sometimes even to destroy. We recognize this fact. Our contention is, however, that since investment income comes from the profits of industry, and since most profits of the most prosperous industries and companies are capitalized in the form of common stock, investors, unless they are prepared to withdraw from the field of private industry, must admit sound common stocks to their portfolios. *The security is made for the company, not the company for the security.* When managements, for compelling reasons of prudence, refuse to issue bonds, and are only a little less reluctant to issue preferred stock; if they are deaf to the

appeals of investors to return to the old pattern of bond capitalization, "the only true investments," because they are well acquainted from the recent experience of the "waning" industries with its disadvantages, and dangers, there is nothing the investor can do about the matter. "Ephraim is joined to his (common stock) idols, let him alone,"—or buy common stocks.

We do not predict the future attitude of the managers of trust funds. The choice is in their hands, either to secure a modification of the legal requirements which have been handed down to them by their predecessors or to continue under the established rules, earning a small return, and leaving to the wayfaring private investor, less informed but also less "stern and unbending" in his habits of thought than the managers of trust funds, the privilege of participating in the profits of the expanding and non-borrowing industries.

PART III

THE SALE OF SECURITIES

CHAPTER XVI

LATENT OBSOLESCENCE

EVERY INDUSTRY, as distinct from the corporations which operate in the industry,[1] like every human being, has a life cycle. The analogy between man and industry is suggestive. The body of every man, even in his active working day and at his peak of health and physical vigor, contains the germs of decay. These germs may develop into disease. For example, tooth infection may be unrecognizable until its presence is suggested by rheumatism or eye infection, or a persistent rise in temperature. To all appearances the teeth are sound, but in at the roots an infection is poisoning the body. Frequently, the influences which develop into disease cannot be located and described. Nevertheless they exist.

So with an industry. It may be, on the surface, sound and prosperous,. The long-term trend of its earnings and dividends may be upward. Its future may seem promising. And yet, in this industry, are the seeds of decay. Unless eliminated by the application of demand correctives, these may develop into deadly infections. Every industry now declining was at one time prosperous. Many industries—canal boats, sailing vessels, ferryboats, harness making, vegetable dyes—are either dead or near death. Other industries—lumber, cotton, woolen and silk textiles, metropolitan electric railways, suburban and interurban railways, and pig iron—are declining.

Every declining industry illustrates this fact of latent obsolescence which precedes the emergence of visible symptoms of decay, but whose recognition and correction might have prevented the trouble indicated by the symptoms. For example,

[1] A corporation, in theory, is immortal. Du Pont for example, dates from 1802 Its history covers six generations of one family. It was never so strong as it is to-day. The reason for its strength, however, is the skill of management in shifting from declining to expanding industries. The explosive business in which it specialized until 1920 now represents a small fraction of its gross sales.

anthracite coal for many years enjoyed prosperity based on a monopoly of a necessity. Beginning with the "Molly Maguires" in the late sixties, and based on exploitation of mine workers by employers, a series of labor conflicts occurred which were crushed and which left much bitterness behind them. In order to secure more tractable workers, the operators brought in many thousands of Polish, Italian, Hungarian, and Lithuanian immigrants, who worked for low wages and broke down the living standards of the native American mine workers. These foreigners were finally organized by John Mitchell into the United Mine Workers of America, and, in the strikes of 1900 and 1902, higher wage scales were established and the machinery of adjusting grievances was installed. The antagonism between workers and operators, however, had been intensified by the strikes. In 1918, so strong was the feeling against the few men who had scabbed, that when one of them died, none could be found to act as his pall-bearers.

Wages continued to rise, with frequent interruptions by short strikes and by threats of strikes. The operators were charged with using these wage advances to justify the public advances in prices. During the war period, additional wage advances were made, and the prices rose to high figures for the prepared sizes. There was no improvement in labor relations. A region-wide strike in 1922, followed by a wage increase, was succeeded three years later by a fall and winter strike which left wages unchanged but the union still in control. Then came the competition of oil and soft coal, starting with the first strike, intensified especially in New England by the 1925 strike, and continuing to grow until it has almost destroyed the investment values of the industry. Little coöperation in reducing costs and prices has been received from the union. Their membership, especially the second generation native-born of foreign parents, remain hostile to the operators. The officials of the union reflected this feeling among the "radical" rank and file. Bootleg mining, for example, was tacitly supported by the United Mine Workers who apparently did not care to understand the damage which this wholesale stealing was doing to their employed membership. The union intervened in the bankruptcy proceedings of the Philadelphia and Reading Coal and Iron to oppose and delay the surrender by the company of unprofitable leases. This antagonism of organized

labor, born years ago, nourished and strengthened through the intervening years, has been a controlling influence to block the efforts of the present group of operators to revive this sick industry.

Here is an illustration of obsolescence, latent, sleeping, apparently harmless for many years while the monopoly profits of the industry were large, but springing into an active and deadly infection when it was weakened by the competition of oil.

In the life of an industry hidden obsolescence may express itself without significant warning. An important cost, demand, financial, or competitive factor may loom up, like a cloud in a clear summer sky, and overwhelm an established industry with a flood of disaster. Such a catastrophe, within a short time in 1915-1917, seriously impaired the investment in the surface electric-railway industry. Or, on the other hand, latent obsolescence may gradually, over the course of years, become dangerous. In the former case the investor, in order to protect himself, must become a trader. He must watch carefully for the sudden appearance of some important factor that threatens to impair the solvency of an industry. If the symptoms slowly develop, the investor can follow his traditional habits of caution and prudence. He may be able, without being unduly hurried by the rush of events, upon the basis of ascertained facts, to sell.

The order of presentation of items of latent obsolescence in this discussion is not based upon their relative importance. One factor may be more important in one industry than in another; in one industry at a particular time and under a given set of conditions than at another time and under different conditions.

In transportation, fuel, textiles, building materials and equipment, distribution, and communication services, wages represent a large share of operating expenses. Each industry may compete with another whose wage cost is lower. In transportation, the steam railroad, with a high percentage of labor to operating costs, competes with the pipe lines and with the ocean-going tankers whose labor costs are low. In the fuel industry, bituminous-coal labor accounts for between 60 and 67 per cent of total producing costs.[2] In oil refining, the ratio is as low as 15 per cent. In the

[2] J. P. Williams, Jr. Organization of the Production, etc. of Coal, Third World Power Conference, p. 43.

textile industry, cotton mills have a higher labor cost than the competitive rayon yarn.

Information as to the relationship of wages to *costs* is not generally available. Official sources do not furnish exact computations. The Census Bureau, however, has computed the wages paid as a percentage of value added by manufacture. The following table records the data for a number of industries:

WAGES AS A PERCENTAGE OF "VALUE ADDED"[3]
BY SPECIFIC INDUSTRIES
(*Based on 1931 Census of Manufacturers*)

I. LOW: BELOW 20 PER CENT

Industry	*Per Cent*	*Industry*	*Per Cent*
Chewing gum	7 1	Chocolate and cocoa products	17 8
Cereal preparations	12.5	Corn syrup, sugar, oil, and starch	17.8
Soap	13.1	Paints and varnishes	18.7
Chewing and smoking tobacco, snuff	15.0	Cigars and cigarettes	19 4
Gas, manufactured, illuminating, heating	15.7	Ink, printing	19.7
		Flour, other grain products	19.9

II. MEDIUM: 20 TO 40 PER CENT

Printing	20.4	Confectionery	30.2
Salt	21.6	Electrical machinery	31.1
Beverages	22.0	Cement	32.2
Chemicals	23.1	Radio apparatus, phonographs	33.6
Cottonseed oil, cake	24.4	Petroleum refining	34.3
Refrigerators, mechanical	24.4	Paper	34.6
Copper	25.0	Coke-oven products	34 7
Sugar refining, cane	26.2	Bread and bakery	35.0
Gold, silver, platinum, refining	26.3	Engines, turbines, tractors, etc	35 2
Rubber tires, inner tubes	27.1	Book and job printing	36.5
Washing machines, driers, etc	27 3	Agricultural implements	36.7
Business machines	29.3	Tin cans and other tinware	37 5
Lead	29.8	Meat packing, wholesale	39 4
Motor vehicles, except motor cycles	30.0	Rayon and allied products	39.6
		Clothing, men's and boys'	40.0

III. HIGH: 40 PER CENT AND OVER

Glass	40.6	Cast-iron pipe, fittings	54.0
Aluminum manufacturers	46.4	Ship and boat building	54.1
Silk and rayon goods	46.4	Cotton goods	54.8
Zinc	46.8	Lumber and timber products	55.1
Furniture and office fixtures	47.6	Aircraft and parts	57.0
Motor-vehicle bodies and parts	47.6	Woolen goods	57.9
Boots and shoes, non-rubber	51.6	Steel works and rolling mills	59.3

[3] This table was prepared by the Harland Allen Associates, Chicago, Illinois.

These ratios need not be accepted as a final test of the importance of the wages in operating expenses. "Value added" may be due to higher prices or larger output. However, the ratio is of value as a reflection of the trend of labor costs in particular industries.

One industry is, therefore, more exposed than another to the dangers of rising labor costs. A 10 per cent increase in wages, or the imposition of the Social Security taxes, on an increase in rates of workmen's compensation, or a minimum-wage law, increase costs in the bituminous and anthracite industries more than in the competitive natural-gas, fuel-oil, and domestic-heating oil industries. The solid-fuel industry is unable to absorb this wage increase without raising its selling prices. The liquid-fuel branch can absorb the increase. Rising wages raise the price level of coal—a declining industry—in relation to that of the competitive fuel-oil—an expanding industry. Indeed, such a competitive-price relationship is a distinguishing feature of an expanding—declining industry landscape.

This does not mean that the ratio of wage costs to total costs, or to selling prices, is necessarily higher in the declining than in the expanding industry. The labor-cost relationship is independent of the prosperity of an industry. It is an outgrowth of the nature of the manufacturing process, of the extent of mechanization, of the volume of raw and semi-processed materials required per unit of finished output, of the volume of transportation services, and of distribution services needed in marketing. Some expanding industries—chemicals, cigarettes, and chewing gum—have a low labor ratio. The volume of raw materials handled, compared with the value of the finished article, is small. Transportation cost, an expensive labor-using service, therefore, is unimportant.

Other expanding industries have a high labor cost. Light-steel, automobile and automobile-accessory, and aluminum industries are illustrations in point. Rolled steel utilizes heavy tonnages of raw materials in the form of coal, coke, limestone, iron ore, and scrap. The smelting of the ore and the conversion of the raw steel into the finished sheet, strip, or wire, includes a number of labor operations. The continuous rolling mill has, however, decreased the number of workers per unit of output. The same tendency is visible in the motor and motor-accessories industries.

Mechanization has played an increasingly large part in their operations.

The same crosscurrents of cost appear in the declining industries. Labor costs, in some declining industries, are high. In others they are low. The manufactured-gas industry, which has developed symptoms of decay in the past five years, and flour, where demand is slowly receding, have low wage ratios. Woolen goods, lumber and timber products, and cotton goods, on the other hand, have high wage ratios. The high ratios of the industries that are now declining did not prevent them, during their expanding periods, from the enjoyment of long careers of profits. Increasing demand from one decade to another produced favorable profit trends. Neither does the low ratio of wages in the declining stages prevent the steady drop in earnings; although, in a period of rising wage costs, the low wage ratio may reduce the rate of decline. At the same time, when demand does decline, the industries with high wage ratios are less able than others to resist or correct the trend.

If the trend of demand is favorable, an increase in the wage scale is not met by price increases. The expanding industry has grown by lowering prices and increasing volume. The expanding industry, faced by higher wages, reduces its costs by operating savings, and, above all, by plant modernization. It does not invite competition by raising prices. In a stationary or declining industry, on the other hand, a high wage ratio may transform latent obsolescence into active obsolescence. The industry is less resistant to the attacks of commodity or service competition. The Wagner Labor Relations Act was followed by a series of substantial increases in wages. Numerous companies, for many years, had adjusted their selling prices to certain wage scales. In restaurants, variety chains, food chains, textiles, telegraph communication, cost-price adjustments had long been based on the employment of low-wage labor. Some might call these wages sub-standard. In many cases, they were less than $13.00 per week. Western Union Telegraph, for example, had long paid its messenger-boys less than this figure. This company had a long and successful career. It had paid bond interest and dividends on its stock without interruption. The competition of the radio, teletype, wireless service, and long-distance telephone had reduced the demand for

telegraph service. But the company was still prosperous. It paid 8 per cent dividends from 1926 to 1931 inclusive. In January, 1932, the dividend was reduced to 1½ per cent quarterly, and in April, 1932, to 1 per cent quarterly. No dividend was paid from that time until January, 1936, when a $2.00 dividend was declared. The last dividend was paid in April, 1937. Its net income available for dividends rose from a deficit of $842,595 in 1932 to a surplus of $4,364,882, $2,234,084, and $5,258,078 the three following years of 1933, 1934, and 1935, respectively.

The drive for higher wages in this company began in 1936. Sixty-four per cent of Western Union's gross revenue is paid out in wages.[4] The effect of wage increases was first reflected in the price of the common stock. In the face of a rising stock market, the price of Western Union declined. In November, 1936, the stock sold at $96 a share. In the rising markets of 1937, Western Union declined. At no time did it attain the November, 1936, price. The decline in the price of the bonds followed, and, by the spring of 1938, the bonds were selling at $60. The company was unable, in higher selling prices, to pass on its higher wage cost to the consumer. A petition to the Federal Communications Commission for an increase in rates was denied.

The sudden rise in wages in 1936 and 1937 has played havoc with the operating income of other important industries. The earnings of the marine-transportation industry represented on the New York Stock Exchange by American-Hawaiian Steamship, Atlantic Gulf and West Indies Steamship, and International Mercantile Marine, was adversely affected. The president of American-Hawaiian Steamship, in his annual report for 1937, presented some data on the relationship between revenue and operating expenses in this industry. In the four years ending 1937, the ship-operating costs of this company had increased 75 per cent, and its direct cargo expenses 64 per cent. These two items represented more than 70 per cent of the operating expenses other than depreciation. The profits of the earlier years were replaced by a slight loss in the year 1937. Atlantic Gulf and West Indies Steamship reported similar results. Its net profit in 1936 was converted into a loss in the following year. Perhaps the

[4] Statement of the president of the Western Union Telegraph Company, *New York Times*, April 14, 1938.

investor may expect a rise in rates to balance these rising costs. In view of the rising trend of costs and rates of its major transportation-service competitor—the steam-railroad industry, this expectation is not unreasonable. When two declining industries compete, as in this case, without disturbing their competitive relationship, a rise in rates by one can safely be followed by the other. Nevertheless, if the steamship rates remain at present levels, the rise in rail rates will tend to divert traffic to the steamships.

Food-chain companies have been depressed by the double impact of declining demand and of a rising wage scale. American Stores passed its dividend for the first time in 1938. It has been recently resumed. National Tea, Safeway Stores, Grand Union Company, and Dominion Stores have either suspended or reduced their dividends.

An industry operating on a low-wage scale, with a high ratio of labor costs to total costs, is always exposed to the danger of strikes or government action to increase the wage scale. Labor is now in the saddle. The existence of relatively low wage scales in an industry is an incitement to strike. A part of the demands of these strikers are usually granted.

Transportation cost is another element of latent obsolescence. An industry with high transportation costs is handicapped, in competition with others not so burdened. The most important form of land-transportation service—and, for bulky and long-haul service, still the cheapest form—is the steam railroad. Many industries still depend largely upon railroads. Iron-ore, non-ferrous metals, lumber, coarse cereals, iron and steel, coal and coke, ship by rail because that method is the cheapest. Some of these industries, however, compete with others which are not wholly dependent on railway service. The tonnage of bulky raw materials is less in one industry than in another. Lumber, for example, competes with synthetic building materials—gypsum, wall board and lath, asphalt and asbestos roofing, and plastics. Substitutes require less raw materials and shorter hauls than lumber. This differential gives these substitutes competitive advantage. As long as movement was largely confined to the railroad, the high transportation costs from the Northwest and the Southeast to the consuming markets did not interfere with the

growth of lumber. But the truck, the improved highway, and modern technology have combined to weaken the position of the competing industries which must ship by rail.

In the building industry, thought is being given to the manufacture of a plastic sufficiently low in price to make it suitable for construction purposes. A plastic construction material would be light, and would require only a short haul. The older building-material industries thus contain elements of latent transportation obsolescence. If the cost of plastics is sufficiently reduced to make price competition possible, the low burden of transportation cost for the plastic will give it a competitive advantage over the non-plastic article. The latter's potential obsolescence might become real.

The nature of the demand, upon which the earnings of certain consumers' industries depend, calls attention to another form of obsolescence, latent in the "Habit Industries."

It is as difficult for an investor to predict the long-term continuance of a habit upon which his security values rest as it is for the skeptic to base a conclusion upon its early disappearance.

The chewing-gum habit has long been an addiction of American youth. Large profits have been made out of catering to this mild vice. What the future trend of the habit may be is a problem which neither the social investigator nor the financial analyst can determine. Social pressure long since banned tobacco-chewing from middle and upper-class consumption. Gum chewing, because of its colorless residuum, is not so offensive as tobacco-chewing. However, the gum-chewing stenographer of the cartoons who masticates her cud and spreads the aroma of chicle around her, may be a threat to the social toleration of a profitable habit.

The same uncertainty makes it impossible to place a limit upon the future of the cigarette industry. Its post-war expansion was due in part to the increase in women smokers, and it is still expanding. As a "manly" vice, by tradition reserved to the sterner sex, smoking by women is tolerated, not fully approved. Continued efforts have been made to restrict sales to minors. As athletic sports among adolescents continue to gain in popularity, these efforts may be more successful. The demand for snuff, with little change, has been sustained for many years, although in recent years consumption has slowly declined. The trend of demand

for cigars turned downward in the early twenties. From an average of 7.3 billions (large cigars) in 1916-1920, the consumption declined to 6.5 billions in 1929, and to 4.3 billions in 1933. Since repeal, the consumption of cigars has increased to 5.1 billions. Cigar manufacturers explain the post-prohibition increase in demand by the greater ability of the cigar, as compared with the cigarette, to absorb, without deterioration, the overflow of beer on table tops at which, in the leisurely contentment of a good conscience, malt liquors are now consumed. Liquor is now legal, but already the chorus of protest is rising, and many local-option elections have gone against alcohol.

The earning power of these consumers' industries is based upon a continuance of the habits of chewing, smoking, and liquor drinking. Save as they affect profits, we are not concerned with the physiological effects, or social attitude toward these habits. Suffice it to say that, if the prejudice against gum chewing, cigarette smoking, or liquor drinking should increase, the earnings of many prosperous companies will suffer. The latent obsolescence will then become real. The declining trend of demand which would follow the decline in social popularity would then emerge as a symptom of financial trouble.

Closely allied with these habit industries is a group whose sales and earnings are based upon the success of a trademark or slogan. These companies, among others, make products which are difficult to distinguish from competitive products that struggle along without benefit of advertising. The same ingredients mixed in the same way, in the form of an article—save for the trademark—looking the same, may be sold by anyone. It is not the economic value nor the human value, nor the low cost of production and distribution which produces earnings. The earnings of these habit corporations, and the market value of their securities, are the result of consumer preference based upon advertising. Consumers' preference for one label over another, even though the products of unsuccessful competitors may be identical, may be illustrated by the strong demand for Ivory Soap which has lasted for over three generations. The long-term trend of expansion has shown more permanence than the trend in the demand for many basic articles. The market superiority of Coca Cola, Wrigley's, and Vaseline over competing articles, not well advertised, is well

known. Corporations controlling the trademarked brands have shown a consistent expansion in demand, and have paid their security-holders high returns on their investment.

We are not left to inference to establish the latent instability of the demand for trademarked goods. Despite the brilliant records of many of these corporations whose strength depends upon a continuance of consumer preference, based on the association of a "particular" trademark with a "general" product, the industry frequently suffers from a shift in consumers' preference. Of the listed companies, the decline in the earnings and dividend of the Lambert and the Vick Chemical companies are outstanding illustrations. The "time" of the reduction in earnings from a shift in consumers' demand can not be anticipated. The danger of well-financed invasion is at all times present. It can only be watched for, and when observed, acted upon. With identical methods of manufacture of competing products, there is always danger that a new trademark, a new slogan backed by millions of "venture capital," may invade an established market. Lever Brothers broke into the American market with its Lifebuoy Soap, Shell Union Oil with its Shell Gas, Philip Morris with its fast-growing cigarette, and in an earlier day, the Lorillard Company with its "coughless" product.

Under present conditions of mobility, plants dependent upon a *particular location* are threatened by obsolescence. The silk-hosiery industry of eastern Pennsylvania, the textile-finishing industry of southern New England and northern New Jersey, the garment industry of New York City, the paper-specialty and newsprint industry of the northern states and Canada, among numerous others, are subjected to this risk. The investor must take note of the extent to which the earnings of his corporations may be impaired by a change in plant location. His company may not be financially able to migrate to new locations. An investor, in the face of modern mobility, must be alert to shift his position. Otherwise this factor of latent obsolescence may suddenly spring up, fully armed, to destroy an earning power long capitalized on a basis of the differential advantage of superior location.

The once prosperous newsprint industry in central and northern New York has long since disappeared, replaced by the Canadian newsprint industry. The pulp and paper industry of the Lake

states is being replaced by the expanding kraft paper and pulp industry in the Southeast. Newsprint is beginning to follow. A large part of the iron and steel industry, once mainly concentrated in the Pittsburgh area, has been split up into a number of important centers: Youngstown, Chicago-Gary, Detroit, Cleveland, Buffalo, Pacific Coast, St. Louis, Birmingham, and Eastern Pennsylvania, and Maryland.

If the industry is monopolistic, and its operations affect directly the lives of millions of people, the probability of direct government intervention is ever present. The continuous decrease in the rates for domestically generated electricity in the past generation has not prevented the power industry from becoming an experimental laboratory to test the relative success of privately owned and freely taxed industry with publicly owned, tax exempt, and subsidized industry. In this unprecedented form of government intervention, the common stockholders of the power industry have already suffered losses. Potential government intervention in the economic and business body is a constant menace. The informed investor can do nothing in advance to protect himself. He must await the appearance of the threat, and then, if he can, sell his securities to some other investor who has more confidence in the intelligence of the ministers of benevolent regulation.

A form of obsolescence is latent in the Consumers' Capital Goods industries, such as the automobile. The motor car appeals to powerful buying motives. The manufacture and sale represent large investments. It employs, directly and indirectly, millions of workers. The automobile has passed beyond the development stage. It is a highly efficient mechanism. Physical obsolescence is low. The average life of the passenger automobile is increasing. The prosperity of the automobile industry and, in a lesser degree, the automobile-accessory industries, depends upon large replacement demand. That demand is not primarily based on physical obsolescence, but upon style and appearance. Up to the present, the demand for passenger automobiles has been well maintained by replacements. The industry has gone to great lengths in giving high trade-in values, to maintain this demand, placing instalment car buying on a monthly rental basis.

There is no danger to the automobile industry in a general recognition by the public that the purchase of a new car, while

the old car is still serviceable, is wasteful. Reason has no place in the decision to buy a new car. The danger of latent obsolescence in the automobile industry lies rather in the competition of other forms of consumption. The summer camp, the European trip, the F. H. A. financed house, the expanding vogue for air conditioning, the bridge club with its prizes and losses, the motor or sail boat, the golf club, and numerous other expanding forms of consumption are major competitors. Each of these is fighting for its share of the consumer's dollar, and incomes are not increasing as rapidly as the opportunities to spend.

Conceding these two facts, a serviceable automobile and a vociferous adolescent demand for enrolment in a summer camp, or for a new house for the newly wed daughter, or for a trip to Norway, or family membership in a golf club, contrasted with the purchase of a new car which is still serviceable and which can hardly be distinguished from the old one, which will be preferred? We suggest that a consideration of these forms of expenditure, alternative to the new automobile, may reveal traces of latent obsolescence.

While latent obsolescence, in the field of Consumers' Goods and Services, may be intangible and difficult to locate, in Producers' Goods it can be more accurately measured. Within the limits of a given technology, improvement continues until a minimum cost is reached. Beyond that point, no further cost reductions can be made. In the generation of power by steam, the coal required to produce one kilowatt hour has been reduced from five to about one pound since 1920. The increase in combustion efficiency which has taken place since then probably cannot be duplicated in the next 20 years. Almost every industry records this progress. At every point in the process of cost reduction and quality improvement, every corporation within an industry which has not utilized the existing technology to the fullest extent is subject to a competitive handicap.

This theoretical limit to the reduction of costs below an ideal minimum is rarely carried out in practice. Every technology is potentially exposed to the competition of an improved technology. Within the limits of a given state of the arts, the reduction in costs may be great. The industry, thus reducing its costs and improving its service, may be able to "point with pride." Every de-

clining industry can truthfully point with pride. The steam-railroad, electric street-railway, cotton, woolen, silk, leather, and lumber industries can demonstrate their mechanical and production efficiencies, their ability to produce more goods with less labor and with less capital. But if a new and improved technology has been at work in a *competitive* industry to produce the same product or service at lower costs, then the efforts of the declining industry will be unsuccessful. Those industries utilizing the methods provided by the existing state of the arts must examine the evolution of two or more sets of technological influences. Heavy investments in betterments to increase output and reduce costs in anthracite coal have proved unprofitable in the face of a superior technology in the competitive liquid-fuel industry. The central breakers installed by Philadelphia Reading Coal and Iron may have been the last word in plant efficiency in anthracite preparation. Fifteen years ago the possibility of displacing domestic-heating oil with a different technology might have been considered a factor of latent obsolescence in the anthracite-coal industry. And so is proved to be.

In the textile industry, rapid improvements have been made in the art of spinning and weaving. Within the last twenty years, cotton and silk have had to take into account the mechanical efficiencies made available by the regenerated cellulose process. The rayon industry making these synthetic fibres has, because of the improved state of the art, reduced the costs to a greater extent than the competitive natural textiles. The rayon industry, in turn, is subject to a factor of latent obsolescence. This arises from the evolution of a more efficient method of manufacturing the same article. Since the inception of the industry, the rayon fibre has been made by the "batch" process. The partial replacement of "batch," or discontinuous, methods by the continuous method of production has characterized a surprisingly large number of industries. Industrial Rayon has completed a plant, the first of its kind, for the making of rayon by continuous production. The new plant, it is said, will materially reduce the time required to process the raw material into the finished fibre.

Continuous-production methods have been introduced into the metal and metal-fabrication industries. The procedure for rolling tin plate by hand by numerous passes through a single pair of

rolls had been improved for many years. The hand-operated hot rolled mills installed in the late twenties were superior to the mills which they replaced. Heavy investments in the more efficient hot rolled mills were made by the leading concerns in that field. McKeesport Tin Plate and the United States Steel thus were able to reduce the prices and improve the quality of tin plate. The improvement in plant efficiency and reduction in costs occurred at the very time when experimentation was creating a new and improved technology which was destined, within a few years, to make the efficient and improved hot mills obsolete. In the new continuous rolling mills, the ingots are hot rolled to slabs, and then continuously rolled down to strips of about one-eighth inch in thickness. By this "cold reduction" method, the reduction in thickness is made while the metal is hot. The final finishing from one-eighth of an inch down to about 1/100 of an inch is done with the cold metal. The cold rolled plate is a more efficient article than the hot rolled plate made by the old hand-operated mill. The price differential between the hot rolled and the cold rolled plate—a differential due to difference in quality—has been eliminated. One of the most efficient of older hand-operated mills specializing in that line, Standard Tin Plate, in the spring of 1938 curtailed its operation. "Some regard the older process as now definitely obsolete."[5]

McKeesport Tin Plate, an important producer of tin plate by the old hot rolling method, did not have sufficient cash to finance the installation of the new machinery necessary to shift to the new cold rolling method. In 1938 it passed its common dividends and floated a $6,000,000 bond issue to pay off some bank loans. Latent technological obsolescence became a stark reality.

In other branches of steel fabrication, the continuous principle has replaced the older and less efficient method. The rolling of steel bars has evolved into its present stage after more than 150 years of experimentation, research, and continuous changes.[6] Heat-treating furnaces and steel foundries are being built on a continuous-production basis.[7] The manufacture of wire rods by modern methods of straight-line continuous production has re-

[5] *Journal of Commerce*, April 20, 1938, p. 17.

[6] For description of the development of the modern bar mills see, *Steel Facts*, May, 1937, pp. 6 and 7.

[7] For description of a typical furnace see *Iron Age*, July, 1937, p. 41.

cently been introduced by a subsidiary of U. S. Steel.[8] But the most notable, and, financially, the most significant step has been taken by the sheet and strip mills. Sheets and strips are extensively used in American homes and industries; and the capital investment in this branch of steel fabrication exceeds that in any of the other branches. Investment in continuous rolling mills has been examined in the chapter on the "Expanding and Declining Industries," and the effect of the introduction of the continuous rolling mill for sheets and strips on the earnings of a leading heavy steel company will be found in the chapter on "Demand Correctives."[9] The principle of straight-line production has also been adopted in other metal-working branches. Bridgeport Brass, for example, completed in the spring of 1938 the construction of a plant at Bridgeport, Connecticut, for the manufacture of brass, copper, and copper-base alloys. This $4,500,000 plant utilized the straight-line production principles in the non-ferrous metals industries.[10]

Due largely to the science of synthetic organics, almost every raw-material industry has latent obsolescence. The raw-material monopoly was, for many years, an important source of investment income. Iron ore, bituminous coal, anthracite coal, lumber, nitrate of soda, camphor, phosphorous rock, were, at one time, scarce and valuable. The ability to limit supply, and to control, if not to raise selling prices, laid the foundation for rising investment values.

The progress of modern science in chemistry, as well as in other fields such as metallurgy and compressed gases, has reduced, and, in some cases, destroyed the capitalized values dependent upon raw materials. Chilean nitrate of soda has been displaced partially by synthetic nitrate. The collapse in prices and the reduction in exports from Chile has contributed to the serious impairment of Chilean government bonds. Hardwood, for more than a half a century, was the important raw material for acetone and methyl alcohol, two important solvents, and for acetic acid. These three products are now made synthetically. The hydrogenation of carbon monoxide produces methyl alcohol

[8] For description of this mill see *Iron Age*, June 24, 1937, p. 30.

[9] Chapter XXIII.

[10] Pamphlet of Bridgeport Brass Co. entitled "Bridgeport Builds for the Future."

by utilizing the waste gases of the by-product coke oven. The competition of synthetic alcohol, made with such cheap raw materials, has all but destroyed the "naturally produced" article made from hard-wood distillation. The elimination of natural dyes by synthetic coal-tar dyes has often been explained. Camphor, menthol, and citric acid are other raw materials whose industrial and investment importance has been reduced by synthetic competition.

Additional raw materials are, under present conditions, open to attack from synthetic chemistry. The demand for leather is lagging behind the demand for shoes. This is due in part to the increase in the use of rubber and composition soles, and of synthetic fabrics in the uppers. The per-capita consumption of cotton is declining due to the growing inroads made by paper and rayon into markets formerly controlled by cotton.[11] Natural silk has, within the past fifteen years, lost a large part of its market to the synthetic fibre known as rayon. It has retained control of the full-fashioned hosiery market. This last stronghold is in danger from synthetic competition of two new fibres, one made from coal tar, by Du Pont, and the other made from the by-products of petroleum refining and from natural gas by Carbide and Carbon Chemicals. The earnings of the textile-upholstery industry, represented by Collins and Aikman and Artloom, appear to be menaced by glass fabric. The old "natural" building and construction materials are threatened with growing obsolescence by the competition induced by modern chemical synthesis. Lime, lumber, stone, and brick are losing an increasing share of their market to such products as building glass, gypsum wallboard, and plaster, phenolic and cellulose plastics, and asphalt and asbestos roofing and sidings. Iron ore is paying tribute to the ingenuity of the compressed-gas practitioner whose burners can now reduce scrap to sizes, standardized in accordance with industrial needs. This has been an important factor in increasing the demand for scrap at the expense of iron ore. Electric-furnace steel is made almost entirely from scrap.

Every industry whose earnings depend upon the exploitation of a naturally produced raw material is subject to latent obsolescence. The increasing efficiency of modern technology is making

[11] See p. 30 for details.

an ever-growing percentage of latent obsolescence real. The investor in a raw-material industry must acquaint himself with the findings of modern science.

To latent obsolescence arising from the possible supersession of the naturally by the synthetically produced article, has been added a new force—competition within the synthetic industry itself. The prosperity of the chemical industry has attracted many. Graduates of chemical schools have increased, as have the number of experienced chemical engineers. Additional investments in scientific laboratories, both educational and industrial, have given chemists opportunity to exploit their knowledge and ability. Synthetic products can be fabricated by competitive processes; and what one group of scientists can do with one technology, another can accomplish with another. For many years, for example, hydrocarbon exploitation was based almost exclusively upon coal as a raw material. Synthetic dyes, plastics, alcohols, solvents, etc., were made from a coal base. Many of these products are now made from petroleum. The hydrocarbons from waste refinery gases and from natural gas have a wealth of chemical raw material rivaling that of the coal-tar, the coke-oven gases, and of the electric-furnace coke. Nylon, the new synthetic textile fibre to be made by Du Pont from the coal raw material, will encounter the competition of Vinylite to be made by Carbide and Carbon Chemicals from the petroleum raw material. Important solvents made from fermentation by Commercial Solvents and U. S. Industrial Alcohol must be sold in competition with solvents made from petroleum and coal by Union Carbide and Carbon and by Du Pont.

In welding, gases have long had a preëminent position. The prosperity of gas welding may be impaired, though no positive statements can be made, by a struggle with the rival process of electrical welding. Perhaps each branch of industrial welding may locate its own niche in the industrial structure. Scientific opinion differs on this point.

This subject could be developed almost without limit. Only a few suggestive illustrations have been given. Not until the perfect form of product or service has been reached can the management fold its hands and relax. Obsolescence, latent or active, is a universal fact of which the investor must never lose sight.

CHAPTER XVII

SYMPTOMS OF DECAY: I, STATIONARY DEMAND

THERE IS no industry, no product, no service of which it can be said, "See, this is perfect, final, finished." In the physically expanding industries, the forces of progress are strong enough to offset and overcome the forces of decay. Fifty, seventy, even ninety years represent the life spans of industries which still function, and some of which are still flourishing. There is no fixed life cycle for any human institution. Assuming the perpetuity of the institution of private property, a business corporation can live forever. But while business immortality is attainable, it is not easy to achieve. Disease and death are everywhere. The skeletons of many enterprises are scattered by the millions along the pathway of human progress. Not only does the individual enterprise die, but entire industries are either extinct or are rapidly moving toward their final resting places.

At some stage of its history, an industry stops its expansion. Its business becomes stationary. This stationary period, disregarding cyclical changes, extends for some time while the forces of inter-industrial competition gather weight and momentum. Then comes the decline, sometimes marked by a sudden catastrophe, such as befell the street-railway industry during the World War period; sometimes, as with cane-sugar refining, by a slow decay extending over many years; sometimes again, by a period of decline intermediate between slow decay and catastrophe, illustrated by the steam-railroad and the anthracite industries.

During the interval of transition from prosperity to depression, each industry displays certain trends which, to borrow a medical term, we may call diagnostic symptoms of disease. A man apparently in good health, seeking life insurance, submits to a physical examination. He feels fairly well. His color is too good. In walking, he picks up his feet and puts them firmly down. His appetite is voracious, and his digestion gives him no serious uneasiness.

He dines and dances, banquets and golfs. He considers himself a healthy man with many years of useful life remaining. The examination discloses high blood pressure and serious arteriosclerosis. Until he is advised of the presence of these symptoms, the patient may consider himself a well man.

But it is not too late. Diet, light exercise, medication, if employed *in time,* may correct the trouble and postpone the danger. If the application of these corrective measures is too long delayed, however, the opportunity for reconstruction is gone. Nothing can be done to save the patient.

So, in the field of industrial profits and the investment values which these profits support, during the stationary period of an industry's life history, examination will disclose the presence of diagnostic symptoms of industrial decay, which indicate the need for prompt remedial action if the industry is to regain its health.

Much of the reasoning which lies behind investment customs and practices ignores the familiar fact of economic change. The premium placed upon real-estate mortgages is based upon the assumption that as urban real estate has increased in value since colonial times, so its value will continue to increase. A combination of economic and institutional forces created the demand for city residential construction. Before the advent of the automobile, the area devoted to residential purposes was limited. Suburban development was in its infancy. Many of the areas in the outskirts of the large city remained untouched by the builder. The apartment house which reduced the number of cubic feet of space per person was, except for New York and Chicago, of minor importance. Twenty years ago it was confined largely to those points accessible to the subway and elevated trunk-line arteries. The space available in urban areas for residential construction was limited by transportation facilities.

The demand for building space, on the other hand, was increasing. Immigration, combined with the drift of population from the farms to the cities and a rising birth rate, coöperated to increase the demand for city real estate. Property values were high and rising. Under such a condition, the value of real estate maintained a substantial equity in excess of the real-estate mortgage debt. Within the framework of this set of economic values,

grew up a firm belief in the investment quality of the real-estate mortgage. This preference is reflected in the laws regulating the investment by trust estates and by savings banks. Many investment institutions founded on the value of the real-estate mortgage developed.

This preference for real-estate investments has been maintained despite the losses of the last ten years. One organization alone, S. W. Straus, sold and distributed, between 1882 and 1932, a billion dollars of real-estate mortgage bonds. In 1933, on the date of the receivership of this enterprise, there were $360,000,000 of bonds unpaid, held by 80,000 bondholders. Threatened losses to both mortgagors and lenders from real-estate mortgage foreclosures were so great, during the years of depression, that the Federal government, in response to a social emergency, exchanged over three billions of poor mortgages [1] for government-guaranteed bonds. In this way, the distressed mortgage holdings of numerous fiscal and financial institutions, such as savings banks, insurance companies, and others, were taken over by the government. The subsequent losses which have resulted from foreclosure which were not large, were distributed among the taxpayers. This enormous amount of real-estate mortgage refinancing did not impair the belief in the value of sound real-estate mortgages. In spite of these defaults, the investor's preference did not seriously change. These losses were explained. They were due to over appraisement, to excessive issues, to the absence of amortization provisions, and to a general neglect of the principles of sound real-estate financing. There is little recognition of the decay of urban real-estate values.

The losses in real-estate mortgage and bond investments are not incidental nor accidental. They are the consequences of changing economic and social conditions. Much of the central city real estate has, in the light of modern living standards, become obsolete. Traffic congestion, caused by the automobile, and the trend toward the suburbs, have reduced the demand for central city living quarters. The increasing number of families in which both husband and wife are employed, the decreasing birth rate, the trend toward apartment-house life, are a few of the many factors that have reduced the amount of living space required for a

[1] $3,092,871,000 as of June 12, 1936.

family. As a result, the demand for living quarters has declined. Meanwhile the supply has increased. The building boom in the twenties added housing facilities in the outer areas of the large cities and in the suburbs out of proportion to the increase in demand. This change in the basis of the real-estate mortgage has not as yet seriously affected the viewpoint of the investor. There is no apparent appreciation of the forces operating to impair permanently the value of urban real estate, and the usefulness of the real-estate mortgage as a channel for conservative investment.[2]

These habits of thought are difficult to change. The same factors that have produced one set of values are assumed to continue until disproven by the *event*. The event is a change in the financial statement. This line of investment thinking is revealed throughout the field of corporate securities. After a long record of continuous interest and dividend payments, the bonds and stocks of an industry are elevated to an investment status. The securities of the industry become seasoned. They encounter the storms of panics and depressions. They justify their position in the investment portfolio by their ability to survive. There is little or no imagination in the assessment of investment values. The bonds of the Pennsylvania, Union Pacific, and New York Central are good because they always have been good; because during the periods of business depression the bonds paid interest and the stocks paid dividends. Ten years ago the bonds of the Chicago and Northwestern, and of the New York, New Haven and Hartford, were also good. They were not as good as the securities of the first list, quoted above; but their investment standing was high. They sold at high prices. They were legal investments. This conclusion was reached because the income statements of the twenties revealed the same margin in earnings over interest which had existed in similar periods.

The conclusions upon which investment in railroad securities

[2] Mention should also be made of influences operating independently of the special circumstances noted to depress real-estate values: (1) The deflation following the war; and (2) neighborhood and structural obsolescence which is always at work; and (3) the depression which because of the doubling up of families, reduced the demand for living space; and (4) the loss of confidence in real estate in consequence of the depressed values resulting from the sale of foreclosed property by large lenders including the Home Owners Loan Corporation.

was based in the decade of the twenties were unsound. The income statements and the balance sheets upon which law and private-investment decision relied were delusive. They did not point to the truth. The index of earnings traced by investment analysis was false, and the losses taken from the use of this index were severe. There were few personal or institutional accounts which have not suffered losses in their railroad-bond portfolio in the last decade.

Similar experiences in the second and third decade of the century were encountered in the metropolitan traction industry. The bonds of the Interborough Rapid Transit, the Brooklyn Rapid Transit, the Chicago Railways, the Market St. Railway of San Francisco, and the United Railways of St. Louis for many years had paid interest. Prudent investors had come to depend upon the maintenance of a regular flow of income from their street-railway bonds. Their first-mortgage bonds, prior to 1915, sold at high prices. The income statements showed favorable margins of safety which were not substantially different from those of the earlier years. Suddenly, in 1917, with no open warning, the industry buckled, the bond values collapsed, the earning power disappeared, the income statements were plastered with red ink, and large numbers of traction enterprises in the next few years were jammed through the wringer of judicial reorganization. Many of these street-railway bonds, transformed by reorganization into income bonds or stock, still appear with investment lists of sound institutions.

This practice of judging the investment value of securities upon the basis of recorded financial experience is sound only if the premise of a stable industry is sound. The investor assumes that what has been, is, and will continue to be; that the forces which produced, and which continue to produce, a favorable income statement and a margin of safety over interest charges will continue. This assumption, while for many years justified by events, can no longer be accepted as sound. That the demand for freight-transportation service, for example, will continue to increase with the growth of the country, cannot be assumed; it must be demonstrated. Neither, as experience has indicated, can it be assumed that the demand for railroad passenger service will increase with the increasing population and the

rising standard of living. As we have already seen, the increase in the demand for primary goods and services is frequently accompanied by rapid fluctuations in the demand for particular agencies by which the demands for these goods and services may be served. Freight transportation of many products can be supplied on better terms, by the truck, the boat, and the pipe line. And although the railroad passenger mileage is still large, more convenient passenger service can be performed by the passenger automobile, the bus, and the airplane. The demand for *steam-railroad and for street-car transportation services may thus decline in a period of rapidly rising demand for transportation service.* The people may still need railroads and trolley cars, and the sale of transportation service may provide enough funds to pay wages, materials and taxes. These funds may not, however, be sufficient to pay interest and dividends on bonds and stocks.

This inter-industry competition characterizes almost all industries. The income statements tardily reflect the operation of the forces which are responsible for the growth and decline in the demand for goods and services in competitive markets. The constant change in the flow of corporate income, as revealed in corporate financial statements, discloses rapid fluctuations in response to rapid changes in economic and technological forces. These factors affect the public-service industries as well as the unregulated industries. The public franchise to the power, gas, telephone or street-railway company affords little protection against these competitive forces. The changing fortunes of the power industry, ushered in by a rapidly rising trend of demand in the early twenties brought with it a corresponding rise in earnings and in the market valuation of its securities. Bonds became attractive to individual investors, and, in the course of time, the bonds became legally available in a limited way for investment by savings banks and other fiduciaries. The theoretical limitation on earnings imposed by the public franchise did not prevent the rapid increase in speculative activity in the common stocks; nor did the rigid limitation of earnings reduce substantially the continuous increase in the margin of safety for the better bonds. The increase in prosperity of the electric-power industry in the twenties was sharp and rapid in accordance with expectations in an industry favored by rapid expansion in demand.

On the other hand, the revolution in the fortunes of the steam-railroad and manufactured-gas industries in the thirties was not retarded by the monopolistic privileges of franchises. The prohibition by the Interstate Commerce Commission of the entrance of new competitors into the steam-railroad industry did not aid the declining fortunes of existing enterprises, although had this protection not been furnished, the decline of earnings might have been more severe.

The first diagnostic symptom of decay is an arrested growth of demand. It is the industry more than the corporation, that the investor must watch. The choice of the expanding industry is usually a more difficult task than the selection of the individual company. The well-managed company reflects its success in its balance sheet and income statements. Its holdings of cash and government securities are large. It does not often borrow from the banks. Its funded debt is low, frequently absent. The well-managed company in an expanding industry, once having established itself on a sound financial basis, continues its growth. The prosperity of a corporation can continue only if the prosperity of the industry, in which it operates, persists. A prosperous, even if well-managed, company, in a declining industry, is an exception.

The change from industrial prosperity to industrial poverty, as viewed statistically, is often sharp and sudden. No warning may be given. A high profit in one year is frequently followed by loss in the following year. The liquid reserves of an enterprise may be eaten up in whole or in part by a sudden drop in earnings. The record earnings of the steam railroads in 1928 and in 1929 were sharply reduced in 1930, and in many cases disappeared in 1931 and 1932.

The sudden change in the situation of an industry, as revealed in the income statements, does not usually reflect the relatively slower fluctuation in the underlying economic forces. The change in the trend of demand, the most powerful factor in undermining the fortunes of a prosperous industry, at first usually develops slowly. An expanding industry is characterized by an increase in demand which is rapid, sustained, and which exceeds, by a substantial amount, the increase in the demand for all the goods and services in the social economy. In the early pioneer stages of expansion, the industry starts from scratch, and the annual

change can be computed in very large percentages. A large base is established from which the percentage increase in demand takes on more moderate proportions. This period may last many years. The industry successfully adjusts itself to low costs and superior service. There are no assignable limits to the period of steady expansion; and there is no rule by which a term limit to the expansion period can be fixed. Neither is there any rule to determine the percentage of annual increase in demand for the goods and services of the expanding industry, which may be expected. Conclusions can be reached only by the examination of evidence. There is no substitute for careful and informed observation of the underlying trends of demand. The reasons which propel the fluctuations in demand trends are frequently not visible. They represent forces which, at the time of their action, cannot always be identified.

As it approaches decline, whatever the reasons may be, the trend of demand in a prosperous industry levels off. The rate of annual increase in prosperous periods decreases. In prosperity, the upward rise becomes less than the increase in demand for the entire group. The demand trend also is no longer sharply upward. The line becomes jagged. It is up one year by a substantial percentage; it is up the next year by a much smaller percentage; and it may even decline from one year to the next.

These general considerations may be tested in the railroads (not including coal and iron ore roads), the most important declining industry. Judged by its gross revenue, its wage and tax bill, its interest charges, and the extent to which its bonds are distributed among investors, the fortunes of the industry affect more people than any other single publicly capitalized industry.[3] The record of growth in the demand for railroad service is not available prior to 1882. From 1882 to 1907 the freight tonnage doubled every decade; and from 1907 to 1923 it increased annually at the rate of about 3 per cent. From 1882 to 1923 the traffic density—the ton-miles per mile of road—showed an increase from 400,000 to almost 1,700,000.[4] Since 1907, the annual rate of increase was

[3] With the exception of real estate, which is not, however, represented by any single industry, and only a small part of whose obligations are listed on the public exchanges.

[4] Brief for the Applicant, Interstate Commerce Commission, Finance Docket No. 4741, p. 25-26.

about 3 per cent, which corresponded with the index of production.

From 1923 to 1929, as the following table indicates, the increase of the traffic system slowed in a period of rapid industrial expansion:

FREIGHT TRAFFIC, 1923-1929

	Tons of Revenue Freight (000 omitted)	*Revenue Ton-Miles Per Mile of Road*	*Percentage of Increase or Decrease*
1923	2,503,117	1,615,741	
1924	2,331,291	1,581,556	—2
1925	2,463,725	1,613,862	2
1926	2,627,492	1,732,295	7
1927	2,510,054	1,668,800	—4
1928	2,504,196	1,677,089	.005
1929	2,584,333	1,727,786	3

This table reveals the irregular increases in production characteristic of a declining industry in a period of industrial expansion. Increases in 1925 and 1926 were followed by a substantial decrease in 1927. The increase in the relatively active year of 1928 is slight, and the boom year of 1929 shows only an increase of 3 per cent, which was characteristic of *normal* year to year expansion in the 15-year period succeeding 1907. The railway industry had entered the stationary stage. Passenger traffic was already declining, and freight traffic was soon to follow.

The drop in the depression was sharp and unprecedented. From the peak of 1929, the revenue ton-miles per mile of road dropped 47 per cent to the 1932 bottom. The traffic carried in 1936 and again in 1937—years of active business and large production—was below the peak of 1929, and also below 1930—a year of general business recession.

The failure of traffic to rise in proportion to the rise in the volume of goods available for transportation was a diagnostic symptom of major importance. The inherent weakness in the railroad industry was not revealed by its income statements and balance sheets. Financially, the industry enjoyed a period of great prosperity. The 1923 to 1929 era may be called the golden age of the American railroad. Dividends paid, market values of

securities, and general confidence in the industry's future, as recorded by the ease with which bonds and stocks were sold to the investing public, all reached the top. The period was characterized by an active corporate consolidation program. A number of the weaker railroads, such as the Erie, St. Louis and San Francisco, Chicago, Rock Island and Pacific, and the Wabash—roads which had passed through reorganizations, roads with a heavily overbalanced financial structure, and roads which had not paid dividends for more than a half a century, such as the Erie—put some of their stocks on a dividend basis.

Nevertheless, the 1923 to 1929 era represented selling, and not buying opportunities to the railroad investor. The appearance of a relative decline in business done was accompanied by a high market valuation of the industry's securities.

The downward readjustment, after a period of stabilization, is not always as sharp as the line traced by the steam-railroad industry in the 1930 to 1936 period. A Consumers' Goods industry, like sugar refining, flour milling, or confectionery, can reach a period of stabilization that may be extended over a long period. The symptom of warning, however, exists. The decline in gross finally overtakes the reduction in operating expenses and fixed charges, and the companies, by reducing dividends or defaulting on interest, enter confessions of judgment. Days of prosperity are over. The winter of discontent is at hand.

The steam-railroad industry may be compared with a typical expanding industry—the electric light and power industry. The total K.W.H.'s generated increased from 2,507,051,000 in 1902 to 11,569,110,000 in 1912, and to 40,291,536,000 in 1922. The following table gives the K.W.H.'s generated by years, from 1924 to 1929, inclusive:

KILOWATT HOURS GENERATED BY WATER AND STEAM POWER, 1924-1929

		Percentage Annual Increase
1923	55,665,000,000	...
1924	59,014,000,000	6.0
1925	65,870,000,000	11.6
1926	73,791,000,000	12.0
1927	80,205,000,000	8.6
1928	87,850,000,000	9.5
1929	97,352,000,000	10.8

The increase in production in the electric light and power industry during the expansion period of the twenties was, therefore, regular and sustained from year to year. The annual increase was also large, exceeding by a substantial percentage the corresponding gain in industrial production of all goods and services as measured by any of the standard industrial indices. During the depression, the decrease in kilowatt-hour generation and consumption was slight. Electrical-energy sales for residential purposes, indeed, never declined. This is the most profitable part of the business.

With this sustained increase in demand as a background, the electric light and power industry enjoyed a record-making advance in the twenties. The value of plant and equipment increased from $4,465,016,000 in 1922 (93 per cent of the industry) to $9,382,000,000 (100 per cent of the industry) in 1927, and to $11,850,000,000 (100 per cent of the industry) in 1930. During the same period, the gross revenue rose from $1,208,779,000 to $1,824,457,000 to $2,135,000,000, for 1922, 1927, and 1930, respectively. This continuous expansion in gross revenue and volume of business made it possible for the industry to absorb the increased burden of wages, coal, and taxes. There were few important bankruptcies. In the years of depression which followed 1929, more than 30 per cent of the railroad mileage was placed under the protection of the court. On the other hand, no important power property passed its interest in the depression years, and but few power enterprises passed their preferred dividends. Many maintained their common dividends. Despite the heavier tax burden and despite government competition, through loans and grants, the electric light and power companies maintained a large part of their common dividends. The railroad companies, on the other hand, with a few exceptions, passed or drastically reduced their preferred and common dividends.

CHAPTER XVIII

SYMPTOMS OF DECAY: II, BETTERMENTS

Additions Replaced by Betterments

THE SLIGHT and irregular decline in demand, a characteristic symptom of impending illness, is soon attended by other symptoms that foreshadow financial decay. Business organizations are geared to take care of sales in excess of normal demand. When industry is expanding, plant capacity increases. In periods of activity, shortages occur, and capacity is enlarged to meet increasing demand.

These expansion programs, necessary to accommodate an increased volume of business, build up a load of fixed expenses. Many of the fixed overhead costs are included in operating expenses. A new pulp mill, generating plant, refinery, or continuous rolling mill involves an increase in fixed expenses which are largely independent of the volume of production. The cost of maintenance, power, engineering, supervision, taxes, depreciation, and, occasionally, depletion, are relatively stable; they do not fluctuate with sales. Demand, in depression, may be greatly reduced. Still, plants must be maintained, salaries and wages, taxes and depreciation must be paid. In the railroad business it has been estimated that approximately 65 per cent of maintenance expenses are independent of the volume of traffic. This percentage cannot, or rather should not (it usually is), be reduced when car loadings decline. Accurate computation of similar percentages for other lines of business is difficult. Few studies have been made. Some observations may, however, be permitted.

In the moving-picture industry, the fixed part of operating expenses is substantial. The cost of producing a picture does not, in many cases, indicate the gross revenue received from that picture. The revenue cannot be anticipated. Shrewd and careful guesses, based upon previous experience and upon current economic conditions, represent the best that can be expected in the

way of forecast. The large film companies, in 1936 and 1937, made more million-dollar films than ever before. Some pictures cost as much as $1,500,000, and few even more. The various costs entering into a million-dollar film are given by Terry Ramsaye in the *Motion Picture Almanac* as follows:

Cast, $250,000; extras and character part, $50,000; director, $100,000; director assistants, $20,000; camera crew, $15,000; lights, $20,000; make-up, hairdressers, etc., $9,000; teachers, $2,000; crew and labor, $12,000; story preparation, $70,000; story cost, $50,000; costumes and designers, $20,000; sets and art directors, $125,000; stills and photographs, $4,000; cutters, $10,000; film negative, $10,000; tests, $12,000; insurance, $20,000; sound engineering and negatives, $31,000; publicity, transportation, miscellaneous, $20,000; indirect costs, $150,000.[1]

Most of these expenses are operating expenses, allocable to a particular picture. They do not represent the fixed elements of expense, such as rent and taxes, which are included in the recognized overhead. Nevertheless, they are, within narrow limits, fixed, since the studios must produce a certain number of costly pictures in order to retain patronage. Of course, in the event of a sustained decline in business, costs can be reduced. The extent of reduction, however, cannot be even approximately estimated.

An industry which has long been prosperous has increased its plant and equipment, as well as its maintenance, selling, administrative, and supervisory organization. It has also built up its fixed charges. In an expanding industry, these charges are absorbed in the swelling stream of sales. The stream may narrow and, in the event of serious depression, may even disappear. The succeeding periods of business recovery again increase sales, the overhead expenses are again covered, and another period of expansion and plant additions follows.

A rising gross volume imposed upon a relatively unchanging overhead results in rapid increases in profits. Only a small percentage of the increased gross is paid out in increased charges. Only the out-of-pocket costs, the direct costs of operation, rise with the volume of business. This is a well-known characteristic of the steam railroad, steel, and power and light business.

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[1] As reproduced in *The Wall Street Journal*, November 18, 1937.

When the demand for the industry's goods and services declines, even during normal business conditions, these mounting burdens of overhead constitute a serious problem. In depression, their effects are intensified. Overhead charges then exert their full corrosive effect upon profits. As the volume declines, the industry attempts to maintain net earnings by cutting operating costs.

Initially, the decline in sales may be small. The industry can reduce costs. Credit is still high. Companies can sell bonds, and even stock, at attractive levels. The funds thus raised are not devoted to expansion. The productive capacity of the industry is sufficient to meet a demand in excess of the existing market.

Costs are reduced by the installation of betterments. However, this relative concentration of expenditures on efficient mechanisms as compared with additions to plant, is a symptom of decay. It is a striking indication of approaching decline. This increase in betterment capital explains a phenomenon that has interested students in this field. Economic theorists assert that new capital follows higher profits, and, therefore, that an increase in profits is accompanied by an increase in investment, and a decrease in profits by a decrease in investment. Hence, a declining industry should not attract new money.

Investment is made not only to increase production but to reduce costs. When business is growing, both purposes are served. But when the decline begins, and costs rise, then management, if it can secure funds, makes investments in cost-reducing betterments as distinguished from additions. Every declining industry offers examples of investments made to reduce costs.

In the steam-railroad industry, between 1920 and 1929, the investment increased from $19,800,000,000 to $25,500,000,000, an increase of 29 per cent. Ton-miles increased 9 per cent and passenger miles decreased 34 per cent. In the previous decade—from 1910 to 1919—railway investment increased one-third, while ton-miles and passenger miles increased by nearly one-half. In the second period—from 1920 to 1929—the increase in investment was accompanied by a small increase in traffic, and on many roads by a decrease. These capital expenditures in the prosperous decade from 1920 to 1929 were incurred for the purpose of reducing transportation costs. Railroad electrification, terminal im-

provements, modern rolling stock, modernization of tool and repair shops, establishment of less than carload-container services, are only a few of the betterments introduced.

The need for capital expenditures in an industry with decreasing profits is well presented by an authority held in high respect. In 1933, Joseph B. Eastman of the Interstate Commerce Commission wrote:

A more or less continual inflow of capital funds is essential to a healthy railroad system. In the past the need has sprung primarily from the constant expansion made necessary by increasing traffic. This cause does not now exist, but it is likely to return, although not to the old extent. *Lack of traffic growth,* however, *does not eliminate need for capital funds.* Improvements to permit better or more economical operation usually entail capital expenditures. The known opportunities for such improvements are large, and many now unknown will surely develop [italics ours].[2]

In another declining industry, cotton and woolen textiles, the decline in per capita consumption began in the early twenties. Decline in demand coincided with decline in capital invested in additions and in increase in capital invested in betterments:

Until the early 1920's, weaving equipment was sold mainly for the purpose of increasing the output of existing fabrics. Some looms were sold with the idea of decreasing manufacturing costs, particularly in the cotton section of the industry. Since 1925 *virtually no weaving equipment has been sold for expansion* in the manufacture of fabrics that existed at that time. The new machinery has been adopted either for the purpose of reducing costs or for the manufacture of new fabrics which, because of width or other conditions, could not be woven on existing equipment.

The new installation in the silk and rayon sections of the industry were made because neither the old cotton looms nor the old silk looms were suitable for the production of rayon fabrics. These old machines were not of the right proportions or design and were not made with sufficient accuracy to overcome the difficulties of rayon weaving.

In the cotton industry some of the new installations have been made to permit the manufacture of new fabrics such as cotton suitings and upholstery. The *majority of the new looms have been*

[2] *Commercial and Financial Chronicle,* November 13, 1937, p. 3,083.

sold, however, because of their ability to produce *at a lower cost* than that existing with automatic and non-automatic cotton looms of the older types.

In the woolen and worsted field the desire for lower manufacturing costs has motivated most of the mills which have installed new equipment. In the majority of cases automatic looms of the latest types were bought to replace non-automatic equipment. Increasing numbers of installations, however, have been made from the standpoint of operating flexibility. The new Convertible Worsted and Woolen looms were installed to permit the users to change from pick and pick work to work that ordinarily is run on an automatic loom [italics ours].[3]

The electric interurban industry, during its decline in the past twenty years, has increased its operating efficiency and improved its standard of service. Its record of bankruptcies and suspension of dividend payments has been paralleled by a record of continuous improvements to its property. The Chicago, North Shore and Milwaukee Railroad, a leading interurban line, was acquired by the Insull management:

In 1916, when the present management took hold [stated its president in 1926], it had an investment of $12,251,997. At the end of 1925, the investment was $32,950,000—we have been constantly developing the property. We only recently placed an order for twenty additional combination passenger cars; three more dining cars; some refrigerator cars, and are adding materially to our motor coach fleet. We are just completing construction of the Stokie Valley route, an additional main line route, which will greatly facilitate our express speed between Chicago and Milwaukee, permit us to greatly develop our freight business and, in addition, open up a beautiful new section of country for residential purposes. Our investment in this new line will be about $9,000,000.[4]

An electrified railroad, the Chicago, South Shore and South Bend, was acquired by the same management:

The road, in spite of the extraordinary territory served, had defaulted interest for many years. Immediately upon taking over the

[3] *C. & K. Box Loom Census,* 1937, p. 30. (Crompton and Knowles Loom Works, Worcester, Mass.)

[4] "The Present and Future of Electric Railways." Britton I. Budd, a pamphlet distributed with the New Bulletin, Illinois Committee on Public Utility Information, April 12, 1926.

management, we started re-electrification to convert it into a high-speed electrified railroad. We are providing it with the best equipment to be had, including diners and observation cars and good freight facilities. We have already increased the service, even though our improvement work, which will cost in excess of $4,500,000, is at this time only about half completed. We are hopeful that the road can be brought to such a high standard as to make it a transportation agency of real service to the people.[5]

These efforts to increase the earnings of these corporations were unsuccessful. In 1932, the Chicago, North Shore and Milwaukee was placed in receivership and in October, 1932, it defaulted in the payments of taxes and interest; in 1934 it was placed in bankruptcy under Section 77-B. In October, 1933, it sold receiver's certificates; and in the same year it borrowed money from the Reconstruction Finance Corporation. Shortly after, both principal and interest on this loan were defaulted. The Chicago, South Shore and South Bend filed a petition in bankruptcy in September, 1933. A plan for the reorganization for this property was submitted in 1936.[6]

In bituminous coal, production was declining in the boom of the twenties. From 1926 to 1929, inclusive, the production (in thousands of tons) was as follows: 573,367; 517,763; 500,745; 534,989.[7]

The industry could hardly be condemned for the making of improvements to reduce costs. Pittsburgh Coal, an important unit in the business, sold $20,000,000 of bonds in 1929 to refund $1,746,500 of bonds and "for the payment of indebtedness incurred in modernizing the plants, for improvements, and for other corporate purposes."[8] The company from 1925 to 1929 invested $12,000,000 "in mines, electrical and mechanical equipment, cleaning plants, and rehabilitation of mining towns."[9]

In a letter from the Chairman of the Board of the Pittsburgh Coal Company to the Union Trust of Pittsburgh appeared the following:

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[5] *Ibid.*

[6] The reorganization programs of many of the small-city street-railway properties have been reasonably successful. Many of these properties have recently been equipped with buses, and the results have been encouraging.

[7] *Minerals Year Book*, 1938, p. 708.

[8] From the bond circular, issued by the Mellon Nat'l Bank, Pittsburgh, Pa.

[9] *Ibid.*

Four large modern plants in the Pittsburgh district have been built or are building for mechanically cleaning coal. Three of these plants are in operation, and with the completion of the fourth, early in 1929, 60% of the present output in Pennsylvania will be coal prepared and cleaned for market in the most modern efficient manner. Of the total output, 87% is handled over modern tipples with shaker screens.[10]

In the domestic cane-sugar refining industry, the present total capacity is approximately equal to that of 1920. Nevertheless, since 1920 seaboard refiners, "have spent substantial sums in increasing the efficiency of their plants and fully maintaining their capacity. It appears that capital expenditures are made in this industry primarily through the modernization of old units rather than the construction of new units."[11]

Rising capital expenditures for betterments, characteristic of the early stages of industrial decline, are, in the later stages, succeeded by reductions. As sales drop, rising overhead absorbs the remaining profit. The increased plant investments, in the earlier stages of decline, have, by this time, increased plant mechanization. Engineers and skilled technicians have displaced handworkers. Fixed salary scales have replaced flexible wage contracts. The cost of normal maintenance has increased. Depreciation has become more important. Taxes have advanced. An increase in overhead costs, not disclosed in a period of prosperity, becomes a burden in depression. Overhead unit cost rises, profits decline, credit disappears, and the industry is thrown upon its own resources. Meanwhile, the industry has in most cases accumulated a heavy debt burden. It can no longer sell bonds. It now begins a race with decline. Earnings decline, but fixed charges remain. In the effort to preserve solvency, the industry impairs the assets from which it draws its earnings.

As earnings decline, and deficits increase, the industry cuts its costs. It can, however, no longer reduce costs by plant modernization. It can no longer finance the introduction of betterments which reduce operating expenses or which enable the industry to increase output with a given number of workers. The industry

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[10] *Ibid.*

[11] Letters from John E. Dalton, U. S. Cane Sugar Refiners' Association, January 23, 1939; January 30, 1939.

cannot, except by the abandonment of part of its property, cut its taxes. It cannot, without reorganization, either in bankruptcy, or by voluntary agreement with its bondholders, reduce its interest payments. As long as it performs a minimum of service, it cannot further reduce its skeleton staff.[12] Salaries continue. Maintenance expenses, wherever possible, are reduced; and, what is most significant, those expenditures most easily postponable—betterment expenditures—are not made. No longer does the industry largely expand its investment account. From this point, the conclusion of the economists, that capital does not enter an unprofitable industry in large amounts, is confirmed by experience. No longer does the investor throw, except for well-secured chattel obligations (for example, equipment-trust certificates or commodity secured loans—good money after bad). No longer can the industry sell bonds, except of this special type, and in small amounts under the terms of rigidly limited closed mortgages. The industry and the investor no longer speak as they pass by.

Abandonment of Betterments and Rise in Obsolescence

The abandonment of capital expenditures soon develops another important symptom of decay. The suspension of capital expenditures by a declining industry increases its disadvantage in competing with an expanding industry. The declining industry falls out of line with the rapid progress of industrial technology. Machines are constantly being improved. Improved machines supersede the old. But the declining industries are no longer in the machinery market. The outlays for betterments which their credit permitted during the early stage of their decay can no longer be financed. They can no longer make substantial investments in plant facilities. New cost-reducing machine tools, modern light and weight-saving alloys, more powerful steam and Diesel engines, are not for the unprofitable declining industries. They are reserved largely for the expanding and the prosperous. The plants of declining industries, therefore, tend to grow obsolete.

For evidence to support this conclusion we refer to the steam

[12] Declining industries, during the depression, greatly reduced executive staffs, even to the point, in some cases, where they could not satisfactorily handle the reduced volume of business.

railroad. Due to reduced traffic and earnings, the railroads, from 1931 to 1934, deferred maintenance. In 1934, for example, according to a report of the Coördinator of Transportation, 21.2 per cent of locomotives were in unserviceable condition, and the serviceable locomotives were only two-thirds efficient. A summary covering 13,934 locomotives owned, and 13,617 locomotives used, gave an average age in 1934 of 17.34 years and 13.13 years, respectively. These serviceable locomotives were obsolete. The cost per horsepower unit increased with the age of the locomotive.

Another report of the Coördinator examined obsolescence of machine tools. The average age of machine tools owned by three manufacturers—a machine-tool builder, an automobile manufacturer, and an electrical-equipment manufacturer—was between eight and nine years, and of comparatively few individual tools, more than twelve years. The combined annual machine-tool repair cost was equal to 1.2 per cent of the original cost. This repair cost compares with an average of 7.4 per cent annual repair costs of all railroad-shop machinery. The railroad-shop machines had an average age of 21.8 years. Under a policy of machine-tool renewal, so planned that the average age would not exceed 7.5 to 8 years, with an ultimate life of 15 to 16 years, instead of 21.8 and 43.6 years, respectively, the Coördinator stated that it would be reasonable to assume that the annual repair cost would not exceed 1.2 per cent of total investment, or $3,846,000—a reduction of $19,854,000 below the annual average of $23,700,000 expended during the 12-year period, 1920 to 1931, inclusive.

It was stated further that if the average age of all railroad-shop machinery were reduced from 21.5 to 7.5 for 14 years on the average, the saving in repair cost alone, at $19,854,000 per year, would amount to $277,956,000, or 87 per cent of an amount sufficient to replace all existing shop machinery. Further extensive savings were computed which the Coördinator said could be reasonably expected from the complete modernization of railroad repair shops and the maintenance of equipment facilities.[13] Money is not available to make these replacements. If creditors were organized and wisely directed they would defer interest in

[13] *Railway Age*, Vol. 96, June 16, 1934, p. 865; Vol. 100, June 20, 1936, pp. 994-995.

order to modernize their plants. Few suggestions of this kind have been made, and they are not favorably received.

The shipping industry, like the railroad industry, has paid little in dividends. International Mercantile Marine and Atlantic Gulf and West Indies, for example, present erratic investment records. Their bonds sell at low prices. The decline in the demand for the shipping services of companies registered under the American flag has been proceeding for 15 years. During this period, the earnings and working capital of these companies have diminished. The industry has spent little on new ships. The time has long since passed when the industry has had sufficient cash or credit to make investments in betterments.

The shipping industry, again, like the railroad industry, shows much obsolescence. Eighty per cent of the ocean-going merchant fleet operating in the foreign trade and in the domestic service will, by 1942, be over 20 years of age. This indicates an annual replacement program of 1,300,000 tons annually. Except for tanker replacements, no important new construction, prior to 1938, had been made in American shipyards. According to the authority of the then acting director of the Bureau of Research of the United States Maritime Commission, the post-war era, in which the American Merchant Marine made little or no profits, was characterized by great strides "in naval architecture and marine engineering, resulting in greatly reduced costs in ship operation. In this respect, the American Merchant Marine is at a great disadvantage, owing to its small number of modern ships, compared with those of our principal competitors." [14]

We learn also from the same source that in 1936, for the fifteenth consecutive year, not a single seagoing ship of the general cargo-carrying type was built in an American shipyard for foreign trade. We learn also that "the entire government-owned fleet will be 20 years old or older in 1942; 91 per cent of the domestic fleet will have passed that age by 1942; 88 per cent of the tanker fleet; and 85 per cent of the foreign-trade fleet. Even with liberal subsidies, America's obsolete ships cannot compete with foreign vessels." [15]

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[14] *Journal of Commerce* March 29, 1937, summary of broadcast over station WBBC, Brooklyn, by Alfred H. Haag.

[15] *Journal of Commerce,* July 28, 1937.

Along the same lines, the United States Shipping Board Bureau of the Department of Commerce, in the Intercoastal Investigation case, reported that "no freighters have been built since 1922, when American-Hawaiian built its two motor ships. The average age of the vessels shown in the table (not reproduced here) mostly built by the government during the war period, is nearly sixteen years. On the whole, they are practically obsolete." [16]

An idea of the savings that can be effected by modernization of the obsolete shipping equipment of the American Merchant Marine was presented by Dr. Ernest B. Benger, of the Du Pont Company, in an address before the American Association of Port Authorities:

It is inevitable that the revolution underway in land transportation, precipitated by superior structural metals and power units, will not stop where land meets water. The elements of change that introduced the faster, lighter, rustless, streamlined train, that are relegating the so-called standard freight cars to scrap, that changed the automobile from a rich man's equipage to the average man's necessity, and today are causing aviation engineers to think in terms of continents and oceans and 100-ton loads—these elements of change are also going to give us ships faster, lighter, stronger, safer and infinitely more economical in operation.

The initial painting of a 10,000-ton freighter requires more than 50,000 pounds of paint. This deadweight is increased by more thousands of pounds with each repainting. Thousands of tons of paint are being carried from port to port by our ships without a return of one cent for this freightage.

It is estimated conservatively that more than $100,000,000 is spent annually by the shipping interests of the United States alone because of fouling on ships bottoms. Fouling diminishes speed up to 50 per cent, delays the voyage from 10 to 50 per cent of the total time, increases fuel consumption up to 40 per cent additional, increases wear and tear on machinery and costs the average ship a loss of one month out of every year of service, or almost two years in its useful life.

Since the first ship slid down its ways into salt water, corrosion and fouling have been astride the shipping industry's neck like twin Old Men of the Sea. Organized research might find the solutions to both problems among the new metal alloys.

[16] Intercoastal Investigation, Department of Commerce, U. S. Shipping Board Bureau, p. 28.

For more than a generation prior to the Civil War, the American clipper ship ruled supreme on the trade routes of the world. Ninety per cent of America's ocean commerce was carried in American bottoms. The clipper ruled by virtue of its speed. It moved freight with the expedition of passengers.[17]

It is therefore clear that the declining steam-railroad and shipping industries can be benefited by heavy investments in the fixed capital account. The investments would enable these two industries to perform their services more effectively and give the consumer a better article for a lower price.

The cotton-textile industry discloses the same symptoms of accumulating obsolescence. The carded-yarn mills represent an important division of cotton textiles. For many years these mills, as a group, have operated without profit. They have little cash, and they have, therefore, not installed modern and improved machinery. The antiquated equipment has increased unit costs. Despite the reduction in consumption, the number of spindles is as great as 25 years ago. "Carded yarn mills are wearing out; in fact, many of them are almost ready for the junk dealer, while hoping, against hope, for a demand such as existed twenty or twenty-five years ago.

Until there are profits there can be little replacement of machinery and without modernization many mills are doomed." [18]

In the sales yarn division of the cotton-textile industry, it has been stated "that half the sales yarn mill equipment in this country is obsolescent." [19]

Evidence of obsolescence in the silk-weaving industry—another unprofitable field of American enterprise for more than a decade—is presented by a vice-president of an important textile-equipment manufacturer, John F. Tinsley, of the Crompton and Knowles Loom Works. Speaking in December of 1934, he stated that, "since January 1931, 8,041 super-silk looms have been installed for weaving silk and rayon. Thus, as compared with the total number of silk looms in existence, less than 10 per cent are of the strictly modern type." He also stated that the mills that have adopted the new looms had reduced their production costs

[17] *Journal of Commerce*, October 14, 1937.
[18] *Ibid.*, December 11, 1934.
[19] *Ibid.*

and increased the quality of output, "to a point far beyond the expectation of those who originally saw the benefits to be derived from a replacement program." Of the approximately 90,000 looms weaving silk and rayon, excluding cotton looms previously used for the weaving of fine cotton, and now employed on rayon, only a small percentage were strictly modern. Over 60,000 of these looms, according to conservative estimates, are from 10 to 40 years of age. "Not only are most of the looms in the country old, but many of them are not equipped with mechanisms which are deemed essential to high quality production by the best mills. Recently it was estimated that one third of the silk looms in the United States are not equipped with warp stop or feeler motions." [20]

The rayon industry is perhaps the most profitable division in the textile group. Although it began earlier, most of the installed capacity dates from 1926. The leading companies have borrowed little (at least, prior to 1938), and they have paid substantial dividends. Separate earnings, and interest and dividend distributions of the Du Pont Rayon Company, Viscose Company, and Tennessee Eastman Company are not published. These enterprises are subsidiaries of Du Pont, Courtalds, Ltd., and Eastman Kodak. Celanese and Industrial Rayon are not controlled by any other major enterprise. Their securities are listed on the New York Stock Exchange. Their dividend and profit records show, in general, an upward trend.

Rayon is a new textile. The decline in prices has increased its competitive strength in the textile field. It is therefore pertinent to note a remark in the trade press that

> No class of textile looms [referring to rayon] is so constantly being improved with new time-saving devices with the result that recently produced types become old from an economy standpoint on account of revolutionary changes....
>
> Examples in this connection are coming up in the form of mills starting to use "new looms" which are followed by others in rapid rotation. Many things recommend each "latest addition" to mill equipment in the rayon section. It is observed that it is demonstrable that real savings in production cost are effective where the newest equipment is installed. Neither machinery manufacturers nor their

[20] *Ibid.*, December 8, 1934.

customers are able to say with finality that a stable point is being reached in introducing new looms and their accessory fixtures.[21]

A leading manufacturer in the textile field reports along the same line:

1. That there are more obsolete looms in the Worsted and Woolen section than in the Cotton and Silk and Rayon sections.
2. That the Cotton section is more completely equipped with automatic looms than the other two sections.
3. That the automatic looms of the Silk and Rayon section are far more modern than those of the other two sections.[22]

Data on the relative degree of obsolescence in the expanding and in the declining-industry groups were furnished also by a study of the *American Machinist* in 1935. An estimate was prepared of the per cent of metal-working equipment over ten years old in a selected group of industries. Except for the aircraft and aircraft-engine industry, which is so recent that it has not had the opportunity to develop a large percentage of obsolescence, "the motor vehicle bodies and parts" industry had the least per cent of obsolescence—52 per cent. Railroad equipment and repairs was listed as 71 per cent, textile machinery and parts at 72 per cent. Two declining industries, therefore, reveal in this summary the symptom of excessive industrial obsolescence.

Research Expenditures

The decreasing appropriations for capital improvements and betterments are also accompanied, in a declining industry, by reductions in funds made available for research. This is another form of corporate activity which is not essential, in the short-run view of things, to the survival of an enterprise. A decline in profits, apparently, can be checked by the elimination of research appropriations. Research work may be considered as a "frill," to be immediately disposed of as soon as financial conditions make such action imperative. Research work in industry appears to occupy the same position as the so-called non-academic,

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[21] *Journal of Commerce*, October 15, 1935.

[22] *C. & K. Box Loom Census*, 1937, p. 1. (Published by the Crompton and Knowles Loom Works, Worcester, Mass.)

and therefore non-essential, activities in the public-school system. Citizens and organizations who insist upon educational budgetary reductions, when required to present a bill of particulars, usually allude to the desirability of eliminating such branches as music, free dental and optical services to indigent families, specialized vocational training of boys and girls who are unable to grasp the academic essentials, adult evening high schools, and special training schools. Such reasoning is as dangerous in the field of education as it is in industry. It sacrifices a small present gain for a permanent loss.

Industrial research has been a notable factor in the prosperity of industry. Research work, scientifically conducted under the auspices of a business corporation for profit, was first established in this country in 1888. Du Pont organized a research branch in that year on the Brandywine River, just outside of Wilmington, Delaware. Since then a number of industries have been in the forefront of industrial research developments. Scientific research has been the principal factor in the development of such industries as chemistry, glass, automobile, electrical equipment, rubber, pulp and paper, and metallurgy. In other prosperous industries, research appropriations have been made slowly and gradually, but on an irregularly ascending scale.

Appropriations for research, as for improvements and betterments, are, in modern competitive life, essential. However, they can be postponed until better days arrive. An individual may postpone for some time expenditures for dental examination, for new furniture, and for painting of his house. A corporation can do likewise. It is a policy, however, which is dangerous, both for the individual and for the corporation.

Progressive companies in expanding industries do not risk this danger. Among the prosperous industries, the chemical corporations are the leaders in this field, followed by the automobile. A surprisingly large number of specialized industries support research organizations, some on a moderate, and some on a heavy, scale.

An interesting table, showing the average research expenditures per plant in ten of the most important industries, has been published in a volume by Prime, entitled *Analysis of Industrial Securities:*

Industrial Group	*Average Annual Research Expenditure (per plant)*
Chemicals and Allied Products	$105,000
Automobile	100,000
Rubber and Allied Products	100,000
Metal-Making Plants	63,300
Food and Allied Products	47,000
Paper and Pulp	38,400
Textiles	20,000
Rolling Mills and Steel Plants	16,200
Leather and Allied Products	15,200
Lumber	13,600

The research expenditures in the chemical industry are responsible for the continuous succession of new products, which have played such an important part in increasing the earnings. New lacquers and finishes have contributed to the modern automobile. Refrigerants have made possible the electrical refrigeration industry; and tetra-ethyl lead, by eliminating the "knocking" problem, made possible the extensive use of the present-day high-compression motor. The development of these and numerous other products created the foundation for increased sales volume and lowered selling prices, which are the prime essentials for corporate prosperity.

General Electric, the leader in the expanding electric-equipment industry, is reported to have spent from $1,500,000 to $2,000,000 annually for research; General Motors, approximately $1,500,000 annually; Johns Manville, a leader in the profitable synthetic building materials industry, averages $1,000,000 annually. International Business Machines, an important and profitable unit in the expanding business-machine industry, spent for "patent and development expense" $835,000 in 1930, $752,000 in 1931, and $710,000 in 1932.[23] In the "recession" of 1937-38, the company "maintained at full force its activity in the field of research and development of new products." [24]

The motor industry has spent "not less than $20,000,000 a year for engineering development and research during the past two decades"; [25] International Nickel of Canada, the world's largest

[23] Figures on these companies from Prime, *Analysis of Industrial Securities.*
[24] *Wall Street Journal,* October 3, 1938.
[25] Statement of Paul G. Hoffman, President, Studebaker Corporation, in *Wall Street Journal,* February 18, 1939.

producer of nickel, spends approximately $350,000 a year on marketing research. American Can, the leader in the metal-container industry, has, through its research activities, developed new types of containers which have strengthened its position among its food-packing clientèle. Hercules Powder, one of the smaller units in the chemical industry, spent about $850,000 for research in 1936, and the company's experiment station at Wilmington represents a capital investment of $1,250,000, affording "complete facilities for industrial research of the highest order." [26]

The expanding oil-refining industry spends over $12,000,000 annually in laboratories that employ over 3,200 engineers, chemists, and physicists.[27]

The steel industry is also rapidly expanding its research activities. For 1937, such activities were "broader and more intensive than in any recent year." [28] More than 2,350 engineers, metallurgists, chemists, physicists, and other experts are employed in its research laboratories. Another 1,200 employees devote part of their time to research.

Some of the more specialized industries, operating in a field of rapidly rising demand, spend large sums on their research laboratories. Parker Rust Proof, for example, which made an excellent record of earnings and dividend distributions in the past decade, has greatly enlarged its research work. From one chemist in 1926, the company had, by 1937, expanded into an organization employing 50 graduate chemists. It has been reported that, with the completion of its new building in Detroit, the company will have probably the largest laboratory in the country devoted exclusively to the problems of rust control and prevention.

The contrast of research appropriations in the expanding and profitable industries with those in the unprofitable and declining industries is a tragic tale. Let one of the declining industries, cotton textiles, speak for itself. The Secretary of the United States Institute for Textile Research, Inc., describes the research work of the cotton-textile industry as follows: "As compared with the hundreds of thousands of dollars that are expended annually by the various British textile research associations, or with the mil-

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[26] Annual Report, Hercules Powder Co., 1936, p. 8.
[27] *Chemical & Metallurgical Engineering*, April, 1938, p. 175.
[28] "Steel Facts," May, 1937, p. 2.

lions that are spent annually for scientific research by the big domestic chemical, electrical, automotive and communications companies, the total of domestic expenditures for textile research is ridiculously small." [29]

C. K. Everett, Director, New Uses Division, Cotton Textile Institute, has, in his many public statements, recognized the adverse effects of the declining demand for cotton textiles. He has repeatedly appealed to the industry to build up a research fund with which to fight the textile competitive battle. What he terms a broader, sounder financial base will insure, he writes, "the necessary continuity of concentrated, intensified effort in activities that, restricted though they were in the past by budgetary limitations, have demonstrated the possibility of not only a tremendous expansion of existing uses, but of the development of promising new outlets for cotton." [30] Despite convincing presentation of the case for the textile industry, the funds available for laboratory and marketing research are small.

The steam-railroad industry, perhaps the most important declining industry, has spent little for research. Most of the improvements in steam-railroad transportation were devised by non-railroad men. Such devices as the air brake, the sleeping car, and the automatic car coupler; such new materials as low-alloy steels and lightweight metals; such new equipment as the electric and the Diesel-electric locomotive, have been perfected by organizations outside the railroad industry. Modernization of the industry along lines indicated by modern research can save the industry large sums. Ralph Budd, President of the Chicago, Burlington and Quincy Railroad, recently estimated an annual saving of $125,000,000 in operating expenses through the replacement of present freight equipment by new lightweight cars, and a probable return of 20 per cent on an investment of $300,000,000 annually on new locomotives.[31] These new mechanisms and materials, however, were not developed in the railroad laboratory. Research appropriations of chemical, metallurgical and electrical industries, all expanding and prosperous, have combined to make these savings potentially available to a declining industry.

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[29] *Journal of Commerce*, January 17, 1938.
[30] *Ibid.*
[31] *Wall Street Journal*, December 1, 1937.

In the fuel industry, a comparison can be made between the solid- and liquid-fuel divisions. The anthracite and bituminous coal sections are declining, their research appropriations are small. The petroleum refining industry is prosperous, and its research appropriations are heavy.

We may summarize, then, that limited appropriations for research are a sign of weakness, and characteristic of a declining industry; and that heavy research appropriations are a sign of strength, and characteristic of an expanding industry.

CHAPTER XIX

SYMPTOMS OF DECAY: III, MOVEMENTS OF PRODUCTIVE CAPACITY

THE RECURRENCE of cycles of depression and expansion in physical output and earnings makes it difficult to interpret another set of symptoms. In a business decline, almost every industry, profitable and unprofitable, encounters a recession in demand.

In depression, both profitable and unprofitable industries suffer. The expanding Capital-Goods industries suffer more at such a time than the declining Consumers'-Goods industries. The manufactured-ice and the food-chain industries, for example, reported better dividend and earnings from 1930 to 1933 than did the light-steel and the alloy raw material industries. The former represent declining Consumers'-Goods industries, and the latter represent expanding Capital-Goods industries.

In the recovery which follows depression, another group of symptoms of decay develops. In depression, almost every industry shows excessive plant capacity. Each industry, in the face of declining demand, can produce more than the market can buy. The characteristic of a seller's market, due to a commodity shortage, is rarely present in depression.

In expansion, however, the line is soon drawn between expanding and declining industries. The return of purchasing power, although spread over all lines of industrial activity, expresses itself best in expanding industries. What appeared, in the depression, to be excessive plant capacity is then frequently absorbed by rising demand. A shortage of purchasing power in the depression is followed by a shortage of plant capacity in the revival. The buyer's market, in the one period, is followed by a seller's market in the other. And in some industries in which the supply cannot be promptly increased, a spiral of price increases follows.

In this period of rapid expansion, all industries benefit from the increase in demand. The percentage of idle capacity falls. In

the expanding industries, a point is soon reached at which additional demand can be met only by increasing plant capacity. In declining industries, this point is, as a rule, rarely reached. The increase in demand can be met by the better utilization of existing equipment. In a period of recovery, therefore, a typical expanding industry must construct additional units. The declining industry, on the other hand, has a supply of obsolescent equipment which is not used except in times of prosperity. Then marginal plants are put into operation, and the increasing demand for goods and services is met.

In testing these considerations in the recent period of recovery, we may look first at the textile industry. The cotton and rayon divisions, respectively, represent the declining and expanding, the unprosperous and prosperous, groups. Spurred by rising costs of production, and by anticipated increases, the cotton-textile industry in 1937 attained a new production record. The peak of spindle installation, however, was reached in 1925 with approximately 39,000,000. From 1925 to 1936 the trend of spindle installation was downward. In 1936 the net loss was 1,553,250 spindles, bringing the installed equipment to a new low of 27,700,194. In the first two months of 1937, 600,000 spindles were junked, and the 27,103,076 spindles installed on February 28, 1937, only slightly exceeded those installed on August 31, 1907—26,939,415. In thirty years, 12,000,000 spindles had come and gone.

The increase in the demand for cotton textiles in 1936 and 1937 was met by an increase in the number of active spindles from 22,828,888 in May, to over 24,000,000 in December of 1936. "Although the average number of active spindles over the 12 months [in 1936] was less than in 1935, and the lowest of any recent years, save 1932, there was a marked *decline* in those operated intermittently. These represented marginal units which operate only under propitious conditions."[1] The idle spindleage was reduced from 4,500,000 early in 1936 to about 2,500,000 or 10½ per cent of the total installed in 1937. The number of operating spindle units, including those operated intermittently, comprised, probably, about 25,000,000 spindles. The more intensive oper-

[1] *Journal of Commerce,* April 2, 1937, statement by W. Ray Bell, analyzing the sixth annual survey of The Association of Cotton Textile Merchants of New York. The other data on spindle operations and installations were taken from the same source.

ation of approximately *the same number of spindles* in 1937 consumed approximately 7,000,000 bales in that year as against 5,000,000 bales in 1906.

The expanding branch of the textile industry is rayon. The consumption of rayon fibres in the United States, except for a slight decline in depression, shows uninterrupted growth. In units of millions of pounds, rayon consumption, beginning with 8.7 in 1920, reached 131.4 in the boom of 1929, dropped to a low of 117.9 in 1930, and reached a record high of 297.5 in 1936.[2]

The industry could not meet this expansion in demand with its existing equipment. In the prosperous twenties, the rayon industry steadily increased its plant capacity. A substantial percentage of the plant erected prior to 1929 was idle from 1930 to 1932. The earnings and dividends of the rayon industry declined. Nevertheless, the recovery in the spring of 1937 made it impossible to meet demand without an increase of capacity. A shortage of yarn developed. For months, orders for rayon yarn were apportioned among buyers who were unable to secure an adequate supply to meet their knitting and weaving requirements.

The rayon industry early in 1937 made plans for a substantial increase in capacity. Almost every important company built additions to its plants; the installed capacity increased in 1938, and again in 1939.

Other declining industries did not expand their plants in recovery. In fuel, the anthracite and bituminous coal industries, typical of the non-profitable group, did not increase their capacities. In fact, a wide margin existed between capacity and consumption. No substantial addition to plant investment has been made in ten years. Except for a few corporations, there are no funds available to finance expansion programs. Earnings are low. The phosphate-fertilizer industry added no capacity. Even in the best years, this industry operated below capacity. The total domestic capacity is approximately 12,000,000 tons, compared with a use of 8,000,000 tons in the record fertilizer year of 1930. Neither has the recovery period witnessed any substantial amount of new construction for increases in plant capacity in meat pack-

[2] Data on rayon consumption are taken from the Textile Economic Bureau, Inc., of the Rayon Organon, and reproduced in the *Journal of Commerce*, January 17, 1938.

ing, leather, manufactured ice, manufactured gas, heavy steel, street railway, flour milling, woolens and worsteds, railway equipment, and steam railroads, other typical declining industries.

The leading expanding industries, on the other hand, steadily added to plant capacity in recovery. They were compelled to increase supply in order to overtake demand. The construction program of the chemical industry is noteworthy. By 1936, many branches of chemical activity had a level of output in excess of 1929—the boom pre-depression year. The record demand necessitated heavy investments in new plants. The Union Carbide and Carbon, for example, spent $6,000,000 for the erection of a new chemical plant in the Southwest. Additional millions were spent for other construction activities, including a plant for the production of Vinylite, a new synthetic resin. This resin has found a wide use in many industries, including safety glass lamination, the lining of tin cans, and the waterproofing of paper milk containers. The company has also constructed plants for the manufacture of chemicals from refined petroleum gases, formerly either wasted, or used for heat and power generation. At South Charleston, West Virginia, it has invested $3,000,000 in an enlargement of its ethylene glycol plant.

In 1937, the Ethyl-Dow plant near Wilmington, North Carolina, doubled its capacity. In the summer of 1938, the capacity was again increased by 75 per cent. This plant supplies about 50 per cent of the anti-knock content of gasoline used in the United States.[3] Air Reduction, a leading factor in the field of compressed gases, increased its capacity in 1936 and again in 1937.[4] Even the old alkali business participated in the revival of construction. A subsidiary of Allied Chemical and Dye built a new plant at Baton Rouge, Louisiana; Mathieson Alkali at Lake Charles, Louisiana; and Southern Alkali at Corpus Christi. These three new alkali plants involved an approximate expenditure of $20,000,000.

Du Pont, the largest factor in the chemical group, was also in the recovery years a leader in plant construction. Plants for the manufacture of synthetic rubber, synthetic camphor, titanium oxides, cellulose plastics, coal-tar dyes, rayon, cellophane, among

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[3] *Journal of Commerce*, May 2, 1938.

[4] Statement of C. E. Adams, President, Air Reduction Company, *Wall Street Journal*, April 15, 1937.

other products were erected. This company, indeed, expanded from 1930 to 1932, in the midst of the depression. The plant for the manufacture of neoprene, the so-called synthetic rubber first introduced in 1931, has been enlarged several times.[5]

This distinction between the expanding and the declining industries in capacity expansion is further shown in the steel business. A division between heavy and light steel has characterized the industry for many years. The demand for heavy steel has been declining. The demand for light steel has been expanding.

Since 1930, the declining heavy-steel industries have shown no increase in plant capacity. Few new steel-rail mills were built in recovery. No important plant-expansion programs to increase the supply of construction steel were projected. The rapid expansion in demand for light steel, however, produced a wave of plant expansion. In 1936, more than $220,000,000 was expended for new construction. Over 3,500,000 tons of new hot plate, sheet, and strip capacity, supplemented by over 1,000,000 tons of new cold-rolling capacity was added. United States Steel built two wide-strip and plate mills and three cold mills; Bethlehem Steel built hot and continuous mills; National Steel expanded its sheet capacity; and Jones and Laughlin completed its 100-inch mill at Pittsburgh. Heavy expenditures for steel equipment in 1937 were invested largely in mills for the rolling of sheets, strip, skelp, and light plates, with auxiliary cold reducing units. Trade authorities referred to the "phenomenal growth in the use of tin plate"[6] in 1936 and 1937. This demand at one time or another forced all existing hot and cold mills into operation.

These expenditures for 1936 and 1937 provided an annual capacity for the light-steel industry of 13,000,000 tons. This does not represent a net increase. The new mills replace inefficient and high-cost equipment. The new continuous hot and cold mills can produce sheets and strip of better quality and at lower costs than the old hand-operated mills. The net increase in plant capacity cannot be determined. Some of the old mills will continue to operate. They will produce high-quality sheets and strips in small quantities and for special purposes. Some of the new strip-

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[5] *Chemical and Metallurgical Engineering*, January, 1938, p. 5, "Industrial Uses for Rubber," by H. L. Trumbull.

[6] *Iron Age*, January 6, 1938, page 386.

sheet and plant mills were installed by companies that specialized, for many years, in the production of heavy steel, such as Bethlehem Steel, United States Steel, and Jones and Laughlin. In 1936, Inland Steel and Great Lakes Steel, important producers of light steel, constructed additional open hearth furnaces, thereby adding an additional 788,000 tons.[7]

Summarizing for steel, declining heavy steel met increased demand from its existing facilities; expanding light steel met the demand by substantially increasing its plant facilities.

In the period of rapid light-steel expansion, the declining pig-iron and coke industries built "little or no new capacity."[8]

Interesting are the deductions that may be drawn from the record of an expanding industry that has been subject to attack by the Federal Government. The electric-power industry recorded a rapid expansion during the twenties. Both its capacity and output grew at the rate of about 10 per cent annually. In the recovery period, the Federal Government passed a series of measures that reduced the earnings of an important segment of the industry. Federally owned and operated hydro-electric projects were installed with public funds. Federal funds have also subsidized municipal plants. The output is to be sold at low rates made possible, in part, by low interest rates on government bonds, by partial exemption from taxation, and by low rate bases. The achievement of the latter purpose was helped by an allocation of the joint costs of water-power, navigation, and flood-control projects so as to make the portion attributable to the power investment low, and the allotment to the navigation, or irrigation investment, high. Special taxes were imposed upon the power companies. Legislative threats were aimed at the controlling holding-company interests. Special legislative grants of power, supplementary to those possessed by the state commissions, were given to Federal agencies to regulate rates, services, and security issues.

Under the pressure of this combination of government competition and regulation, rising costs, and lower rates, the earnings of

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[7] *Ibid.*, January 28, 1937, p. 32; January 6, 1938, pp. 49, 55.

[8] *Ibid.*, December 3, 1936, page 30, statement of Gordon Fox, Vice-President, Freyn Engineering Co., Chicago, Illinois.

the industry were affected. Meanwhile, the demand for electrical service continued to mount, and the current consumed made new records. The increased demand could not be met by more effectively utilizing the existing generating transmission and distribution equipment. Despite the prevailing uncertainties, the industry was forced to make new investment in plants to increase capacity. This investment, in the absence of uncertainties induced by governmental measures already referred to, might, it is true, have been greater. The point of present interest is that in the face of uncertainties which would have played havoc with a decaying and unprofitable industry, this expanding and profitable industry has continued to install plant additions.

This prosperous utility industry may be compared, from the standpoint of increasing plant capacity, with the steam railroad. The railroad industry has, since 1930, fallen upon evil days. The investor has little pleasure in them. Except for a few companies, the industry has passed its common dividends. More than 30 per cent of the railroad mileage is in the hands of receivers or bankruptcy trustees. By contrast, there are no important power properties in the hands of court officials. Even in the worst years of business depression, a majority of the electric-power corporations continued to pay their dividends.

The efforts of the government to reduce the earnings of the strong power industry may be compared with those taken to build up the railroad industry. In the former, the government has been partially successful. In its railway first-aid efforts, the government has met with repeated failures. The loans made by the Reconstruction Finance Corporation, the rate increases granted by the Interstate Commerce Commission, the series of elaborate reports and counsel supplied by the Coördinator of Transportation, have accomplished no important financial results. The steam-railroad industry (excluding coal and iron ore roads) is declining up to the date of this writing; no effective relief has been provided by the government.

The steam railroad, a typical declining industry, has neither increased its mileage nor has it made any additions to its plant. Even in the prosperous twenties, when some of the other symptoms of decay became visible, the industry did not, on balance,

construct any new railroad mileage. The new lines built in Florida, in the Texas Panhandle, in the Rio Grande Valley, and in California were balanced by the abandonment of old lines. Since 1930 there have been almost no additional lines built. But the abandonment of old lines has proceeded apace. The reduction in the demand for railroad service has been accompanied by a reduction in plant capacity.

The domestic power-accessories industry is also characterized by extensive construction programs. Borg Warner has, since 1930, built plants in its non-automotive line for such products as electric refrigerators, modern gas ranges, and oil burners. Early in 1938 this company announced a new expansion program involving about $2,000,000 to be divided between new construction and modernization of present buildings. The new construction will increase production capacity about 20 per cent.[9]

The Frigidaire Division of General Motors and the electric refrigeration division of General Electric have also increased capacity. Many of the smaller companies have adopted similar expansion programs.

The Diesel-engine industry has expanded its capacity. General Motors, and Caterpillar Tractor are especially noteworthy.

The oil-refining industry, in the recovery period, rapidly increased its capacity. Almost every important refining center, and every important branch of the industry, participated. The Gulf Coast took the lead. The Baton Rouge, Houston and Galveston, and Sabine districts expanded on a boom-time basis. The Atlantic Coast and California districts participated in this expansion, although to a smaller extent. The inland refineries, handicapped by high railroad rates, did not participate. That section of the industry probably declined. Also the major functional divisions widened their ability to produce goods and services. Pipe lines—both crude and refined petroleum—ocean-going tanks, river barges, distillation and cracking units, polymerization and chemical-producing units, all joined the procession of expansion.

The capacity of this industry has been steadily increasing, with only a slight interruption in the depression, since 1922. The following table records the growth of refining capacity in the United States:

[9] *Iron Age*, February 10, 1938, p. 57.

GROWTH OF REFINERY CAPACITY IN UNITED STATES [10]

Year	*Number of Refineries*	*Total Crude Capacity (Barrels Daily)*	*Number of Operating Refineries*	*Capacity of Operating Refineries (Barrels Daily)*	*Total Cracking Capacity (Barrels Daily)*
1914	176	.....	...	.....	.....
1918	267	1,186,155	...	.....	.....
1919	289	1,295,115	...	.....	.....
1920	373	1,530,565	...	.....	.....
1921	415	1,888,800	...	.....	.....
1922	479	2,164,050	325	1,854,590	.....
1924	574	3,046,790	362	2,549,490	.....
1925	584	3,033,682	385	2,680,052	(*)
1926	515	3,068,340	356	2,770,340	980,960
1927	462	3,224,307	328	2,964,427	1,245,980
1928	456	3,426,330	315	3,116,930	1,327,584
1929	463	3,719,550	341	3,454,250	1,487,950
1930	479	3,972,460	362	3,721,360	1,705,299
1931	500	4,164,080	397	3,913,180	1,844,609
1932	510	4,093,370	383	3,665,830	1,954,550
1933	567	4,125,250	424	3,696,410	1,823,521
1934	628	4,243,033	483	3,790,593	1,838,420
1935	687	4,281,694	496	3,815,470	2,126,620
1936	640	4,301,754	479	3,936,535	2,130,800
1937	602	4,266,260	471	4,031,660	2,163,730

* Not available previous to 1926.

The glass industry, particularly in building and insulation, has engaged in heavy construction programs, designed not only to modernize existing structures but also to install additional facilities. Owens Illinois Glass, a leader in the prosperous glass industry "expanded production facilities in 1936 and 1937 at most plants manufacturing glass containers. Despite these enlargements, production facilities during peak periods were insufficient to satisfy the unprecedented demand for bottles." [11]

Aluminum Company of America, a leader in the expanding alloy industry, started a $26,000,000 expansion program in 1937. This embraces new mills at Mobile, Alabama; Lafayette, In-

[10] *Oil and Gas Journal*, April 25, 1937, p. 142.
[11] Annual Report, 1937, p. 9.

diana; Los Angeles, California; Edgewater, New Jersey; and the doubling of the present capacity at Alcoa, Tennessee.[12]

A favorable investment judgment based on increased plant capacity in a period of business recovery must be applied with caution. Increased plant expansion in prosperous periods may lead to overexpansion; and overexpansion may contribute to price cutting that may play havoc with earnings. We have already examined the relationship between increasing physical production, increasing earnings, and declining selling prices of the goods and services of an expanding industry. Because of excessive price concessions, a number of physically expanding industries are unable to operate on a profitable basis. This price weakness is, in *some cases,* due to excess capacity. This is characteristic of such industries as radio, rayon, newsprint, rubber and rubber tires. Excessive increases in plant capacity may be a prelude, not to financial success, but to failure. No general rules can be applied which will enable the investor to differentiate, under all conditions, between gradual decline in the selling prices and rapid price cutting. Price wars may exist for many years. If the industry continues to expand, the destructive competitive influences may finally be eliminated. The industry, then, can usually resume its position as a member of the financially profitable circle—a place to which, by reason of its continuous increase in production to meet the increase in demand, it is entitled.

An industry may, in prosperity, expand its productive facilities so rapidly as to create a margin of unused capacity that cannot be absorbed by the increase in demand generated by the next cycle of expansion and recovery. A number of expanding industries are included in this class. Newsprint, radio, rubber and rubber tires, automobile assembly, are illustrations of industries which operate in the field of expanding demand, but whose plant capacities have not substantially increased in the current recovery period. The newsprint industry was overexpanded in the late twenties. The post-depression expansion in demand, which carried newsprint production and consumption to new peak records, did not call for increases in capacity. The same thing may be said of the radio industries. In the automobile and automobile-accessory industries, a rapid expansion in plant capacity took place in the twenties.

[12] *Chemical and Metallurgical Engineering,* March, 1938, p. 168.

The mechanization of the motor and motor-accessory companies has increased the output per labor hour and per dollar of capital. It is difficult to make a distinction between expenditures for additional plant capacity and expenditures for modernization and improvement. New and more efficient—that is to say, cost-reducing—equipment may have the same effect upon the potential capacity of an industry to supply a larger volume of goods and services as the construction of new mills and new buildings.

In time, however, as the expansion in demand for the goods and services of an expanding industry continues, the limits of the existing industrial capacity are reached. Not one period of expansion, but two, and conceivably three, may be required to exhaust the unutilized margin of plant capacity. Under these conditions, it is difficult to apply the symptom under discussion. Sound judgment, intelligent discrimination, combined with a knowledge of the technical conditions of a specific industry, must be applied in each case if a sound conclusion is to be reached.

CHAPTER XX

SYMPTOMS OF DECAY: IV, PRICE ADVANCES

THE DECLINING industry now turns to another solution of its problem. It is a solution that is dangerous, often disastrous. But it is a step that the industry can scarcely avoid taking. With less money coming in, with wages and taxes rising, and with more money going out, declining profits finally force the industry to increase its prices.

This is the next major symptom of decline. It is impossible to measure the lag between the downward movement in physical sales and the upward movement in selling prices. It is also difficult, when all prices are rising, to locate the symptom of advancing prices in particular industries. A rise of the prices of chemical products, of business machines, and of glass containers, for example, in a period of rising prices, from 1935 to 1937, would not establish the price rise as a symptom of a declining industry. An expanding industry reduces its *relative* price level; a declining industry increases its *relative* price level. Price relativity is expressed in terms of competition between the expanding and the declining industry. In commodity and service competition between industries, the expanding industry reduces its selling prices in terms of the declining competitive industry.

An increase in relative selling prices by the declining industry usually accelerates the decrease in demand which has caused the reduction in profits. The apparent remedy, like the administration of cathartics in the case of appendicitis, is likely to endanger the patient. The remedy may intensify the disease. Almost every good and service is produced in a competitive market. Monopoly is rare. The decline in demand cannot be reversed by an increase in selling prices. The consumer will not buy more because he is asked to pay higher prices for that which he declines to buy at lower prices. The apparent monopoly of supply is not a monopoly of demand. It does not oblige the consumer to buy a service or

product which he has decided not to use. The fluctuations in demand for the monopolized and non-monopolized article—viewing monopoly as a control of supply and not of demand—are substantially similar.

Most declining industries compete with expanding industries. The decline in the one is traceable to the expansion in the other. In the field of transportation, the long dominant steam railroad is subject to increasing competition from the truck, the pipe line, and the ship. Twenty years ago, none of these competitors threatened the position of the railroad. The motor truck was in its infancy. The pipe line served, as it had for many years, transportation of crude petroleum; but refined oil products moved by rail. The competitive effectiveness of the internal waterway had been destroyed.

The decline of the railroad in the twenties and thirties was paralleled by the rise of competitive transportation services. In construction materials, the declining demand for heavy steel is paralleled by the rising demand for light steel and for alloys. The diminishing importance of lumber can, to some extent, be attributed to the increasing demand for structural glass, plastics, and synthetic building materials: gypsum, asphalt and asbestos. The same competitive phenomena can be traced in almost every important industry.

These considerations make it dangerous for a declining industry to raise its prices. A rise in prices stimulates the competitive strength of the expanding industry. The expanding industry instead of raising its prices, compared with the prices of competing products or services, usually reduces them.

That selling prices in the declining industries usually advance in comparison with the prices of competing products and services of expanding industries is a phenomenon which has attracted little public attention. It is difficult to penetrate the obscure mazes of technical price levels in order to ascertain the truth. The railroad industry presents such an obscurity. In 1920, for example, in a period of rapidly advancing prices, the Interstate Commerce Commission approved a horizontal increase in freight rates. Part of this was later lost by a horizontal decline. After 1922, however, in a period of stable commodity prices, the rate per ton mile steadily, though gradually, declined. The ton-mile rate is not

applied to a standardized service. It is a composite average of the rates for long and short hauls, for finished and unfinished goods, for processed and semi-processed materials, for bulky raw materials and light fabricated goods, for goods requiring high terminal costs, and for goods requiring low terminal costs. Some traffic is subject to keen competition from competitive transportation agencies. Some can be carried most economically over the rail. The diversion of traffic from the railroad to the waterway, the pipe line, and the truck has been met by a succession of rate slashes in order to protect the remaining business. To accomplish this, and to retain a satisfactory volume, the railroads have advanced the rate level on traffic for which its competitors are unable to compete. The railroads absorbed a larger proportion of consumers' rent—the difference between what the shipper will pay rather than go without the service, and the price charged.

Under these conditions, the declining rate per ton mile is not an accurate index of the selling prices. The rate per ton mile on goods that move mainly by rail has substantially increased. A study of a selected number of railroads reveals that those that carry coal and iron ore—commodities that are still carried by rail—increased their revenue per ton mile in 1936 as compared with 1929. This includes such roads as the Bessemer and Lake Erie, the Cambria and Indiana, the Duluth, Missabe and Northern, and the Lake Superior and Ishpeming. These properties are important carriers of coal or iron ore.

In the movement of refined petroleum, prior to 1930, the railroads had almost no competition. Rates were not reduced. The high rail rates stimulated the construction of long-distance pipe lines. This step was initiated by the Sun Oil Company in 1930.[1] Since that time, pipe lines for the movement of this profitable item of railroad traffic have been built by Atlantic Refining, Phillips Petroleum, Shell Union Oil, and Gulf Refining, among others. Gasoline pipe lines now connect the Great Lakes with the Philadelphia refineries, the Panhandle region of Texas with the St. Louis district, and sections of the Mid-Continent oil field with

[1] The movement of gasoline by the Tuscarora Pipe Line before the completion of the Sun Oil line was not accompanied by any new construction. An old crude-oil line was converted into a gasoline carrier.

consuming markets in the Middle West and Northwest, such as Chicago and the Twin Cities.

From 1934 to 1937, the kraft-pulp industry and the heavy chemical industry, among others, have built many new plants, located mainly along the south Atlantic coast. Finished products will be shipped from these plants by water as well as by rail.

This reaction of the transportation market to the higher rates which the railroad industry considers necessary to retrieve its fortunes manifests itself in other ways. The newsprint industry includes some units whose plants are accessible to water transportation. A number of others are located inland. The output of these inland plants has largely dried up. The railroads in their later applications for higher rates specifically exempted newsprint. They recognize that a further rise in price for railroad-transportation service would complete the destruction of the inland mills by transferring their business to the low-cost newsprint mills on deep water.

Under these conditions, the fall in ton-mile rates does not reflect a fall in selling prices of railroad services. It reflects a severe price-cutting war on traffic competitive with other transportation services, and an increase in the prices on non-competitive traffic. In the former, prices are high, relative to the more rapid decline in prices of the transportation competitor. In the latter, prices are high *absolutely;* either they have not been reduced, or they have advanced beyond the prices in the twenties.

Railroad equipment parallels the trend of the railroad industry. Until 1923, switching locomotives, for example, were steam powered. The Diesel-electric switcher was introduced in that year. Since that time the locomotive price per Diesel horsepower has declined; the price per steam horsepower has increased. In the decade from 1927 to 1937, the selling prices of Diesel-electric switchers of similar weight and horsepower declined from 30 to 40 per cent, while the prices of steam switchers of similar design advanced from 25 to 30 per cent.[2]

Much of the competition to which the railroads are subjected is subsidized at the expense of the taxpayer. Free highways,

[2] Letter from F. H. Craton, Transportation Department, General Electric Co., June 21, 1937.

exemption from maintenance costs, and other forms of concealed subsidies increase the competitive strength of non-railroad transportation agencies. These considerations, however, are of no aid to the railway investor. The increases in railroad rates in the field of transportation continue, nevertheless, to strengthen the truck, the pipe line, and the waterway, and to diminish the competitive importance of the steam railroad.

The contrast between the relative price increases in a declining industry with the declining prices of its expanding competitors is further illustrated by the recent competition between the ice box and the mechanical refrigerator.

From 1921 to 1929, the value of products of the ice industry increased from 159 million to 211 million. During these years, rapid expansion in the use of electricity for residential purposes took place. The average per-capita consumption from 1923 to 1930 increased from 368 to 548 K.W.H. The average price of ice for domestic sales advanced from 63.3 cents per hundred pounds in 1926 to 66.4 cents in 1928, and declined to 63.4 cents in 1929 and 63.0 cents in 1930.[3] The average rate for domestic electric service, meanwhile, declined almost uninterruptedly during the same period. The average rate was 7.2 cents per kilowatt hour in 1923. A slight increase to 7.3 cents in 1925 was the only interruption to a steady year-to-year decline which reached 6.04 cents in 1930. In prosperity, the light and power industry sold its services to the residential consumer at lower prices. The manufactured-ice industry increased its prices until the last year of prosperity. In 1929 a slight decline in price occurred. This decline proved to be an exception.

The ice industry in 1930 reduced its selling prices from 63.0 cents to 54.6 cents in 1935, a reduction of 13 per cent. Meanwhile, the reduction in the price of domestic electricity continued, reaching a level of 4.46 cents by September 30, 1937, or 26 per cent, double the decline in manufactured ice.

In the competitive refrigeration battleground, the vigorous expansion in the light and power industry was reinforced by a steady decline in the prices of electrical-refrigeration equipment.

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[3] The data on the ice industry is taken from National Recovery Administration, Division of Review No. 43, Ice Industry; prepared by the Industry's Statistics Unit; December, 1935.

The average retail price of refrigerators in 1920 was $600, and in 1925, $425.[4]

The prices of two models of a leading manufacturer from 1928 to 1934 are given on the following chart. It should be noted that "...capacities on these models have not been identical from year to year, so that the comparison is only approximate." [5]

TREND OF RETAIL PRICES FOR ELECTRIC REFRIGERATORS

Solid lines, prices for two popular sizes at peak season (May) of each year. Broken lines, average price each year for entire output of industry. From *Refrigeration division, National Electrical Manufacturers' Association.*

[4] Control of Flood Waters in the Mississippi Valley: Hearings before a subcommittee of the Committee on Agriculture and Forestry, United States Senate, 74th Congress, Second Session on S. 3524, Part 1, March 24, to April 15, 1936, p. 257.

[5] Letter from Haldeman Finnie, Manager Refrigeration Division, National Electrical Manufacturer's Association, Detroit, July 26, 1937.

Prices for 1935, 1936, and 1937 for the two models of the same manufacturer are noted in the following table:

SELLING PRICES OF DOMESTIC REFRIGERATORS, 1935-1937 [6]

	4 cu. ft.	*6 cu. ft.*
1935	$121.95	$199.50
1936	129.50	164.50
1937	137.50	177.95

A similar trend in prices of electric refrigerators is reported by Dr. Stine of Du Pont, who states that, "two sizes of the electrical refrigerators that sold in 1928 for $270 and $365, respectively, today sell for $184 and $254, and the latter are more efficient and better made in every particular." [7]

And another writer expresses the increasing quality of the electric refrigerator in another way: "The electric refrigerator of five years ago, which used 600 kw-hr. and had a useful life of five years, is being replaced by a refrigerator using about 350 kw-hr. and with a probable life of ten years." [8]

In the same period, "The design and construction of (the old) ice refrigerators (have) changed so greatly ... that comparative prices have little meaning. The standard refrigerator of 1923 was a wooden cabinet with little or no insulation and holding approximately 100 lbs. of ice. Such a refrigerator, however, varied greatly as to the amount of food space contained. In fact they were not rated by food capacity but by ice holding capacity."

"The standard ice refrigerator today is of an entirely different design, construction of material, heavily insulated and is rated by the number of cubic feet of food storage space, rather than the amount of ice held. In general the cost per cubic foot of available food space has been reduced approximately 25 per cent between

[6] *Ibid.*, August 20, 1937. The writer of this letter states also that, "These figures are not strictly comparable with those for previous years," but, according to this authority, they do show "the price trend of the industry as accurately as can be done. Many times a manufacturer will have a 'regular' model at a given price, and then find it necessary to meet competition with a 'special' on which he omits certain features to permit him to quote a competitive price. Also, in other cases there are 'regular' and 'de Luxe' models of the same size, the latter having certain additional features. Also, as in the case of automobiles, one year's de Luxe equipment may be next year's standard. These factors make it extremely difficult to make accurate comparisons and should be kept in mind when the prices are considered."

[7] Letter from General Electric Co., L. A. Hawkins, Executive Engineer, April 13, 1939.

[8] *Electrical World*, May 23, 1936, p. 101.

1923 and 1936. As stated before, the modern ice refrigerator is so far superior to the 1923 model, both in design, construction and performance, that these comparative prices have little meaning." [9]

It may be assumed that the same increase in quality characterizes both the ice box and the electrical refrigerator. The estimated reduction in price of 25 per cent for the ice box is substantially less than the reduction in selling prices of the electrical refrigerator. Relatively, the latter reduced its selling prices in comparison with the former.

This combination of lower prices for equipment and electricity has increased the use of electrical refrigerators and of electricity and has reduced the use of ices boxes and of manufactured ice. Compared with the more rapid price reductions by the competitive electrical refrigeration manufacturing and the electrical light and power industry, the price reduction of manufactured ice is small. The declining trend in demand and relative increase in selling prices—two most significant symptoms—have been reflected in the financial position of the manufactured-ice industry. The common dividends of American Ice have been passed, and those of the City Ice and Fuel have been sharply reduced. These are the two representatives of the industry whose securities are listed on the New York Stock Exchange. The preferred dividend of City Ice and Fuel was maintained during the depression. This record did not prevent the stock from giving a yield in excess of 7 per cent in periods of rising stock-market values in 1936 and early in 1937; nor did it stop investors from selling the stock in the period of market recession in the fall of 1937 until it yielded almost 12 per cent. The preferred dividend of American Ice is in arrears, and small dividends on this account are paid irregularly.

Comparisons of selling prices of competitive expanding and declining industries can be made in other fields. The evidence is frequently difficult to trace. The increase in prices, as in the ice industry, in a declining industry may be only relative. In other cases, a relative stability in prices of an expanding industry in a depression may be accompanied by a rapid, although temporary, decline in prices of the declining industry. Comparing 1930 and 1932 prices of such articles as rayon, corrugated and

[9] Letter from Mount Taylor, Executive Secretary, National Association of Ice Industries, November 22, 1938.

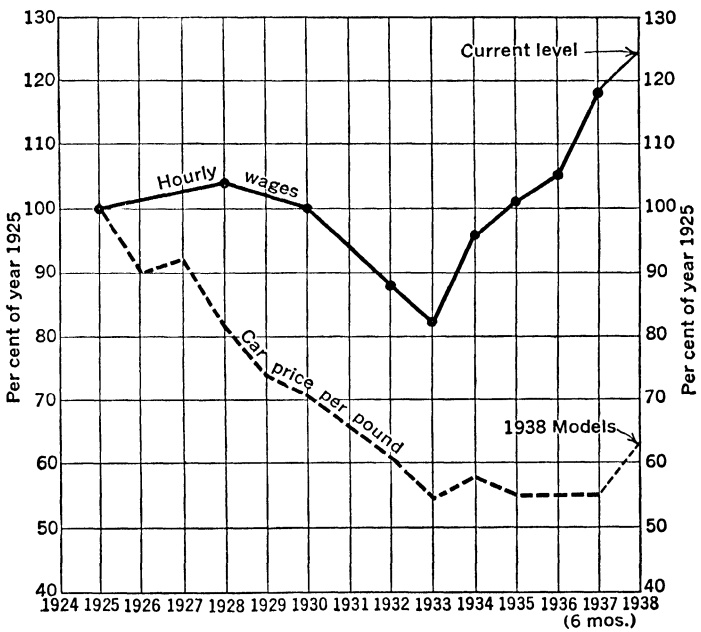
fibre board containers, aluminum, and nickel—leading the expanding industries—with the selling prices of the competitive declining industries such as silk, cotton and woolens, wooden containers, and pig iron, will produce an impression of fixed and rigid prices of the expanding industry and sweeping declines in the prices of the competitive unprosperous industry. Such a conclusion is not correct. If the declining industry produces standard raw materials with an international market, its products are subject to special economic influences such as the breaking down of monetary standards, inflation of the currency, and violent changes in production from year to year.

In the depression of the early thirties, the decline in price of cotton and woolen textiles exceeded that of rayon. Price wars in the former commodities produced a low price level. In the ensuing recovery, the rise was sharper than the rise in rayon. The price trends in cotton and woolen were still upward in comparison with rayon. Low rayon prices in 1932 and early in 1933 enabled a few farseeing merchants to secure large stocks at bargain prices. The relatively stable prices of rayon were available to the merchants as a class. During the depression, exceptionally low prices for bituminous coal were paid, and some long-term contracts were negotiated at this level. These prices were available for a limited time. Nevertheless, in comparison with its commodity competitor, fuel oil, the long-term trend of bituminous coal prices is upward. The rapid downward swing in the so-called flexible prices in depression is not a reflection of a permanent decline. Price flexibility is not synonymous with lower prices. An "inflexible" price of rayon, for example, may be stabilized at a low level, and a flexible price may be unstabilized at a higher level. Silk dropped sharply in depression from $2.40 per pound in 1931 to $1.29 low in 1934; while rayon dropped in this same period from $0.75 per pound to only $0.59. But taking the whole period from 1923 to date, the price of rayon has shown a slightly greater reduction.

At other times, and under other conditions, these factors are likely to give a temporary fillip to the demand for the goods and services of the declining industries. Illustrations are: the earnings of the cotton and woolen industry in the inflation boomlets of 1933, and of 1936-7; the exceptional demand for phosphate

fertilizer in 1936-7 due to high agricultural production, stimulated by high prices, and the rise in ore and pig-iron sales because of inventory accumulations in anticipation of higher wage and other costs in 1936-7.

In the field of passenger transportation, an upward adjustment of street-car fares has characterized the declining urban surface-trolley transportation industry. The old nickel fare of the second decade of the twentieth century, outside of New York City, is now gone. During this same period, approximately from 1920 to date, the prices of the competitive passenger automobile have declined, and the increase in the efficiency, service, and convenience of the present-day motor car represents an advance from the standards of 1920. The automobile, in terms of price per pound, has declined since 1925 about 40 per cent. This is shown in the following chart: [10]



ADVANCE OF AUTOMOTIVE HOURLY WAGES, AND DROP IN CAR PRICES

According to a statement issued by Alfred P. Sloan, wages have advanced 18 per cent, while prices of cars (per pound) have dropped 45 per cent since 1925.

[10] *Iron Age*, February 3, 1938, p. 57.

Another computation made in 1939 reveals that: "Since 1920 the average price per pound of automobiles in the United States has dropped from 74 cents to 26 cents, or 65 per cent; price per horsepower has been reduced from $64 to $9, a drop of 85 per cent... the automobile price index in terms of value has declined 25 per cent in the past ten years and 73 per cent in the last twenty years."[11]

The decline in cost of the car has been paralleled by a decline in the cost of operating the car. The average service-station price of gasoline, ex-tax, in 50 representatives cities of the United States has declined from 29.74 cents in 1920 to 14.40 cents, ex-tax, in 1937; and from 29.83 cents to 19.82 cents, tax added, in the same period.[12]

The price of rubber tires, another cost of motor-car operation, has rapidly declined. The following table shows the price movement since 1918:

WHOLESALE PRICES OF AUTOMOBILE TIRES, 1918-1937[13]

1926 = 100

	Index		*Index*
1918	229.2	1928	64.4
1919	209.2	1929	55.6
1920	232.5	1930	53.1
1921	179.0	1931	45.3
1922	115.4	1932	41.1
1923	109.5	1933	42.1
1924	92.6	1934	44.9
1925	98.6	1935	45.7
1926	100.0	1936	50.1
1927	76.3	1937*	55.6

* Average for eleven months.

Since 1920 the quality of the tire has improved. Hence, the tire cost per unit of use has declined at a rate more rapid than the decline in prices. The following tabulation throws an interesting light on this phenomenon:

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[11] *Steel,* January 9, 1939, p. 25, quoting from a paper presented at a joint meeting of the American Statistical Association, and the Econometric Society by Andrew T. Court of the Automobile Manufacturer's Association.

[12] Data from American Petroleum Institute for 1920-36, and data from *Oil & Gas Journal* for 1937.

[13] Bureau of Labor Statistics; from W. C. Geer, "Rubber Compounding, 1918-38," *Chemical Industries,* June, 1938, pp. 640, 646.

TIRE COSTS AND ANNUAL SAVINGS TO USERS, 1920-1934 [14]

Year	*Tire Cost per 10,000 Miles*	*1920 Cost Minus Cost Each Year. Savings per Car*	*Vehicle Registrations in Millions*	*Annual Savings in Millions of Dollars*
1920	$163.00	....	....	....
1921	142.00	$21.00	10 46	219.72
1922	121.00	42.00	12.24	514.00
1923	101 00	62 00	15.09	935.70
1924	101.00	62.00	17.06	1090.89
1925	102 00	61.00	19.94	1216.16
1926	89 00	74 00	22.00	1628.07
1927	81 00	82.00	23.13	1896.91
1928	67 00	96.00	24 49	2351.33
1929	53.00	110.00	26.50	2915.11
1930	44.00	119.00	26.55	3158.86
1931	36.00	127.00	25.83	3280.79
1932	40.00	123.00	24 12	2966 15
1933	37.50	125 50	23.83	2990.29
1934	38.50	124.40	24.12	3002.58

Another study concludes that automobile transportation at cost about 13½ cents a mile in the period 1906 to 1916; 5.6 cents in the period 1917 to 1927; and 2.7 cents a mile in the period 1928 to 1938.[15]

The declining transit industry has thus increased its selling prices, and the expanding competitive passenger automobile rubber tire, and gasoline industries have reduced their prices.

In steel, light steel (particularly sheets) has declined in price:

Sheets for the latest type of automobile fenders last year (1937) cost the manufacturer forty-six per cent less than in 1923, and twenty-nine per cent below the 1929 figure.... Again, the recent net selling price of steel going into production of one-piece washing-machine tubs was forty-two per cent below 1923 and twenty-six per cent under the 1929 price. Yet modern sheets are of such superior quality that a tub can be formed in a single drawing operation.

Gears made from alloy-steel bars are much tougher and stronger than they were in 1923, and it is estimated that the effective life of a gear tooth has been lengthened more than 500 per cent since that year. The price of typical gear steel in 1937 was nineteen per

[14] From A. Cressy Morrison, *Man in a Chemical World*, p. 115.

[15] Statement of Paul G. Hoffman, President, Studebaker Corporation, *Wall Street Journal*, February 18, 1939.

cent less than in 1923 and only seven per cent above that of 1929. It is interesting to note that the demand for steel of such quality is indicated by the increase in electric-furnace steel production to 814,000 tons in 1937 and 532,000 tons in 1929.[16]

Light steel is the expanding and prosperous branch of the industry. Heavy steel is the declining part. Steel rails, a leading heavy product, remained stable for many years at $43.00 a ton, declining to $36.38 a ton in 1934 and 1935, and advancing to $41.86 a ton in 1937.[17] The average yearly price for ship plates moved from $43.96 per ton in 1929 to a low of $35.49 in 1932 to $41.44 in 1936, and to $49.65 in 1937.[18]

The price movements in the synthetic chemical industry follow a characteristic pattern. Rapid downward price adjustments are, on first glance, curiously intermingled with unusual price stability. The trend of prices is downward, although for many years, particularly in depression, prices may remain stable. A synthetically produced article competes with a "naturally" produced article. The increase in demand for the former is frequently at the expense of the latter. Synthetic methanol competes with hard-wood alcohol; synthetic nitrate with Chilean nitrate; coal-tar dyes with vegetable dyes; the new synthetic textile fibre recently announced by Du Pont will compete with silk. The introduction of the synthetic article is usually accompanied by a reduction in price designed to increase sales volume and reduce unit production costs. A heavy plant investment is necessary to make profits on a synthetic product. The operating costs increase only slightly with rising volume, and an expansion in volume, even with reduced prices, usually proves profitable.

The nitrate industry, for example, was for many years dominated by ammonium sulphate and Chilean nitrate. Synthetic ammonia was first offered in commercial quantities in 1926. A slash in price from 30 to 15 cents a pound followed.[19] This drop was followed by corresponding drops in the price for sulphate of

[16] Address by W. A. Irvin, Vice-Chairman U. S. Steel Corp., at the 47th general meeting of the American Iron and Steel Institute, Waldorf Astoria, New York City, May 26, 1938, as reprinted in a booklet entitled "Where Does Steel Stand," containing three addresses, p. 16.

[17] American Iron and Steel Institute, Annual Statistical Report 1937, p. 70.

[18] *Steel,* Annual Number, January 2, 1939, p. 249.

[19] "Chemical Nitrogen," publication by the United States Tariff Commission, Report No. 114, Second Series.

ammonia. In fact, the price of the latter dropped even more rapidly than the price of the former. After a series of initial reductions, the price finally became stabilized and showed no further reductions after 1935. It assumed the characteristics of what has become politically known as an "inflexibly" priced article.

The synthetic-nitrate article competes with organic nitrates. The latter may be termed the "naturally" produced article competing with the chemically produced article. The following table shows the wholesale prices of ammoniates. The data reveal the relative price decline in the chemical product.

WHOLESALE PRICES OF AMMONIATES, 1910-1937 [20]

	Nitrate of soda bulk per unit	*Sulphate of ammonia bulk per unit*	*Cottonseed meal S E Mills per unit*	*Fish scrap dried 11-13% ammonia, 15% bone phosphate f o b. factory, bulk per unit N*	*Fish scrap wet acidulated, 6% ammonia, 3% bone phosphate f o b factory, bulk per unit N*	*Tankage, 11% ammonia, 15% bone phosphate f.o b. Chicago, bulk per unit N*	*High-grade ground blood, ammonia, Chicago, bulk, per unit N*
1910-14	$2.68	$2.85	$3.50	$3 53	$3 05	$3 37	$3.52
1922	3.04	2.58	6 07	4.66	3 54	4 75	4.99
1923	3.02	2.90	6.19	4.83	4.25	4 59	5 16
1924	2 99	2.44	5 87	5 03	4 41	3.60	4.25
1925	3.11	2.47	5.41	5 34	4.71	3 97	4.75
1926	3.06	2.41	4.40	4.95	4.15	4.36	4.90
1927	3.01	2.26	5.07	5 87	4.35	4.32	5 70
1928	2.67	2.20	7 06	6.63	5.28	4 92	6.00
1929	2.57	1.93	5.64	4.93	4.69	4.61	5.72
1930	2 47	1.71	4.78	4.96	4.15	3.79	4.58
1931	2.34	1.36	3.10	3.94	3.33	2.11	2 46
1932	1.87	.95	2.18	2.17	1.82	1.21	1.36
1933	1.52	1.03	2.95	2.85	2.58	2.06	2.46
1934	1.52	1.11	4.46	3.14	2.84	2 67	3.27
1935	1.47	1.06	4.59	3.10	2.65	3.06	3.65
1936	1.53	1.14	4.17	3.42	2.67	3.58	4.25
1937							
January	1.58	1.17	5.48	...	...	4.81	5.63
February	1.58	1.22	5.56	...	...	4.62	5.21
March	1.58	1.22	5.56	4.32	3.67	4.37	4.61
April	1.58	1.21	6.34	5.04	3.86	4.55	4.75
May	1.58	1.21	6.75	5.10	3.81	4.41	4.55
June	1.58	1.19	6.52	4.86	3.76	3.94	4.09
July	1.66	1.19	5.38	4.86	3.70	3.90	3.90
August	1.69	1.19	3.89	4.86	3.70	3.88	3.94
September	1.69	1.24	3.41	4.48	3.60	3.40	3.82
October	1.69	1.27	3.11	4.19	3.52	3.75	3.97
November	1.69	1.30	3.45	4.25	3.52	3.40	3.67
December	1.69	1 30	3.52	...	3.39	3.41	3.48

[20] *Chemical Industries*, Vol. 42, March 1938, p. 357.

Many synthetic chemicals show the same price trend—a rapid decline after the initial introduction in the market, followed by a reasonable price stability. Industrial nitro-cellulose was first introduced in 1917 by Hercules Powder at 75 cents a pound. After a number of price reductions, the basic price of 22 cents has, within recent years, become relatively stable. Acetic acid, and more recently sodium pyrophosphate (tetra), an important detergent, and synthetic vanillin show similar price movements. The secular decline in selling prices is revealed by the larger corporations in the industry. Monsanto Chemical reports that the price index of its products has dropped from 100.0 to 74.7 from 1926 to the end of 1936.[21] Du Pont reports a similar tendency; from 1919 to 1937 average selling prices declined 24 per cent.[22] Air Reduction, early in 1937, attained a record volume of business and a record low in selling price.[23]

The expanding chemical industry has reduced its selling prices. Increasing volume and decreasing prices mark the career of a leading expanding industry.

The contrast between the rate policies of two leading public utilities affords additional confirmation. Both manufactured-gas and electrical light and power industries benefit from a heavy domestic load; the gas from cooking, and the electric industry from lighting and a number of other uses. Electrical ranges are replacing gas ranges; electricity sales for cooking have increased, and gas sales for cooking have decreased. This change has injured the gas industry. Severed from lighting, it is now defending its last domestic redoubt—the gas range. The trend of demand has become unfavorable. The trend of demand for electricity is favorable. The manufactured gas industry is declining. The electric light and power industry is expanding.

The manufactured gas industry, in order to meet rising wage and tax costs, has increased its rates. In Brooklyn and Chicago the gas utilities are pressing for substantial rate increases. Rate reductions within recent years are the exceptions to the rule. The

[21] Annual Report to the Stockholders of the Monsanto Chemical Company, 1936, p 3.

[22] Statement by Lammot Du Pont, President, E. I. Du Pont de Nemours & Co., before sub-committee of the Committee on Finance of the United States Senate, November 29, 1938, p. 5.

[23] *Wall Street Journal*, April 15, 1937, Statement of C. E. Adams, President Air Reduction Company.

electric utilities, almost without exception, are reducing rates. Declining prices have, indeed, featured this industry for the past 40 years. The industry absorbs rising wages and taxes through increased sales. The contrast between the price policies of the expanding and declining industries is thus emphasized.

We conclude that a major symptom of industrial decline—second only in importance to the reduction in demand—is the advance in relative selling prices. We can make no generalization with regard to the point at which the advance in relative prices of the declining industry assumes financial significance. We can say only that the trend is identifiable. The trend can also be explained in terms of economic principles. The major difficulty arises from the declining demand. As the demand declines the cost per unit of production rises. The increase in cost, after a long period of losses, is reflected in rising price levels. Rising costs, with stable or declining prices, accompanied by declining sales volume, result in operating losses. So long as the industry is ready and willing to finance the losses, they may be borne. When funds are exhausted, the industry is driven to the logical necessity of increasing its price level. Meanwhile, competitive expanding industries, enjoying the benefits of rising sales volume, have widened their market by reducing prices. As sales increase, costs per unit of output decline, thereby facilitating further reduction of prices and expansion of sales volume.

The competition between the expanding and the declining industry thus becomes progressively profitable to the former. One increases sales and reduces costs and selling prices; the other reduces sales and increases costs and selling prices. The expanding industry utilizes part of its profits for research, for sales expansion, and, what is most important, for increasing its working capital. The declining industry, even if it is well managed, passes its dividends, appropriates little for research, drains its working capital to meet its operating losses, its taxes, and its unearned bond interest.

The contest thus becomes progressively unequal. Declining prices in the expanding industry increase its strength in competition with the declining industry. It does not assure the prosperity of the expanding industry. The price decline characteristic of prosperity may degenerate into a rout. Price wars are

not confined to the declining and unprofitable industries. Steam transportation, cotton, woolen and silk textiles, bituminous and anthracite coal, have their price wars. They have their parallels in motor truck transportation, rayon, fuel oil, gasoline and domestic-heating oil. The declining price path so necessary to corporate profits is by no means strewn with roses.

The price decline, typical of the expanding industry, is a trend that reflects the downward movement of unit production costs. From this point of view the expanding industry in the public-utility category is fortunately situated. Under present conditions, for example, the earning power arising from the expanding demand for power and telephone service cannot be seriously disturbed by price wars. Subject to certain limitations arising from measures taken by the regulatory authorities, companies in this industry have the opportunity to adjust downward price movements gradually to increasing volume. In certain parts of the country, the policies pursued by Federal bodies like the Tennessee Valley Authority and the Lower Colorado River Authority force the companies to reduce their rates at a speed somewhat greater than normally desirable. Such price adjustments forced by regulation cannot be compared in scope with the insistent price declines that are forced by the necessities of competition. The price smash-up (from time to time) in newsprint, rayon, radios, rubber tires, full-fashioned hosiery, paper board, and kraft pulp far exceed the declines in the price of electricity forced by public regulation or public competition.

The legally delegated power of the expanding public-utility industries to adjust their price levels is partly responsible for the superior investment status of their securities. The well-located and well-managed companies in a public-utility industry with a rising trend of demand, are not disturbed by competitive price wars. No investor in a well-managed and well-financed corporation need fear the loss of earnings, by rate or price cutting, in the telephone and in the electric light and power industry. The pressure of public regulation in response to the law of utility valuation and of municipal or Federal competition rarely forces price cuts in an amount sufficient to undermine the earnings of the enterprise.

This is not an advantage that is shared by the expanding in-

dustry operating in a field of free competition. The decline in prices so necessary to expand volume and to reduce unit costs may degenerate into open price wars. Prices are reduced excessively. The increased volume and the reduced unit costs are not sufficient to overcome the adverse effect of excessive reductions in selling prices. Industries that engage in price cutting are unable to establish a satisfactory earnings trend. In such an industry, rising volume and falling unit costs produce not higher earnings, but lower earnings. More goods are sold at lower prices, with no profit to the industry.

The list of industries involved in this physically expanding and financially declining pattern is imposing. It includes: radio, rubber and rubber tires, rayon, full-fashioned hosiery, newsprint, paper bags, paper board, kraft, solvents, and, from time to time, other industries such as crude oil, refined petroleum, carbon black, and alkalis. Here are industries representing many millions of dollars of invested capital, employing hundreds of thousands of people, and paying heavy tax bills. Their payments to security-holders, however, are slight.

The radio industry is unique. Starting from scratch in 1919, it swept the country. Within 15 years, a majority of American homes were equipped with radio receiving sets. The quality was improved, the standard of service increased, and the volume of sales enlarged. Continuous price wars among a host of competitors prevented sustained profits. Spectacular losses of the kind inflicted upon the stockholders of Grigsby-Grunow, and Kolster Radio are typical of hundreds of smaller and less well known losses. The leader in this field, Radio Corporation of America, paid no common dividends from its organization until 1937. A limited number of publicly owned companies succeeded in placing their stock on a dividend basis, which in no case was sufficiently stable and regular to warrant a high investment rating for their securities. Zenith Radio and Crosley Radio are in this class.

The rubber and rubber-tire industry has been unable to place its securities, especially its common stocks, on an investment basis. The industry as a whole has never reached a stage of investment maturity. Serious and sustained price breaks in 1920 to 1921, 1925 to 1926, 1929 to 1930, and again in 1931 to 1932 have prevented the emergence of common-stock investment

values. A number of rubber and rubber-tire companies have gone through the financial wringer. Fisk Tire and Rubber, and Kelly Springfield are notable examples. Among the major group, United States Rubber has paid neither common nor preferred dividends for many years. In December of 1938 the company paid its first preferred dividend since 1928.

The price collapse in the newsprint industry in the depression of the early thirties led to the receivership or bankruptcy of most of the companies, even though the demand for newsprint was expanding. Price Brothers, Minnesota and Ontario Paper, Abitibi Power and Paper, and numerous smaller enterprises defaulted on their bonds. International Paper and Power did not default. Its earnings were sustained by its profits from other avenues of activities: kraft, consumers' paper specialities, book paper, and, for a time, from dividends received from stocks of electric light and power companies.

The inability of numerous expanding industries to control the downward descent in their price level cannot be explained in terms of any single generalization. Rules have been suggested to explain this tendency, but none are satisfactory. An industry characterized by a few competitors is in a better position to control price wars than one in which many are engaged. The inability of the radio industry to control prices may in part be ascribed to the large number of competitors. The investment required to enter the radio industry was small and competitors were numbered in the hundreds. This rule does not explain the price collapse in the newsprint industry. A few companies control the output. A splurge in the construction of plants in the middle and late twenties caught the industry with a heavy capacity in the early thirties. The limited number of buyers represented by publishers took advantage of the buyers' market and wrung substantial concessions out of the limited number of sellers.

It may be inferred that a substantial capacity results in price cutting. This does not follow. Prosperous industries with excessive plant capacities have controlled their level of selling prices. These industries include automobile manufacturing,[24] automo-

[24] An authoritative study concludes that "the automobile industry had some 31.6 per cent of capacity in excess of the true needs of the market at the close of the decade of the 20's," *America's Capacity to Produce*, Nourse and Associates, p. 235.

bile accessories, farm equipment, synthetic nitrates, coal-tar dyes, glass and metallic containers, business machines, alloys, packaged foods, electrical equipment, and electrically powered domestic appliances. In these industries, prices may move downward, but wide breaks do not normally occur. Elaborate descriptions of price stabilizations have been duly recorded in many public and private documents.[25] Just why one industry can stabilize selling prices, and another, operating under apparently similar conditions, cannot, is an unanswered problem. The investor can turn to no accepted rule. Here, as in so many other fields of investment analysis, there is no substitute for watchfulness and sustained observation.

A physically expanding industry is, therefore, profitable if it reduces its selling prices, but not too far. Price reductions, tied to the anchor of declining unit costs, are the golden mean. Controlled price reductions and expanding volume are the means to profits and dividends.

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[25] See A. R. Burns, *The Decline of Competition*, Chap. V, for an excellent treatment of this subject.

CHAPTER XXI

SYMPTOMS OF DECAY: V, DEBT

SUPERIOR MANAGEMENT, so far as possible, avoids debt, especially short-term obligations, which may mature at an inconvenient time. Debts are considered to be not only objectionable but potentially dangerous. One of the exploded fallacies among the former rules of financial practice is that trading on the equity is both profitable and prudent. It is sometimes profitable. It is not often prudent. To-day, companies in (non-utilities) prosperous industries borrow comparatively little for expansion. Plant accounts are built up mainly out of profits, and the current-asset position is improved by retaining cash from stockholders. When securities are sold, the preference is for stock. Bonds are sold only under emergency conditions. When a debt is created it is normally for short term, and the borrowers reduce it as quickly as possible.[1] The low interest rates which have prevailed in recent years may be considered as an emergency, a temptation to borrow at 3 per cent, which is difficult to resist. The ideal is a financial structure represented by common stock, with no bank loans or long-term obligations. This is a financial goal which every well-managed corporation desires to attain. Unless forced to borrow, by profit limiting regulation, or when faced by sudden misfortune such as inventory depreciation as in oil, sugar, or leather during the post-war period, the well-managed industrial corporations in expanding industries have done little borrowing, long or short term. The expanding industry frequently realizes this ideal in practise, the declining industry has more difficulty in following the counsels of prudence.

The tendency in the unprosperous industry, if its credit permits, if it has not been a heavy borrower during the prosperous period, is to create debts. The first stage of decline is accompanied by expenditures for improvements and betterments in

[1] The terms of most of the recent industrial-bond issues are for less than fifteen years. Some of them, Sun Oil and Standard Oil of New Jersey, for example, are serials.

order to reduce unit costs. This investment is financed in part by stock issues, and in part through reinvestment of surplus cash or the proceeds from selling marketable securities. As the decline proceeds and earnings fall, the impaired credit position of the industry makes the sale of stock more and more difficult. In the absence of large cash reserves, the sale of bonds is the alternative. Only by going into debt can a company in a declining industry obtain the necessary funds with which to modernize plant and equipment, raise the standard of service and lower the cost of production. Such a policy must be adopted if the industry is to preserve its position in competition with its expanding rivals. The national food chains, to take another illustration, have lost a large part of their competitive differential advantage over the independent store. The earnings of the industry have been declining. Some dividends have been reduced or passed. The food chains, in order to retain their hold, must improve service and reduce unit costs. This may enable this industry to pass on its cost savings in the form of reduced prices, and thus, again, to attract the patronage of the consuming public. Safeway Stores, in 1937, issued $15,000,000 in bonds, the first funded debt issue in its history.

An examination of the financial structure of expanding industries will throw some light on these financial characteristics of sound management. Among the expanding industries the chemical group is conspicuous. Mathieson Alkali Works, Air Reduction, Allied Chemical and Dye, Hercules Powder, have had no funded debts for the past fifteen years. Du Pont and Atlas Powder, during the same period, have paid nominal amounts of interest. For example, the interest payments of Du Pont have declined from *$89,395* in 1926 to *$56,750* in 1936. During the same period, the common dividends advanced from $33,267,062 in 1926 to $60,163,215 in 1929, declined to a low of $29,939,930 in 1932, and advanced to a high of $67,402,497 in 1936. The interest payments of Atlas Powder, which amounted to $12,500 in 1926, disappeared by 1930. Against the $5,000 of interest paid in 1929, the common dividend amounted to $1,307,175. Commercial Solvents paid a trifling interest of $12,500 in 1936, compared with common dividends of $2,109,446.

The glass industry, a source of large returns to stockholders,

has avoided bonds. The interest payments of Hazel Atlas Glass, which reached a peak of $311,946 in 1925, disappeared by 1936. Owens Illinois Glass partially financed its expansion from 1929 to 1932 by increasing its debt. By 1936, the company had eliminated its debt. Libbey-Owens Ford, the third important unit in this group, shows a record similar to that of the Owens Illinois Glass. In Diesel engines, another prosperous industry, Caterpillar Tractor reduced its interest from $345,389 in 1929 to $6,851 in 1936; the common dividends amounted to $5,646,720 and $10,352,320, respectively. Waukesha Motor and Hercules Motor have no interest, although both pay reasonable dividends. Fairbanks Morse, one of whose important products is Diesel engines, has had a long-term bond issue outstanding since 1926. Its dividend record, in comparison with the record of its competitors in the same group, is ragged. The company passed both its common and preferred dividends for 1932, 1933, and 1934. It resumed its preferred dividend in 1935 and its common dividend in 1936.

In a raw-material industry there is a strong inducement to the issue of bonds. Companies in this industry own considerable *real* property, traditionally acceptable for bond protection. A temptation, therefore, exists for companies owning large tracts of raw-material bearing land, and producing standardized raw materials with a ready market, to issue bonds. If the industry is declining, large bonded debts are almost a universal rule. The Cuba raw-sugar companies, after the price collapse in 1920 and 1931, made heavy bond issues to replace inventory losses and to pay bank loans. Many companies defaulted, and operated for some time under the protection of the courts. The bituminous- and anthracite-coal companies borrowed extensively. A high percentage of the bonds are in default. Timber bonds, a generation ago, were considered desirable industrial investments. They have been largely destroyed in reorganization. Oil and steel companies, with large reserves of raw material, have some bond issues, although here the margins of safety are frequently equal to those demanded by exacting investment standards. Most crude-oil companies, however, have no bonds.

In many expanding industries with large reserves of raw materials, avoidance of debt, both by refusing to incur debt and

by paying debt as rapidly as possible, even beyond the requirements of sinking funds, is a general practice. Gold- and silver-mining corporations have generally avoided debt. Of the leading companies in this group, few have had to pay interest within recent years. This list of no-debt companies includes United States Smelting Refining and Mining, Alaska Juneau Gold Mining, Dome Mines, Ltd., Homestake Mining, Silver King Coalition Mines, McIntyre Porcupine Mines, Ltd., and Sunshine Mining. Alaska Juneau Gold Mining was required by the terms of its bond issue to retire the bonds before it could pay any common dividends. The last of this debt was paid in 1930. Since that time the company, aided by the gold-purchase policy of the Federal Government, has shown an expansion in annual dividend payments from $584,950 in 1931 to $1,760,549 from 1932 to 1934, inclusive, and rising to $1,800,000 in 1935 and 1936. The interest of United States Smelting Refining and Mining since 1928 has amounted to less than 1 per cent of its dividends. In 1928, however, its fixed charges amounted to $445,517. Its bonds were retired out of the proceeds of a common-stock issue.

The newsprint and pulp and paper companies have long met a large part of their long-term capital requirements through bond issues. The dividend record, has been irregular. Many newsprint companies defaulted during the recent depression. Only a few large companies survived. Of the pulp and paper companies listed on the New York Stock Exchange, Crown Zellerbach presented an excellent dividend record in the years of prosperity culminating in 1929. Its interest charges, which were approximately $100,000 in 1926, expanded to $1,552,577 in 1927 and 1928, and to $1,428,144 in 1929. Its common dividend was cut in half for 1930, and disappeared from 1932 to 1936. Mead Corporation and its corporate predecessors also borrowed heavily, and the company passed its dividend in 1932, not resuming until 1937. American Writing Paper, which borrowed sufficient funds to necessitate two reorganizations since 1923, has, from that time, paid no common dividends. Union Bag and Paper, for some years a large borrower—through a subsidiary—paid no dividends from 1924 to 1933, inclusive. It succeeded, however, in paying its debt by selling its hydro-electric properties. Container Corporation, another heavy borrower, reduced its common dividends substan-

tially in 1929, and did not resume until 1936. It is difficult here to trace cause and effect. It is clear, however, that a correlation between rising debts and falling dividends exists.

The oil-refining companies have borrowed. The sale of refined-petroleum products has shown steady increases. The oil industry is physically expanding. Except for a few corporations, however, the dividend record of the industry is not attractive. In the depression, Barnsdall, Consolidated Oil, Continental, Mid-Continental Petroleum, Phillips Petroleum, Pure Oil, Shell Union Oil, and Tide Water Associates Oil passed their dividends. Most of the other companies reduced their dividends. The annual dividends of the refined-petroleum group were less in the recovery period than in 1928 and 1929. With a few exceptions (such as the Mid-Continental Petroleum, Standard Oil of California and Indiana, and Barber), the oil-refining companies have issued bonds. Despite expanding demand, the industry, while strong in cash, has not substantially increased its dividends. Within recent years, most of the companies have adopted a practice characteristic of expanding industries; they have reduced or eliminated their fixed charges.

The following table shows the interest charges from 1930-1936 of the companies included in the oil-refining group:

MOVEMENT OF INTEREST CHARGES OF OIL-REFINING COMPANIES, 1930-1936

Company	*1930*	*1936*
Atlantic Refining Company	$753,253	$874,308
Barnsdall Oil	50,451	53,681
Colonial Beacon Oil	650,393	13,892
Consolidated Oil Company	6,119,032	1,506,571
Continental Oil Company	1,767,122	0
Louisiana Oil Refining Company	111,072	Bankruptcy
Phillips Petroleum Company	2,221,360	580,613
Pure Oil Company	1,347,130	1,392,441*
Shell Union Oil Corporation	6,573,887	2,431,883
Skelly Oil Company	980,547	480,334
Socony-Vacuum Company	4,571,144	1,928,622
Standard Oil of Indiana	4,763,785	328,132
Standard Oil of New Jersey	8,903,147	9,845,889
Sun Oil Company	745,684	308,731
Texas Corporation	6,677,304	3,934,069
Tide Water Associated Oil Company	1,049,802	817,445
Union Oil of California	1,540,598	916,343
Warner-Quinlan Company	599,997	Bankruptcy

* Bonds retired in 1938.

In the non-ferrous metals group, financing with bond issues, despite the ownership of natural resources, has been confined to a few corporations. Among the non-borrowers are the Noranda Mines, Park Utah Consolidated Mining, Federal Mining and Smelting, Silver Coalition Mines, Calumet and Hecla Copper, Cerro de Pasco, Howe Sound, Kennecott Copper, and Magma Copper. These companies have nominal interest charges. On the other hand, the Anaconda Copper group and American Smelting and Refining have been heavy borrowers; and Phelps Dodge, together with St. Joseph Lead, have incurred small bond issues during the past three or four years. Of the two heavy borrowers, American Smelting and Refining has reduced its interest from $1,838,324 in 1930 to $802,610 in 1936. Anaconda Copper, however, has not substantially cut its interest. American Smelting and Refining's common dividend amounted to $7,319,760 in 1930 and $6,678,281 in 1936, while the common dividend of Anaconda Copper which amounted to $34,314,436 in 1930, was $10,842,922 in 1936.

Another group of industries that introduces additional complications in this analysis are the railroads and public utilities. The law prohibits these enterprises to charge prices which will produce the largest net earnings. They cannot, therefore, like unregulated corporations during their expanding periods, build up heavy surpluses for plant investment. They are allowed to charge such prices and rates as will permit them to earn a limited—the law says a "reasonable"—return upon the value of their property. When obliged to expand in order to serve the public, they must usually sell securities. It has been impossible for these regulated corporations to acquire all the money they need for expansion through the sale of common and preferred stock. Railroads and public utilities have always been heavy borrowers.

What the force of long-established tradition has done in the real-estate mortgage, hotel, office-building and apartment-house industries, the law has accomplished in the railroad and the utility business. Whether the utility be a railroad, trolley, power, water, telegraph, or telephone company, whether it be expanding or declining, when new capital is needed, it has been compelled to sell bonds to obtain at least part of the funds. The law gives it no choice. Furthermore, by reason of a long and profitable record in

an expanding utility industry, the steam-railroad industry, for example, the investors, lulled into a sense of security, place no important restrictions upon the borrowing company. Borrowers are not required to repay or even reduce their debts out of earnings. When a bond issue matures, it is replaced by another issue, sometimes at higher rates of interest, sometimes at lower rates.

The history of the railroad industry from 1920 to 1930 illustrates this important symptom of increasing debt. In order to reduce costs by the installation of betterments, the railroads increased their long-term debt. When earnings turned downward, the industry was handicapped by a high ratio of fixed charges. The steam railroad (and also the trolley) *may* have a debt which, in relation to the property, is no greater than that in the telephone, the water, and the power and light industry. It is, however, too large compared with earnings.

Outside the heavy raw-material producers and the public utilities, borrowing is no longer relied on as a major source of capital funds. Some groups have already been examined. Other industries such as photographic supplies, automobile accessories, drug chains, synthetic building materials, automobiles and trucks, machine tools, stainless steel, business machines, cigarettes and tobacco, chewing gum, soaps and cleaning compounds, drug manufacturing, non-alcoholic beverages, dairy products, alloy raw materials, electrical equipment, and powered domestic accessories are among those whose debts either are absent or are low and declining.

CHAPTER XXII

COST AND QUALITY CORRECTIVES

THE SYMPTOMS have been recognized by the management. Business is stationary, competition is increasing. Now that management sees the signs of danger, what can they do about the matter? Diagnosis is complete. Treatment is now indicated. Of what measures does this treatment consist, and what are its prospects of success? Is there good hope of recovery?

Reduction in costs is the first major corrective. We have already seen, in our examination of symptoms, that the early stages of a decline are featured by the installation of betterments to reduce operating costs and to improve the standard of service. We reviewed the heavy investment made by the steam-railroad industry in the period subsequent to 1921. The investment was not required by an increase in mileage, nor by a substantial increase in ton miles of traffic. Passenger miles, indeed, declined sharply. With good credit, with a long record of earning power, the railroad industry sold bonds in order to finance its improvement program.

The increased efficiency of the steam railroads during the early stages of their decline in the twenties was a notable feature of investment analysis to which constant reference was made by the students of this subject. A few comparative figures embracing the Class I roads may be cited on this point:

In 1922—The average freight train consisted of 38 cars.
In 1938—This figure had been increased to 48 cars, an increase of 26 per cent.
In 1922—Each freight train performed each hour on the average a service equivalent to carrying 7,479 tons of freight a distance of one mile.
In 1938—This figure had been increased to 12,472, an increase of 67 per cent.

In 1922—163 pounds of coal were required in freight service to move 1,000 tons of freight and equipment a distance of one mile.

In 1938—This figure had been reduced to 115 pounds, a reduction of 29 per cent.

In 1922—17.9 pounds of coal were required in passenger service to move a passenger-train car a distance of one mile.

In 1938—This figure had been reduced to 14.9 pounds, a reduction of 17 per cent.

In 1922—Payments by the railroads for loss and damage to freight amounted to $1.11 for every car loaded with revenue freight.

In 1938—This figure had been reduced to 70 cents, a reduction of 36 per cent.[1]

A large percentage of these savings were made prior to 1930. They were realized, in part, through the use of modern locomotives with coal-saving devices such as superheaters and automatic stokers. Track maintenance was largely mechanized. The unit cost of railway operation rapidly declined. In 1921 the operating cost of moving one ton of freight 1,000 miles was $10.78. In 1929, it was $7.44.[2]

Extensive improvements and betterments were also installed by street-car managements in the early twenties. The Market Street Railway, the Grand Rapids Railroad, the Detroit United Railway, the Chicago, Aurora and Elgin, and the Chicago, North Shore and Milwaukee, to mention only a few, made heavy investments in new equipment financed by bond issues.

In the anthracite industry, in the earlier stages of its decline, large investments were made in mechanical equipment designed to reduce unit cost and to improve quality. The proceeds of the Philadelphia and Reading Coal and Iron Company's $30,000,000 bond issue in 1928 were used to finance the construction of two large breakers, together with improvements to mining properties. It was estimated by the engineers, Stone and Webster, that this investment would substantially reduce costs. The anticipated savings were based upon the expectation of full operations, which did not materialize.

[1] Computations based upon data of Association of American Railroads, Bureau of Railway Economics.

[2] *Commercial & Financial Chronicle*, December 12, 1936, p. 3,707.

In the bituminous-coal industry during the period of its decline, which began about 1923, reductions in cost were made by the installation of improved loading and cleaning devices. Spurred by the defeat of the United Mine Workers of America in their attempt to enforce a $7.50 base wage scale upon the industry, which led to a successful rebellion by many large operators and which left the principal districts free, for a time, from union restrictions, the industry installed mechanical loading devices on an extensive scale. Only a small portion of the coal mined is now loaded by hand. Extensive electrification programs were also carried through.

Modernization in declining industries can frequently accomplish substantial savings in costs. The necessary investment is, however, great. Corporations in declining industries in their later stages have difficulty in securing funds.

Some 28 urban and interurban electric-railway companies, for example, acting through a committee headed by Dr. Thomas Conway, Jr., after five years of research involving an expenditure of approximately $750,000, developed a new trolley car, of which 871 are now in successful operation in 12 cities. From the viewpoints of passenger appeal and comfort, better performance, reduced cost of and quietness in operation, and reduced wear and tear on track structures, this car is clearly superior to the equipment which it was designed to replace. The maximum acceleration of the PCC car, as it is known, is 4.75 miles per hour per second, or substantially twice as rapid as most of the street cars now in service. Its free running speed is 50 miles per hour; its rate of deceleration is both smoother and much more rapid, flexible and certain than that attained by any car heretofore evolved. These characteristics enable the PCC car to maintain a schedule speed of 14.2 miles per hour in traffic with 8 stops per mile on city streets with an average amount of vehicular congestion—or almost twice the average schedule speed prevailing in most cities. This higher speed is made possible by improved electrical and braking equipment, the greater nimbleness of the car and its substantially lighter weight. In operation the motors are almost noiseless; the wheels are of a new type constructed of rubber and steel; rubber springs are used throughout. This very greatly reduces noise in operation, and impacts and con-

sequent wear and tear on track structures. Riding comfort is equal to that of a new automobile on a new concrete highway. Greatly improved seating, lighting, heating and ventilation are other features. Accidents with the new car have shown a definite downward trend.

A summary of the results of operation of PCC cars, prepared by Mr. W. T. Rossell, Vice President, Brooklyn & Queens Transit Corporation, and presented at the Annual Convention of the American Transit Association in 1938, shows that in every case there was a large increase in passengers carried on lines equipped with the new cars. In many cases the increased traffic was of the order of 20 per cent. Some of this increase was initially ascribed to "curiosity riding." In most cases some net increase in riding occurred.

The potential savings from the modernization of locomotives in the steam-railroad industry can be approximated from the results of a program introduced by the Chicago, Burlington and Quincy. This company was one of the first properties to use Diesel locomotives on a large scale in its passenger service. The Company operates several Diesel-electric trains at distances up to 1,000 miles daily at an average speed of 65 miles an hour. The Diesels weigh less than steam locomotives. "Including fuel and water," states Ralph Budd, the president of the company, "the load that has to be transported in the locomotive itself is reduced by 40 per cent or more. On the Burlington's Chicago-Denver Zephyrs, that means eliminating 300,000 ton miles daily. Furthermore, as regards uniform speed, one of these trains on a 1,000-mile run stands still for servicing en route about 40 minutes less than a conventional train. The cost per train mile for locomotive maintenance, fuel and lubricating oil on the four small Zephyrs (three and four cars each) has been an average of 4.80 cents. The cost per locomotive mile for steam-drawn trains of the same carrying capacity has been 28.98 cents."

The savings from the new Diesel-powered switching locomotives are even greater. H. L. Hamilton, President of the Electro-Motive Corporation, a subsidiary of the General Motors, refers to the economy, the reduced starting effort, high availability, superior flexibility, greater safety, and work output of the Diesel locomotive as contrasted with the steam-powered engine. Mr.

Hamilton states further, "In 1936, Class I railroads spent about $35,000,000 for fuel for switch engines. Diesel switchers will normally reduce this expense 75 per cent. In ordinary switching service one tank car of fuel oil covers as many service hours as twelve cars of coal. The railroad spent about $45,000,000 for repairing locomotives in switching service. Diesels will reduce this item approximately 50 per cent. About $16,000,000 was spent for round-house expenses. This service on Diesels is negligible. Diesel switchers are normally available for not less than 8,000 hours a year. Steam switchers are rarely available for more than 6,000 hours a year." [3]

Mr. Hamilton expressed the view that on the basis of "quite complete studies" the Class I railroads by installing 3,000 Diesel locomotives in switching service, constituting about 25 per cent of the present locomotive inventory, could effect a saving in operating expenses of $52,000,000 yearly.

Such economies are not generally available to the declining railroad industry. Most companies have neither the funds nor the credit to finance these improvements. Only a few railroad companies have purchased modern Diesel switchers. The expanding transportation industry is the automobile and truck manufacturing industry. The large motor-manufacturing companies' enterprises in the field have been the leaders in the modernization of plant and equipment. Extraordinary cost reductions have been made. A report of the National Recovery Administration on technological developments in the motor industry revealed a few of the detailed mechanical improvements.[4] The automobile-manufacturing industry by mass production has effected far-reaching reductions in unit motor-car costs. The railroads, to the date of this writing, have not been able to afford an improvement program that would enable them to make a similar reduction in cost of railroad service. It is questionable whether any set of economies by the railroad industry, in the face of the decline in demand and the limited funds available for improvement since 1931, could have effected reductions in unit costs approach-

[3] The quoted statements of Ralph Budd, and H. L. Hamilton are taken from *Iron Age*, November 8, 1937, pp. 85-90.

[4] Preliminary Report on Study of Regularization of Employment and Improvement of Labor Conditions in the Automobile Industry, Appendix B, Exhibit 16, National Recovery Administration, January 23, 1935.

ing those attained by the automobile, bus, and truck manufacturers.

The Chilean-nitrate industry, in the early stage of competition with synthetic nitrate, adopted two cost-reducing improvements. Mechanical mining replaced old hand methods; and the new Guggenheim process, for the extraction of nitrate from rock, replaced the old Shanks process. Since 1929, the new process has accounted for the bulk of Chilean production.

The advantages of the new process were, at the time of its installation, described in the following language:

> Under the old hand method of mining caliche from 15 to 25 per cent of the nitrate-bearing material was left on the ground, while of the balance delivered to the plant only an average of not more than 65 per cent of the nitrate content was recovered as merchantable nitrate. With the new methods developed by the Guggenheim engineers 90 per cent of the nitrate contained in the ground is recovered as commercial nitrate, and this of a higher grade than that produced under the old methods. With the old methods nitrate grounds were not considered of commercial value if they contained less than an average of 14 per cent of nitrate, while with the new methods grounds containing as low as 6 per cent of nitrate will have commercial value.[5]

These cost savings did not save the industry. The expansion of synthetic nitrates proceeded apace. The natural nitrate operations in Chile showed a heavy loss. The industry is now weak.

In textiles, the combined effects of increasing demand and extensive modernization in rayon spinning has produced substantial cost reductions. This is an expanding industry. The declining division, cotton, silk, and woolen, is handicapped by a high ratio of obsolete equipment. This, together with diminished demand, has increased unit costs.

When the decline in demand, however, reaches such proportions as to lead the industry to pass its dividends, investment in new improvements slows and finally comes to a halt. The industry by this time has lost its credit standing and it can no longer secure funds by the sale of securities. Neither does it have sufficient earnings. Indeed, the decline in earnings is the cause of

[5] New York *Times*, February 14, 1927.

its loss of credit. The purchase of capital improvements, of modernized and cost-reducing equipment, stops. Obsolescence increases. Operating expenses, wherever possible, are cut. The standard of maintenance falls. In those declining industries in which trade unions are not strong, wages slip and sweat shop conditions prevail. The labor conditions in the broad-silk industry, the repeated wage cuts in the cotton and woolen industry in the twenties and early thirties, are of this tendency.

Cost cutting in the early stages of decline is apparently necessary for the preservation of the business. Yet it rarely succeeds. Administrative economies from reduction in long-distance telephoning, reduction of personnel and compensation, elimination of research and cost analysis are unimportant when the mechanical equipment is obsolete. Lowered administrative expenses are swallowed up by increased unit costs from the use of antiquated mechanisms and by the increase in maintenance costs. Repair bills and other operating costs on obsolete machinery are, in comparison with costs on modernized machinery used by the expanding industry, high. The declining industry usually competes with another expanding industry. Cotton and silk compete with rayon. Cotton competes also with paper for bags, toweling, napkins, shipping containers, and with jute for twine. Lumber, a declining industry, competes with light steel, nonferrous metals, and plastics. Urban electric passenger transportation, a declining industry, competes with the expanding automobile industries. The declining anthracite industry competes with the expanding oil industry. In this competition the odds are against the declining industry. It is handicapped, to start with, by a decline in demand, whereas the expanding industry enjoys the primary advantage of a rise in demand. The overhead of the declining industry is spread over fewer units of output; and even if no other handicaps exist, the unit costs rise. The expanding industry, on the other hand, because of the increase in demand, is favored by a decline in cost.

The recent acceleration in the tempo of labor unionization has made the problem of the declining industry more difficult. Wage rates tend to become fixed costs. The conditions under which the steam-railroad industry, in the summer of 1937, was compelled to raise its wage rates is an illustration. Railway wage

rates, after this increase, attained a record high level and at this level they remain.

Intra-industrial coöperation, which tends to replace competition, now becomes significant. Important units in the declining industry recognize, usually after experience with the futility of cost reduction, that excessive plant capacity is responsible for price cutting, that price cutting quickly wipes out operating savings, and, if the industry is to be saved, this excess capacity must be controlled. Sometimes through trade associations, occasionally through coöperation of the important members of the industry, and, from time to time, by government help, the industry takes steps to eliminate idle and marginal capacity.

The excessive plant capacity, in theory, can be eliminated through bankruptcy, liquidation, and sheer physical exhaustion of the obsolete machinery. Assuming that new enterprises are not established, the margin of unused capacity should finally disappear. *There is no important industry in which this assumption has been borne out by results.* The obsolete equipment of bankrupt and liquidating companies is purchased at low prices. The new enterpriser is thereupon favored by low overhead costs. He is able to compete more effectively than his predecessor. His costs are lower, he usually has some cash with which to modernize his property, and he enters hopefully into the long-declining business without the deep-rooted prejudices and fears by which his business competitors are ridden.

The declining industry, finally recognizing that the withdrawal of capital from a declining industry will not serve, seeks to eliminate surplus plant capacity by coöperation among existing enterprises. In cotton textiles, for example, suggestions have been made for the formation of a corporation whose stock will be held by existing companies. The corporation would lease a specified percentage of the textile equipment of each company that buys stock. The owner could secure the use of his own equipment only by paying a high rental to the newly organized corporation. The lease would prohibit the installation of new machinery except for replacement purposes.

Another widely discussed plan contemplates the purchase of a substantial amount of the equipment of each coöperating mem-

ber. The obsolete machinery would be scrapped and thereby the menace of second-hand competition described above would be removed.

Another suggestion calls for the establishment of a governing body. This committee would be given power, in its judgment, either to lease or to purchase unnecessary equipment to retire permanently this equipment from service.

Numerous claims may be presented for any of these plans. In prosperity, these plans are held in abeyance. In depression, they are brought out for discussion. None of these plans in this country has come to anything. In England, with the coöperation of Parliament, a start has been made. The Spinning Redundance Act, passed early in 1936, is based upon a coöperative alliance between the cotton-textile industry and the British Government, by which, through joint contributions by government and industry, unused machinery may be retired. The short experience with this legislation reveals the danger inherent in all these plans. With the spur of intra-industrial competition removed, a feeling of dangerous overconfidence prevails. Prices may advance, and the competitive strength of the declining industry is likely to be undermined by its higher prices.

A similar tendency prevails in the declining steam-railroad industry. Here it expresses itself in projects for railroad consolidation. The margin of unused capacity in the industry is great. Many parallel and duplicate lines exist in all sections of the country. There is no case in which one of two parallel lines can not carry all the traffic now carried by both. The Northern Pacific and the Chicago, Milwaukee, St. Paul and Pacific on its trans-Missouri lines; the Baltimore and Ohio and the Western Maryland from Connellsville to Baltimore; the Erie and the Delaware, Lackawanna and Western in the Buffalo-Jersey City territory; the New York Central and the New York, Chicago and St. Louis between Buffalo and Chicago, are illustrations. Duplicate terminals, round houses, repair shops, and classification yards are further evidences of excessive capacity. Numerous studies have been made of the savings that a program of regional consolidation of American railroads could effect. The Prince Plan of Railroad Coördination estimated a saving of approximately $700,000,000

based upon 1932 operations.[6] Although the need of reducing expenses is desperate, little has been accomplished. Numerous consolidations were made during the twenties. They were not made in most cases to introduce economies. One road acquired another to secure a larger share of the available traffic. Any economies realized were incidental to the primary motive of wresting traffic from competition. The Southern Pacific-St. Louis Southwestern; the Missouri Pacific-International and Great Northern-New Orleans Texas and Mexico; the Chesapeake and Ohio-Erie-Père Marquette-Nickel Plate consolidations are familiar illustrations. The pooling and joint use of railroad properties has produced some savings, but these have been small.

The declining railroad industry has not saved itself by common action. The forces of competition are apparently too strong. Whether the efforts of the Federal Government to promote widespread consolidation will succeed where private enterprises have failed, is an open question.

Liquidation is the final step; and this stage has been reached by many textile enterprises. Windham Silk, Taber Mills, United States Worsted, Hamilton Woolen, Sharp Manufacturing, Lumb Knitting, Yund, Kennedy and Lund, Blood Knitting, J. C. Roulette & Sons, are a few of the many concerns that have accepted this method of escape from the heartaches and headaches of a declining industry. The losses in liquidation are usually heavy. A typical illustration is afforded by the United States Worsted Company. W. M. Wood, President of the American Woolen Company, in 1920, made an offer of $1,000,000 for one of the mills of this company. The offer was refused, on the ground that the property was worth at least $1,400,000. In the liquidation of the United States Worsted Company, this mill did not bring a single bid, except for salvage purposes.

Liquidation has been the fate of many short-line railroads. In no important case on record have the stockholders of any abandoned railroad property received any return. In few cases have the bondholders received a substantial share of their investment. Occasionally the bondholders lose everything; usually they re-

[6] Some doubt has been expressed that these large savings could be realized, even if political considerations did not make such wholesale economies, at the expense of wages and taxes, impractical.

ceive a slight return of principal, after deductions for legal, accounting, and miscellaneous expenses.

We may say, therefore, that the declining industry is not likely to recover its earning power by reducing its costs. Based on the New York Stock Exchange record, it has never done so.

The declining industry, in its quest for financial recovery, resorts to other methods. One method is to raise its standard of service. This method, however, depends upon its ability to install modern equipment. The new lightweight passenger cars have been installed by successful railroads such as the Chesapeake and Ohio, the Chicago, Burlington and Quincy, and the Union Pacific.

To some extent, however, improved merchandising and higher standards of service can be introduced without heavy investment in plant and equipment. Thus, the declining industry raises its standards of service to retrieve the business which it has lost. It adopts steps which during its expanding stage it may have ignored. The street-railway industry, for example, in its days of prosperity prior to 1917, made no substantial improvements in its rate structure. The zoning system, the special shopper's pass, the unlimited weekly pass, the weekly shopper theatre pass, the lowered fares for off-peak riding, the free children's rides on Sundays and holidays, were designed and installed in the days of decline.

Ingenious are the methods adopted within recent years by the declining manufactured-ice industry. This industry originally sold its ice at the platform in blocks. Neither the quality, the size, nor the form of the ice was adjusted to the needs of the consumer. "If a competitor entered the market, offering an improved ice service, such as cutting cubes, he was considered a demoralizer. Rather than cut cubes, the old industry would let each hotel buy its own equipment, and cut its own cubes."[7] In the effort to stimulate the demand for ice and to offset the advantages offered by the expanding members of the refrigeration industry—mechanical refrigeration—progressive managements have introduced new merchandising methods. They have installed cube cutting equipment—automatic cubers which cut thousands of

[7] Proceedings of the National Association of Ice Industries, October 20-23, 1936, p. 206.

cubes per hour. The ice is now delivered crystal clear, free from sediment, from absorbed odors, bacteria, and mold. The industry, by improving its product, by sizing the ice to the needs of the consumer, and by a vigorous advertising campaign featuring such insidious competitive slogans as "Ice Never Fails," is making an effort to regain part of the market lost to their inter-industrial competitors. It is unfair to prejudge the success of these efforts, since the corrective factors have been introduced within late years. So far as the record indicates, however, the campaign has not yet been successful.

The declining woolen and worsted industry has also undertaken a campaign to broaden its market without substantial capital investment. In this effort, emphasis has been placed on wool as a leader of fashion. The cotton-textile industry, through the Cotton Textile Institute, and in other ways, has endeavored to accomplish the same results. Beautiful creations in cotton and woolen goods have been offered to the markets.

In domestic cooking and heating, the prosperous electric light and power industry has been making inroads into the demand for manufactured gas. In recent years, using the new automatic equipment which has played such an important part in the success of the electricity industry, the manufactured-gas industry has begun to fight back. Such devices as air circulators, radium heaters, unit heaters, kitchen heaters, radiators, and floor furnaces have been introduced. The new heater is well designed, is attractive, and is as easy to operate as any electrically operated unit. A manufacturer of these appliances has expressed the opinion that the space (house) heater is an appliance that has sales possibilities closest to those of the electric refrigerator. It is the appliance that can best help the gas industry. For unlike the gas range, water heater, refrigerator, and other appliances, the space heater is not competitive with the electric industry. The gas range equipped with a pilot is an automatic appliance. It is clean, attractive, well built, and finished with the superior materials to which the consumer has become accustomed.

These cost-reducing and quality-improving influences are applied to the product or service in which the declining industry has, for many years, specialized. These corrective influences, which

are introduced into an existing field of demand, may be called cost and quality correctives. They operate on the cost of, and the quality of, an existing product or service. They operate upon an existing product applied to particular uses. They do not invade new fields where demand is expanding. Important as they are to the continued welfare of a declining industry, the application of static corrective factors has not yet revived earning power. The ice cubes and the improved automatic gas water heaters may arrest the rate of decline in the demand for ice and gas, but they can only slow the shift in consumers' preference for the electrically operated appliances. The recent improvement in the quality of anthracite has removed some of the disfavor of the anthracite user, for which the liberal mixture of slate and fine sizes in the domestic product was in part responsible. This improved quality has slowed the rate of displacement of coal by oil, but it has not stopped this substitution.

In its effort to rejuvenate itself, the declining industry frequently seeks salvation in the form of state subsidies. Under some conditions, the aid of the public treasury may extricate the unfortunate industry from its difficulties. The strength of the Porto Rico raw-sugar industry, since the price collapse in 1921, has been paralleled by declines in the earnings of companies in the Cuba raw-sugar industry. The increasing dividends of South Porto Rico Sugar, Fajardo Sugar, and Central Aguirre Associates —three of the leading Porto Rico sugar enterprises—have accompanied the declining earnings and the subsequent bankruptcies of Cuba Cane Products, Camaguey Sugar, Francisco Sugar, and numerous others. The exemption from the tariff on imported sugar explains the superior earnings of the Porto Rican companies. The dividends of these companies depend upon the maintenance of a differential tariff. If Porto Rican sugar paid duties on imports into the United States, the earnings of the Porto Rican companies would be much lower.

The domestic beet-sugar industry has also been the beneficiary of a government subsidy. Federal legislation, passed primarily in the interests of the farmer, has prescribed a quota system for the sugar industry. The beet-sugar companies have been allotted a sales quota on the basis of which they can operate their refineries

close to plant capacities. Protected by the quota and by the tariff duty, the beet-sugar industry since 1934 has increased its earnings and dividends. Here state subsidy took the form, in part, of a guaranteed market for the output of the beet-sugar industry.

State aid has also bolstered the declining profits of the electric street railway. The lease of the Boston Elevated to the State of Massachusetts is an illustration of a state subsidy extended to the security-holders in a declining street-car industry. Since 1918, a guaranteed dividend of 6 per cent, and since 1931, of 5 per cent, has been paid to the stockholders. The dividend in recent years has not been earned.

The steam-railroad industry in many countries has been a beneficiary of state subsidy. A portion of the budgetary deficits of the Canadian Government is represented by unearned interest on the guarantee of the bonds of the Canadian National Railways. The Government of France, has, for many years, assumed heavy deficits of many of the French railroad systems. In the United States, little has been accomplished along these lines to relieve the railroads. Until recent years, it is true, American railroads have not needed this kind of relief. The security-holders of the American railway systems have vigorously opposed government ownership or operation. The bankruptcy of many railroad systems in recent years has again stimulated thought on this subject. Commissioner Joseph E. Eastman of the Interstate Commerce Commission and Chairman Burton K. Wheeler of the Senate Interstate Commerce Commitee have, from time to time, expressed opinions in favor of government ownership.

The post-war history of the marine-transportation industry contributes another chapter to the record of state aids to financially distressed corporate citizens. The Merchant Marine Act of 1928 provided for indirect subsidies by means of liberal prices paid on mail contracts. This system was replaced by another form of subsidy incorporated in the Merchant Marine Act of 1936. The subsidy provided by this act is unconcealed and direct. A construction differential is paid to the shipbuilder to equalize the difference between American and foreign construction costs. Another subsidy known as the operating differential is paid to the ship operator. This reimburses the ship operator for that part of the money spent for American labor and materials on an American

ship representing an excess of costs over foreign costs. The law does not guarantee profits to security-holders. It aims merely to place the American and foreign shipbuilder and operator on a competitive basis.

CHAPTER XXIII

DEMAND CORRECTIVES

THE REJUVENATION of the industry threatened by decline must be accomplished by an increase in the sale of its goods or services. Nothing less will serve. For declining demand, due to a shift in consumers' preference, or to the substitution of superior products within the existing demand pattern, there is no remedy. The company whose sales are declining, if it is to survive, must break away from its established line. It must open new fields, or find new markets in existing fields. The declining industry must convert itself into an expanding industry. Goods and services which the public wishes to buy, it must sell.

In shifting the emphasis of its activities, the company in the declining industry, by developing new products against a time when they will be needed to maintain profits, follows the examples abundantly provided by companies in expanding industries. In the chemical industry, Du Pont and Hercules Powder have been engaged for many years in continuous exploitation of new products. Du Pont, originally devoted to the manufacture of explosives, began to diversify as early as 1904. During the war, the policy of diversification was intensified. One branch of its activities was coal-tar dyes. Through internal expansion, and by the purchase of other companies, it became a leader in this field. It spent more than $40,000,000 before any profit was returned. This sum was spent for plant investment, operating deficits, and research. It made heavy investments in synthetic nitrogen. The production of synthetic nitrates was followed by an extensive drop in nitrate prices; and synthetics set the pace. A wide extension in agricultural and industrial uses of nitrate followed the fall in prices. In 1923, Du Pont began the manufacture of a superior packaging and wrapping material—"Cellophane." The initial price was $2.65 a pound. Nineteen price re-

ductions brought the price down to 40 cents a pound. The company has followed the trend of the market in the plastic industry. In the early thirties the established nitro-cellulose plastic was threatened by the competition of the acetate plastic. Du Pont, in meeting this problem, added the new acetate plastic to its other lines.

During the twenties a technological revolution was transforming the solvent and lacquer industry. Lacquers are mainly sold to the automobile industry, in which Du Pont, through its ownership of General Motors stock, is interested. Du Pont played a part in the development of a nitro-cellulose lacquer, which reduced the time required for drying.

Later the nitro-cellulose lacquers encountered the competition of synthetic resins and varnishes. Du Pont, through its paint division, did not lag behind. It introduced a number of synthetic resins into the paint and lacquer market. Because of its activities in so many of the process industries, Du Pont had become an important user of heavy chemicals not produced within its own organization. In the late twenties, it acquired Roessler and Hasslacher, an established producer of heavy chemicals. Grasselli Chemical, another important concern in the same field, was also acquired.

The continuous expansion into new and growing markets continued in the years of depression. In 1931 Du Pont acquired the dyestuffs division of Newport. It built plants for the manufacture of synthetic camphor, using for its raw material the turpentine produced from the stumps on the cut-over wastelands in the southeastern states. It brought out Neoprene, a synthetic product possessing many of the qualities of natural rubber. In respect to other qualities, such as acid resistance, it is superior to natural rubber. It built a plant for the manufacture of titanium oxide, a product which has, for many uses, superseded zinc oxide. The company has recently begun the construction of a plant for the production of a new synthetic fibre, which is expected to compete with natural silk in the manufacture of full-fashioned hosiery.

This is a partial list of the products which Du Pont has developed since its war activities in explosives terminated in 1918. These new products are so important that, for 1937, twelve new groups not available in 1928 accounted for about 40 per cent of

1937 sales. During this decade, the company invested $109,000,000 in plant for the manufacture of these products.[1]

Hercules Powder followed a similar policy. It was originally built around the explosives business. The end of the World War, by curtailing demand for this product, threatened its earnings. The company had "a number of highly trained men who could not be absorbed by the normal industrial-explosives business.

"These men, possessed of a background of large-scale production, and imbued with an idea of research, guided the company into a number of carefully selected industries which, as a group, would provide Hercules with a bulwark against widely changing economic conditions." [2]

Its first product was a low viscosity nitro-cellulose, for which the demand was rapidly increasing. The knowledge gained from experience in the field of nitro-cellulose enabled it to shift its activities to other cellulose markets. The rapid growth of cellulose chemistry found the company well prepared. The same chemists who had specialized in one branch of cellulose switched their activities into the newer field. The same kind of research and the same kind of plant and equipment were equally fruitful in the new forms of cellulose. The corrective factor of new products to meet new demands could be easily applied.

Ethyl cellulose, for use in quick-drying varnishes, flexible lacquers, adhesives, printing inks, leather finishes, electrical insulators, plastics, wax toughenors and pigment-grinding bases, was one product. Others in the cellulose field were cellulose acetate, Hercose C and Hercose AP, "all of which have properties making them of definite value in protective coatings, plastics, textiles, or in allied industries." [3] A trade-marked chlorinated-rubber base, with high resistance to acids and alkalis, and used as a strengthener in paints and varnishes, was introduced in 1934.

The acquisition of Paper Makers' Chemical gave the company an outlet among paper mills and allied industries, and the acquisition of Providence Dyesalters gave it an entrance into the field of textile chemicals.

Early in the history of its non-explosive chemical expansion, the company expanded into the naval-stores industry. Chemical

[1] Statement of the president in the Annual Report for 1937.
[2] "Looking Ahead," booklet published by the Hercules Powder Company.
[3] *Ibid.*

research made possible the utilization of pine-tree stumps. By steam distillation, the company, from this waste material, produced rosin, turpentine, pine oil, and numerous other products.

United States Industrial Alcohol, a leader in the solvents division of the chemical industry, has lost some of its earnings. The competition between fermented and synthetic solvents has been intensified by overproduction in both fields. The company, to recover its earnings, has expanded in chemical fields. In 1938 the company secured 38 per cent of its gross revenue from chemical lines against 15 per cent in 1931. The recent purchase by this company of the assets of Robert Rauh, manufacturers of synthetic rosin and ester gums, is a further step in this direction.[4]

The expansion of Eastman Kodak, the leader in the field of photographic equipment and supplies, is another instructive illustration of expansion into new and growing markets by an expanding company in an expanding industry. Through a subsidiary, Tennessee Eastman, it constructed a cellulose acetate plant to supply raw material for its photographic needs. To utilize a part of its acetate output not needed for its photographic division, it built a plant for the manufacture of acetate yarn, and another plant for the conversion of the same raw material, cellulose acetate, into the acetate plastic. The capacity for making cellulose acetate increased ten-fold in five years; and the capacity of the acetate-yarn plant increased six-fold in four years. The acetate plastic, known as Tenite, has found an expanding market in automobile safety glass, and in various automotive applications: window-regulator handles, dash controls, glove-compartment and gear-shift knobs, horn buttons, retainer rings, lock bushings, and steering wheels. Many other industries have created outlets for this cellulose acetate plastic.[5]

Union Carbide and Carbon, another important factor in the chemical, as well as in the ferro-alloys, industry, has also applied corrective influences on a wide scale. Had the company not shifted into new fields, its sales in 1936 would have been less than in 1919. "While some of its original products have continued to gain, others have materially smaller markets. In 1936 only 42 per cent of net came from products which were made in 1919,

[4] *Chemical Industries*, May, 1938, p. 1569.
[5] *Modern Plastics*, April, 1936, p. 27, "Down in Tennessee."

while 58 per cent came from new products developed since then. Practically all of these new products have been developed by the research staff of the company."[6]

This policy of diversification, of the addition of new products to serve new demands, is standard in the chemical industry. Because of the flexibility and comprehensiveness of chemical science, because of the sweep of its formulas, which cover such a large segment of industry, and because of the adaptability of chemical personnel, plant, and equipment to the production of new products, the industry keeps ahead of the procession of industrial changes. "The raw materials, the equipment utilized, the training of personnel, the technic of the various operations, and the type of transformations required are practically identical so that having the equipment necessary for part of this industry, one has the virtual equipment of all."[7]

A given chemical compound may be raw material for many finished products. Cellulose acetate can be converted into plastics, rayon, packaging materials, and photographic film; the plastic can be molded or fabricated into articles useful in a variety of industries. Ammonia, to take another example, is used as a base for nitric acid, urea, refrigerants, etc. Nitric acid finds uses in many industries. Another product, calcium carbide, made in the electric furnace from limestone and coal, is the base for acetylene, ethyl alcohol, synthetic rubber, and many other products. This extraordinary multi-diversity of a basic chemical compound offers the opportunity to apply the vital demand corrective influence—the development of numerous new products for new and expanding markets.

A similar diversification into new fields of activity is afforded by the recent history of General Motors. From automobiles, the company has branched out into domestic powered appliances, the electric refrigerator and the radio. It has made extensive commitments in the aviation and aviation-manufacturing industry. It has expanded into the manufacture of Diesel-electric switching engines and Diesels for stationary, truck, and marine purposes.[8] It has expanded so rapidly in this field that, according to one

[6] *Wall Street Journal*, April 23, 1937, statement of Jesse Ricks, President, Union Carbide and Carbon Corporation.

[7] A. Cressy Morrison, *Man in a Chemical World*, p. 170.

[8] *Iron Age*, January 6, 1938, p. 75.

report, the company covers the field "completely, building standard engines of all sizes and for almost every conceivable application."[9]

Corporations of this calibre do not await an invasion of their specialized fields before they act. The best defense is in attack. They recognize the rule of industrial change. New markets are constantly explored. Research workers are engaged in the development of products and services fitted into expanding markets. Demand decay in established lines is anticipated by the development of new lines. The superior management takes time by the forelock; it anticipates the corrosive effect of demand obsolescence.

Even in the expanding industries, diversification of product and service is not universal. Diversification into new lines is more frequently adopted as a policy designed to rescue a corporation, while the way of salvation is still open, from impending loss. Competition has reduced earnings and cash. It has diverted business to another company in the same industry. In a rapidly expanding industry, a financial loss to a particular company may thus occur. In the automobile industry, for example, expansion in output, sales, plant, and earnings has been concentrated in three enterprises. Only fifteen years ago, the publicly owned motor companies included many which have since been liquidated: Jordan, Marmon, Pope, Peerless, Gardner, Pierce Arrow, Stutz, Durant, and a number of others. Other important companies: Studebaker, Willys-Overland, Hupp, Auburn, Graham Page, Hudson, and Reo have lost a large share—and in some cases all—of their former business.

In the automotive accessory industry, the concentration of motor production in a few corporations intensified the competition. By the liquidation of unprofitable automobile companies, corporations in the last-mentioned industry lost many outlets. The concentration of buying power in the hands of General Motors, Chrysler, and Ford increased the latters' competitive advantage. Under the pressure of close buying by the few motor manufacturers, profit margins of the accessory companies slumped. Some companies, because of a shift by a single automobile manufacturer, lost a great part of their business. At the time when com-

[9] *Wall Street Journal*, September 1, 1938.

petition made lower costs imperative, decreasing volume increased unit costs.

This competition was first felt in the middle twenties. The accessory companies supplying automobile bodies were first affected. The acquisition of the Fisher Body Corporation by General Motors, and the increase in the manufacture of bodies by Ford, deprived the independent body companies of a substantial market. Briggs Manufacturing was soon affected. It had increased its common dividend from $2,030,236 in 1924 to $7,499,866 in 1925. A slight decline to $6,099,675 in 1926, and a sharp decline to $3,004,937 in 1927, followed. In 1928, the dividends were passed. No dividends were paid until January, 1931. They were again passed in 1933. Thereafter, dividends rapidly rose from $3,391,050 in 1934 to $5,835,600 in 1935 and to $7,769,800 in 1936. Despite the rapid loss in the automotive-accessory line, the company recovered its earning power; it is now well supplied with cash. It has no debts or preferred stock. Its capital liability consists of 1,979,000 shares of no-par common stock.

Briggs Manufacturing reëstablished its earnings in part by shifting from motor accessories to other lines. The management recognized that it could no longer expect to retain its former business in automobile bodies. These would continue to be made (but not to the same extent) by the independents. Briggs, therefore, added to the production of car bodies, lines of drawn- and pressed-steel kitchen and plumbing equipment. Kitchen cabinets, sinks, bathroom fixtures, among other items in the home, had long been made of cast iron. Pressed-sheet steel has many advantages over cast iron or vitreous china as a material for kitchen equipment. It is lighter. A steel built-in recessed tub weighs from 110 to 125 pounds, compared with a weight of 375 to 425 pounds for a cast-iron tub.[10] The steel enameled bath tub is rust proof. It can take any color. It is therefore possible to manufacture these tubs in color combinations to match any room scheme. Briggs Manufacturing is now a large producer of sheet-steel bath tubs and miscellaneous lines of kitchen equipment.

The success of Briggs in restoring its earnings by shifting into expanding lines is not exceptional in this industry. Other companies have shifted their production into non-automobile lines.

[10] *Iron Age*, November 26, 1936, p. 32.

Borg Warner has been particularly successful in diversification. It now manufactures household appliances, air conditioning, heating, and commercial refrigeration equipment, gas and oil burners, roller chains, flexible couplings, industrial clutches, and aëronautical equipment. Its diversification policy had reduced the relative income received from automobile lines to 40 per cent of its gross revenue in 1936. The company has prospered, and in 1936 its dividends were $4,603,859, as compared with a low of $287,721 in 1933, and $4,120,055 in the boom year of 1929.

Stewart Warner is another company which has escaped from dependence upon the fluctuation of the motor-car industry. This company reduced its dividends in the late twenties, passed its dividends in the years of depression, and finally resumed payments in 1935. In 1936, it paid $1,241,847 in common dividends. Its early adventures in its diversification program were failures. The company shifted from one automobile accessory to another, adding to its original lubricants and lubricating systems such lines as brakes, bumpers, and fuel pumps. In the depression years, the company successfully expanded into electrical refrigeration and radio.

Other important accessory companies which have shifted to non-motor lines are: Bohn Aluminum and Brass, Mullins Manufacturing, Edward G. Budd, Clark Equipment, Houdaille-Hershey, Electric Auto-Lite, L. & A. Young Spring and Wire, Timken Detroit Axle, Bendix Aviation, Reynolds Spring, Eaton Manufacturing, Sparks-Withington, Timken Roller Bearing, Federal Screw, and American Bosch.

Some motor-accessory concerns whose earning power declined in the middle twenties did not, like those just mentioned, adopt an aggressive diversification policy. The financial record of some of these enterprises does not make pleasant reading. Hayes Body and Gabriel Manufacturing are among those that may be included in this category. Most of the output of Hayes in the twenties was sold to Chrysler, Marmon, and Peerless. The failure of the latter[11] two companies decreased the demand for the output of Hayes Body. In recent years, the company has made some effort to extend its non-automobile lines. Meanwhile Hayes passed its common dividends in 1929; and these dividends have never been

[11] *Moody's Manual of Investments*, "Industrials," 1930, p. 1577.

resumed. A poor record has also been recorded by the Gabriel Company.

Extensive shifting from one field to another is thus characteristic of certain classes of expanding industries. The shifting assumes different forms, and in various industries shows different rates of speed. One corporation may retain its old products while adding numerous new products. Another may make a wholesale shift from an old to a new product. Timken Roller Bearing, for example, retained most of its old line of ball bearings for which it found many new uses, while adding new lines. In the power field, General Motors retained its automobile-assembly business, built around the gasoline engine, while expanding into the Diesel-engine field. Caterpillar Tractor, on the other hand, in the fall of 1931, added to its activities the manufacture of Diesel-powered tractors. Prior to that time, because of such handicaps as excessive weight, high maintenance cost, difficult starting, lack of standardization of parts and uniformity of performance, and intricacy of adjustments, the advantages of Diesel power had not been available for tractors. For several years before 1931, Caterpillar Tractor had conducted extensive research and development work, culminating in the delivery on October 20, 1931, of its first Diesel engine. Expansion through this new product took place in the midst of the depression. The company was organized in 1925, as the result of a merger. It reduced its dividends in 1931, and again in 1932 and 1933. By 1936, it had recovered a large part of its boom-period earnings. Caterpillar Tractor is now the largest manufacturer of Diesel engines.

To take another illustration: "The American Can Company has for many years made containers from tin and also from paper, and its share in both fields is substantially the same. It has within the past few years made an investigation of the potential field existing for milk containers made of fibre, and has embarked in that field, offering as a milk container one made of a single thickness of paper, paraffined. So mechanically similar are many of the operations in the production of both tin cans and fibre containers that, because of its experience in building equipment for both metal containers and fibre containers, the company builds the equipment for this new type of package in its own shops." [12]

[12] Letter from American Can Company, September 19, 1938.

Similar shifts have been made by Ingersoll Rand, Worthington Pump and Machinery, Fairbanks Morse, American Chain and Cable, Blaw-Knox, A. O. Smith, and many others. Johns-Manville, a leader in synthetic building materials, has, since 1928, largely rebuilt its business. Forty-three per cent of its sales today "are of products which have been developed or improved in our [its] research laboratories and factories, or added to the Johns-Manville line by our [its] expansion program of the last decade."[13] Other expanding industries find new uses for a single product. A perceived decline in an established use stimulates search for new uses. International Nickel, Climax Molybdenum, and the major rubber and rubber tire companies are leading illustrations.

Application of demand correctives, although important to the progress of the prosperous and expanding industry, are even more important to the declining and unprofitable industry. Here a change to expanding demand is a vital necessity. Little can be accomplished by reducing costs and raising the standard of service—if the companies affected remain in the declining industry. To preserve their earnings, to save the investor's commitment, they must change. They must shift their production to articles or services for which the demand is expanding. This shift has been accomplished by some companies in some declining industries. In others, such as bituminous coal, anthracite coal, steam railroads, leather, woolen, and iron ore, little shifting has taken place.

Railway-equipment makers, adversely affected by the fortunes of the declining steam-railroad industry, have diversified their markets. American Locomotive, despite the losses realized from the production and sale of locomotives, has succeeded in recent years in earning a profit. The company is an important producer of Diesel engines for marine and stationary purposes. Many municipally owned and operated electricity plants are equipped with these engines. Through a subsidiary, Alco Products, American Locomotive is also a large producer of oil-refinery equipment. One of the processes for the recapture of waste refinery gases for the formation of high-octane gasoline is a product of Alco Products. American Locomotive has paid no common dividends since

[13] Annual Report, 1938, Johns-Manville Corporation, p. 9.

1931, and nothing on its preferred stock from September, 1932, to December, 1936. On the last mentioned date, a 3 per cent dividend on the preferred stock was paid, and in December, 1937, a dividend of 7 per cent. The company has, however, despite its status as a leader in the declining railway-equipment industry, succeeded in avoiding debts, and it has maintained a strong cash position.

American Brake Shoe and Foundry, whose decline in earnings has been retarded by its replacement business, has also expanded into other lines. Its subsidiaries, National Bearing Metals since 1928, and American Manganese Steel since 1916, have contributed to its earnings.

American Car and Foundry, also in the railway-equipment business, has expanded into motor-bus manufacture. Acting through subsidiary companies, it has acquired Hall-Stock Motor Car and Fageol Motor Car. It has also attained a position in tank-car transportation by the acquisition, through subsidiaries, of the Shippers Car Line Corporation. Tank-car operation has remained one of the prosperous divisions of the transportation industry. Some of these acquisitions were unprofitable.

In the railway-equipment industry, also, "The Symington-Gould Corporation, which makes malleable and cast steel devices for incorporation in railway rolling equipment has expanded its lines somewhat to embrace the manufacture of special alloy castings for paper mills, air compressors and heavy machinery. The addition to its usual products has not yet attained any appreciable proportions." [14]

In the steel industry, shifting from declining to expanding markets has been conducted on a major scale. Steel sells both to capital and consumer markets. The former is fed by heavy steel, and the latter, generally, by light steel. Rails, shapes, plates, and fabricated structural parts are the heavy-steel items. They are sold to railroads, shipbuilding, and construction industries. Sheets, strips, tin plate, and wire are the important light-steel products. They are sold to the automobile, domestic powered appliance, metal container, dairy equipment, and numerous other industries. The prosperity of the steel industry, since its beginning in 1873, was due to the rising demand for heavy steel. In

[14] Letter from the Symington-Gould Corporation, September 16, 1938.

the late twenties, this demand began to slip; and, in the early thirties, almost disappeared. Meanwhile, the markets for light steel, especially sheets, expanded. A revolutionary improvement, the continuous rolling mill, decreased unit costs and improved quality. Prices fell and sales increased. Sheet production increased from a yearly average of 4,370,000 net tons in 1922-1926 to 7,840,000 net tons in 1936. The proportion of sheets to total steel production increased from 12.8 per cent in the former period to 29.9 per cent in the latter. Strip, the narrow sheet sizes, increased from 2.5 per cent to 9.7 per cent.[15]

Stockholders in the light-steel companies have benefited by the shift in steel production. National Steel, Granite City Steel, American Rolling Mill, and Inland Steel have been among the dividend payers. With the exception of Inland Steel, these companies had always manufactured light steel. Inland Steel, until 1931, was a heavy-steel producer. In that year it completed the construction of a continuous mill for light steel. The wisdom of this step—the installation of a major improvement in the heart of the depression—was, at that time, questioned. In the recovery period, the company sold about 20 per cent of its tonnage to the automobile industry. "Of the company's total tonnage, more than 50 per cent is now in the so-called 'Lighter steels,' such as Sheets, Strip and Tin Plate, and this percentage should be higher in the future."[16]

The shift of Inland Steel from heavy to light steel explains its good dividend record in the depression and the recovery, a record, among the major steel companies, second only to that of National Steel. The heavy-steel companies in the same period suffered from a collapse in demand. Railroad, shipbuilding, and construction industries have not yet recovered. Hence, the dividends of United States Steel, Bethlehem Steel, Jones and Laughlin, Youngstown Sheet, Steel and Tube, Colorado Fuel and Iron, were small. The company last mentioned went through bankruptcy. On the other hand, the shift to light steel enabled Inland to expand its earnings. Most of the heavy-steel companies have now entered the light-steel division. Inland Steel was the first major heavy-steel

[15] Annual Report, American Rolling Mill Company, 1936, quoted in *Commercial & Financial Chronicle*, April 10, 1937, p. 2464.

[16] Letter from the Inland Steel Company, September 16, 1938.

company to shift on a large scale. It benefited first from its foresight.

Some companies in the lumber industry have endeavored to recover their earnings by expansion into allied lines. For example:

The Mengel Company was for many years an important producer of wooden boxes. The shift of containers from wood to paper caused the company to enter the latter field, which is now one of its most important divisions. The raw material factories, which formerly supplied large quantities of material to the box fabricating plants, have been expanded in the production of hardwood lumber and also now produce high quality plywood, in the development of which the company has been a pioneer, for the furniture and panel industries. Fabricating plants were extended in the production of wooden dimension stock for automobile bodies and the trend to steel in motor car bodies has made necessary that the company again enter new fields. Engineered wood parts are now supplied in finished or semi-finished form for furniture, refrigerators and industrial purposes. One important fabricating plant is idle.

The company has always been one of the largest producers of mahogany lumber and fancy veneers and along with its reduced lines of wooden boxes and automobile body parts it also produces paper thin veneer which is affixed to canvas for wall covering.

The company has been alert to changing trends in its business and maintains a modest research department for development and improvement of products and processes.[17]

The declining demand for lumber has not extended to one of its important outlets, wood pulp, for conversion into paper, rayon, photographic film, and plastics.

One of the oldest companies in this field, Weyerhaeuser Lumber, has built a number of sulphite pulp mills on the West Coast. One mill was erected on the site of a mill owned by the company for more than 30 years. The plant stands on the spot at which the company first began to make lumber. "One section of the old saw mill has been completely rebuilt and equipped with new machinery so as to serve as a break-down plant for the new pulp mill. Here the huge logs used in the West Coast pulp manufacture will be cut lengthwise into cants, which will be conveyed to the chipping plant, one of the most recently completed build-

[17] Letter from the Mengel Company, dated September 24, 1938.

ings."[18] The mill has direct access to ocean-going transportation; it has a large supply of timber, and since its original venture into the sulphite pulp manufacture, it has, despite the depression, built up a good business. Few lumber companies have made any effort to preserve their solvency by diverting part of their output into a prosperous market of the timber industry. A substantial proportion of the lumber bonds have defaulted in interest. The companies, burdened with debt, have no cash to conduct new ventures.

In the recent histories of other declining industries, interesting contrasts between progress and stagnation can be found. Of the fertilizer companies, the securities of which are listed on the New York Stock Exchange, International Agricultural Chemical and Virginia Carolina have done little to diversify their output. In the early twenties, both companies eliminated their bonded debt by forced reorganization. The stocks which were changed for the old bonds have paid dividends irregularly. Based upon existing market values, the original bondholders have suffered heavy losses. American Agricultural Chemical, another leading fertilizer enterprise, has diversified its activities. It has utilized its phosphate rock, not only in the mixed fertilizer industry but also in the production of phosphoric acid and its derivatives. The company has constructed a number of chemical manufacturing plants, and its lines of phosphoric acids and allied products have found many uses. This company was not obliged, as were its leading fertilizer competitors, to run the gauntlet of receivership. Its bonds were retired in 1928 from the proceeds of the sale of the Charlotte Harbor and Northern Railway to the Seaboard Airline for $5,225,000. Its single capital liability is its common stock. It paid no dividends in the fiscal year of 1933. In the following years it paid substantial dividends. This is the only important fertilizer company to shift its output from the declining fertilizer industry to the expanding chemical industry. It is also the only one which has placed its securities on an investment basis. Its common stock has proved to be superior in value and yield to the senior securities of its non-shifting competitors.

The metropolitan electric-railway industry, whose earnings have declined, is featured by an apparent exception to the spe-

[18] *Paper Trade Journal*, January 30, 1936, p. 19.

cialization of the industry to its original line—urban street-car service. The New York Railways Company has abandoned its street-car operation for motor-bus service. Its large income bond issue was exchanged for the common stock of the corporate successor known as the New York City Omnibus Company. That company paid a substantial dividend on its common stock in 1937. This example supports the rule that the declining metropolitan street-railway industry does not shift. Control of the company, first through the purchase of common stock, and later, through a majority interest in the income bonds, was acquired by interests affiliated with coach and bus companies. The bonds were acquired at distress prices. The new management was bus-minded. It had acquired its experience in the bus and coach business.

Other metropolitan street-railway properties have added bus service to their existing street-railway service. These were introduced slowly. In no important city of over 500,000 population, has the bus revenue accounted for a major portion of utility property's gross. It is significant that the next most important exception to the rule of continuous specialization of metropolitan companies in the declining field of street-car service has been carried out by Public Service of New Jersey: "Here the trolley companies are controlled by the company which also controls the gas and electricity service. In these fields a profit is realized. Gas sales are showing some growth but the electric light industry is still expanding. After considerable experience with buses, the management of this composite enterprise has recently announced its intention to convert all except its electric railway, operating in subways or on elevated structures, to motor bus operation. Mr. McCarter has been quoted as saying, 'that only the London bus transportation system exceeds the proposed development in number of buses operated.' " [19]

In the development of truck service to increase earnings, the declining steam-railroad industry has accomplished little. In the early years of truck transportation, the railroads sat idly by and allowed the trucks to take over a large amount of short-haul business. The crows were successful in the attacks upon the eagle. Only a few minor efforts were made to participate in the

[19] Letter from Public Service Corporation of New Jersey, September 23, 1938.

expanding (though perhaps unprofitable) demand for decentralized local short-haul truck service.

The railroads have also failed to enter the growing pipe-line industry. The pipe-line movement of natural gas and refined petroleum presents a threat to the coal and gasoline traffic. Natural gas is a competitor of bituminous coal. Since bituminous coal is mainly carried by rail, the increasing use of natural gas has reduced rail coal loadings. Pipe-line movement of refined petroleum competes directly with tank-car movement. Indirectly, competition is more serious. It reduces the competitive strength of those refineries which depend exclusively upon rail movement to reach their markets. The railroad industry, in the last decade, has done nothing to shift its transportation activities to the pipe line.

The manufacture and distribution of ice is another declining industry. Mechanical refrigeration is replacing manufactured ice. The two leading corporations in the ice industry are American Ice and City Ice and Fuel. The sales of the second company have been sustained by its railroad re-icing contracts. Ice is still superior to mechanical refrigeration for the transportation of fresh fruits and vegetables. The 6½ per cent preferred stock of City Ice and Fuel, despite the maintenance of its dividend payments during the depression, sells at a low price. The common dividend was reduced in 1932, again in 1933, and then passed in 1938.

The other company, American Ice, in 1933, suspended common dividends. It pays only a fraction of its regular preferred dividend. It pays interest on a small funded debt. The company has expanded its business into new lines. "A small venture into beer distribution by the American Ice Company was abandoned. The company has also used in part its existing delivery service for the distribution of such items as coal, fuel oil and ice refrigerators. Although these fields of distribution are now highly competitive and have added little to its earnings, they help to make up for the seasonal nature of the ice business."[20]

Another industry whose growth has ceased is the retail food chain. Dividend payers for many years, many of the chains have reduced or passed their common dividends. National Tea, Safe-

[20] Letter from the American Ice Company, September 22, 1938.

way Stores, and American Stores have suffered serious declines in earnings. They have done little to shift their activities to other services. Some of the chains are now planning to shift either to wholesaling or to the packaged-food business. Kroger Grocery and Baking, for example, "in addition to selling in their own 4,000–odd stores the products which they manufacture, also furnish manufactured products to independent operators who are affiliated with their subsidiary, the Piggly-Wiggly Corporation. Also, they sell a certain amount of products in each one of the lines they manufacture to independent retail companies to thus check the quality and pricing of their products in the general market."[21] The earnings of the food chains continue slowly to decline. Diversification has as yet had little effect upon earnings, although it is too early to state that this program will fail in reversing the downward trend.

The cotton-textile industry affords an illustration of the wisdom of shifting from one line to another. Due to the decrease in demand for cotton textiles for non-industrial purposes, the fine-goods division of the weaving industry has been declining. Earnings have been low. Rayon weaving, on the other hand, is prosperous. "A very large percentage of the mills that are running on rayon," according to a trade authority, "were originally classified as out-and-out cotton mills."[22] Many of these mills are 100 per cent rayon weavers. Former cotton weavers show increased earnings and dividends as rayon weavers.

This survey of shifting activities, from declining to expanding lines, in both profitable and unprofitable industries, leads to certain conclusions. The industries that supply services or that produce raw materials by the use of a costly specialized plant have shifted least. Service industries have a plant and equipment, a personnel, and a point of view that are specialized to a way of doing things. The steam-railroad industry performs a mass-transportation service. A railway manager thinks in terms of heavy train loads, long hauls, bulky raw materials, and semi-finished manufactured products. He does not think in terms of decentralized short-haul service for the movement of finished manufactured goods. Large box cars and hopper cars and powerful

[21] Letter from Kroger Grocery and Baking Company, September 27, 1938.
[22] *Rayon and Melliand Textile Monthly*, January, 1936, p. 22.

locomotives are the tools of the railroad operator. These he has used for many years. He has difficulty in adapting himself to mechanisms suitable for the short haul.

The food chain represents another specialized service. Through its rapid inventory turnover, its decentralization of retail outlets, and its purchasing policy, it gives cheap service to the consumer. In recent years, the independent groceries, through coöperative organizations, have enabled well-managed units to realize the advantage of economy secured by mass purchasing and mass distribution. It is doubtful if the food-chain industry can profitably shift to any other form of activity. These companies can increase the size of the stores and thus reduce costs and prices. They cannot go into the distribution of drugs or shoes. Essentially the management knows food. There its experience ends.

Highly specialized plant and equipment, however, is not always subject to these handicaps. A locomotive, it is true, is useless for any purpose other than transportation. Aside from its particular service, a trolley car has no value. An open-hearth steel furnace produces only steel. But the machinery which makes locomotives, trolley cars, and steel, can make different finished products that respond to varying trends of demand. The steel turned out by the open-hearth furnace can be converted into heavy or light steel. The sheet and strip produced by the continuous rolling mills is fabricated by numerous steel-consuming industries. The automobile, the airplane, the domestic refrigerator, the electric range, take heavy tonnages of steel. The steel sheet is stamped into finished form by the steel press. An automobile accessory company, therefore, specializing in manufacturing steel bodies or automobile fenders, can divert its presses to the production of airplane sections, refrigerator bodies, kitchen sinks, bath tubs, and parts for oil burners. The steel-cutting equipment apparently specialized is, in terms of market outlets, non-specialized. It is specialized as a piece of mechanical equipment; it is non-specialized in the flexibility with which it can be adapted to the manufacture of finished products. Sheet-stamping mechanisms, therefore, are, in the market sense, non-specialized; and the shifting of the equipment from one line to another is not difficult.

Forging equipment is another illustration of the non-specialization of fixed equipment:

> Forgings as such, play a very important part in our lives from the moment we are born until the moment when another forging is used in the form of a shovel to throw the earth into the hole onto the remains, to the accompaniment of a final benediction from the Padre.
>
> In the surgical field, all the major mechanical implements are forgings. As we get a little older and are able to pedal a bicycle, all the stressed members of that wonderful structure are forgings, which from year to year have become lighter and stronger, due to advancement in the art of alloying steels, and forging them more effectively. Later on in life when we use an automobile, we find that all the highly stressed members are lighter and stronger forgings than those used in the automobiles which our fathers bought before us at very much higher prices, and, incidentally, poorer performance.
>
> ... Forging Equipment, like Foundry Equipment, is basic, hence, flexible, and the average modern steam or air operated hammer knows not and cares not whether it forges the surgeon's knife, the woodsman's axe, the soldier's bayonet, the machinist's chisel, the automobile engine crankshaft, the airplane propeller, or the coupling piece for one of our modern powerful high speed trains.[23]

Those industries that specialize in the manufacture of engines for the production of power, pressure, and compression are also fortunate. A company that has equipment to produce generators, dynamos, transformers, and other electrical equipment can, by using the same machinery, manufacture other products such as mechanical stokers and fractional motors. A company that has long specialized in the manufacture of pumps can turn to the production of paper, oil, or chemical equipment. The market flexibility of much modern equipment explains the extent to which the equipment industries have been able to diversify into profitable markets. General Motors, General Electric, Ingersoll Rand, Westinghouse Electric and Manufacturing, Worthington Pump and Machinery, United States Hoffman Machinery, a long list of automobile accessory companies, some of which have already been noted above, Chicago Pneumatic Tool, Fairbanks Morse, and Graham Paige Motor, are illustrations of successful shifting to allied lines.

[23] Letter from Chambersburg Engineering Company, October 20, 1938.

The flexibility of a fixed plant and equipment coincides with a flexibility of the personnel. The trained engineering organization which thinks in terms of sheet-metal machinery, machine tools, gas and Diesel engines, forging and casting equipment, thinks in terms of the mechanical raw materials for many Consumers'- and Producers'-Goods industries. The engineering thought that goes into the manufacture of an internal-combustion engine for use in an automobile or motor truck, a small power plant or an ice refrigeration plant, can adjust itself to the electric refrigerator, to the domestic fuel-oil burner, to the chemical pressure vessel, to the turbo blower, etc. The same rules of engineering apply in the production of the mechanical raw materials for the production of a variety of specialized pieces of equipment. In the electric-refrigeration industry: "Frigidaire, Kelvinator, Copeland, Servel, and others adopted machines designed by automobile engineers, machines which embraced adaptations of many principles used in the making of internal combustion engines. Electric motor engineers worked on the design of the Westinghouse unit; General Electric's Monitor Top was first produced in its turbine department.

"Few of these early designers of automatic refrigeration machines were originally refrigeration engineers. They were experts in the production of other types of mechanism, and simply brought their trained minds and practical experience to the attack of new series of problems." [24]

From the standpoint of the ability to shift from lines of declining, to lines of expanding, demand, the equipment-manufacturing industries are in a fortunate position. Companies in this field do not suddenly collapse and lose their earnings. Such reversals do occur in the Consumers'-Goods and Service industries. The wholesale financial disasters in hotel, apartment, office building, leather, cotton, silk and wool, find few parallels in the equipment industries. The power-equipment companies do not show the record of failure of some of the service industries using such equipment. The surface street-car industry for many years was a large purchaser of electrical equipment. The decline in the demand for equipment for use in this industry has had no

[24] *Air Conditioning & Refrigeration News*, October 19, 1938, p. 20.

adverse effect upon the fortunes of the electrical equipment industry.

The conclusion is clear. Those industries with mechanisms and habits of managerial thought and action which can be adjusted to the production of a multitude of finished and semi-finished articles can shift their activities. These industries can diversify their gross revenue and absorb losses arising from the drop in the sales of one product by increasing sales in another and expanding market. The service industries, tied up with a particular form of specialized service, find it difficult to throw off the weight of declining demand. Unlike Christian in *Pilgrim's Progress,* they can find no one to ease them of their burden, and so give them strength to escape from the Valley of Despair.

Continued production of an article with declining demand is characteristic also of the raw-material industries. The anthracite-coal, bituminous-coal, lumber, iron-ore, and Chilean nitrate of soda industries, in the face of declining demand, have made no effort to enter new fields. The decline in the demand has not (subject to a few exceptions)[25] led to any important managerial policies designed to utilize the existing investment in new fields of activity. Much scientific thought has been devoted to the analysis of the profitable utilization of some raw materials. The mass production of coal at the mines, its conversion into profitable gases and chemicals, the transportation in pipe lines to the consuming markets, and the construction of steam-power stations at the mine are some of the projects which have been examined. The increased utilization of anthracite coal for steam-producing purposes in industrial plants to replace the declining market for house heating in domestic lines has been considered. There is also a limited effort in progress to encourage the installation of domestic coal-burning equipment. Few of these plans have been transformed into large-scale commercial practice. In the lumber industry a few outstanding managements have been able to shift production: Weyerhaeuser Timber to sulphite pulp, and Mengel Company to a number of assorted industries. They are relatively few in number.

The inability of the raw-material industries to change to more

[25] Note, e.g., the use of fine anthracite in filter beds, and the manufacture of pressed wood from sawdust.

profitable lines is also a consequence of the industrial and management set-up. Much of the investment is fixed, not in machines and mechanisms whose adaptability has already been examined, but in natural resources. The initial investment in raw materials represents a major proportion of the invested capital. The taxes on real property furnish most of the revenue of local government authorities. Lands containing raw materials are more heavily taxed than surface lands. The cost of taxes represents a burden which, while the company remains solvent, cannot be shifted. Under conditions of stationary demand, it may sell its raw-material resources to new producers. The new producers increase the supply and make it more difficult for established companies to survive. It is possible to abandon the operation of numerous sections of the unprofitable raw-material industry. Some of the anthracite-coal, iron, and copper companies have done this. Some savings in fixed charges and taxes can thus be effected.[26]

Investors in the raw-material industries must sink or swim with the commodity produced by the industry to which they have committed their money. The investor cannot depend upon the ability of corporate management to shift from one product to another. The investor in the securities of a declining raw-material or service industry must look for financial salvation only to reductions in the costs of producing the declining demand article, or to new uses for the same article. Shifting of production to an expanding industry cannot be anticipated.

There are few recorded instances among the companies listed on the New York Stock Exchange where an industry, specialized to the production of a raw material or service, has abandoned its major line and shifted to a new field. The metropolitan street railway has not yet generally introduced the bus. The steam railroad has not developed the truck, the pipe line, and the airplane;[27] most of the fertilizer companies have clung to unprofitable phosphates (they have not exploited the possibilities

[26] The Philadelphia and Reading Coal and Iron Company was recently permitted by Court order to sell to companies, either existing or organized for the purpose, without recourse to the vendor, over 100,000 acres of coal land.

[27] In late years, the railways have made increasing use of bus and truck transportation as auxiliaries to their main business. The financial results, while satisfactory, have not offset the damage done by these competing transportation agencies.

of potash and synthetic nitrate); iron-ore companies have not turned to expanding alloy raw materials; leather companies have not produced synthetic substitutes; the central city department store, save in a limited way, has not followed its departing customers to the suburbs. In some of the declining industries, even omniscient management could not have seen a way out of their difficulties. There was no allied line into which they could expand without a complete break with their experience.

In a declining industry, the shift in production from one line to another is made more difficult by lack of funds. We have already examined the tendencies which, in the earlier stages of industrial decline, leads the industry to increase its bonded debt. Large sums are invested in betterments to reduce costs. This money is often borrowed. Declining demand, by increasing unit costs, has neutralized the economies of these betterments. The interest and sinking-fund charges, however, remain to increase the difficulties of the management. Reduction in depreciation appropriations, their use to meet interest payments, the abandonment of research, the liquidation of receivables and inventories to meet current expenditures, the sale of marketable securities, and the reduction of cash balances are some of the ways in which the declining industry continues to meet its interest payments. If the long-term decline in demand accompanies, as it frequently does, a further decline due to cyclical depression influences, the problems confronting the industry are exceptionally difficult.

Under conditions of declining demand, changes in production are difficult to make. A shift in production requires heavy expenditures. Existing properties must be written off the books. Some of this property is physically obsolete. In a typical declining industry, functional obsolescence is usually high. An expensive piece of equipment, designed for large-scale production to meet a heavy demand, may prove uneconomical, and therefore obsolete, in the face of the rapidly declining demand. United States Steel has recognized the force of economic obsolescence in capital equipment. Large write-offs—over $200,000,000—have been made in the last few years as an offering on the altar of obsolescence.

The write-offs of existing equipment must be accompanied by the introduction of new capital. An industry that consistently reports declining profits does not find the investment markets

open. Investors do not rush in to put new money into securities in which they have already lost large sums. Demonstration of the possibilities of large profits in the anthracite-coal, the metropolitan electric passenger railway, the fertilizer, the cotton, woolen and silk industries, because of revolutionary changes in methods, can make little impression upon the reluctant investor. He is likely to refuse to put additional funds into unprofitable industries. A declining demand for the bonds and stocks of an unprofitable industry in the latter stages of decline usually coincides with a declining supply. The refusal of the investor to buy new securities is matched by the refusal of the management to incur new obligations. New offerings are not often made. After a prolonged experience with declining demand, the management may lose its courage. It has little of its original capital left. It has lost many customers. It is confronted with tax, interest, and wage problems. Its costs keep rising, its demand—and therefore its revenue—keeps falling. The management is worried by price competition. Bitter complaints of reckless price competition come from high-cost and high-price declining industries. Every important move to increase service, to improve merchandising and distribution policies is soon met by competitors. In such a situation, the stoutest hearts weaken, the most inveterate optimism pales, the ship sails on, but the captain—and the crew—have lost hope.

In shifting and diversification programs, the expanding industries have an advantage. They usually possess abundant financial resources. The typical prosperous company reduces or pays off its funded debt. It makes heavy write-offs for plant expansion and improvements; it charges its operating-expense account with heavy appropriations for depreciation, for depletion in the raw-material industry, and for other reserves. If necessary, to maintain cash balances, dividends are suspended. The well-managed company in a profitable industry builds up its financial strength by increasing its supply of cash and high-grade marketable securities. It writes off its obsolete capital. The anticipated advantage of a radical change from one line to another can be quickly transformed into commercial practice. No heavy interest burdens interfere with the financing of production activities. International Nickel, Briggs Manufacturing, General Motors, Du Pont, Union Carbide and Carbon, Hercules Powder, Allied Chemical and Dye,

Chrysler Motors, Ford Motor, Ingersoll Rand, International Harvester, Caterpillar Tractor, to mention only a few, have utilized their large cash resources in their shifting and diversification programs. They have sold few securities.

Shifting into new markets is not always successful. Numerous mistakes are made. Successful corporations with abundant cash can charge losses to current expenses; other corporations with insufficient cash can shift only by assuming great risks. Failure of a diversification program with a sudden loss in earnings would, under certain conditions, even in the face of a relatively light debt, result in disaster. Such a climax occurred in the history of International Combustion Engineering.[28]

Nevertheless, the preparation and execution of a carefully prepared program of demand correctives is essential to the preservation of a corporation in an expanding industry, and to its rehabilitation in a declining industry. The adoption of the program does not insure its success; the program does, however, serve as a basis for sound corporate policy. An able management buttressed by cash, guided by vision, and balanced by prudent optimism may be able to carry such a program into successful operation. Even though in every case this policy might not be profitable, yet its adoption is essential to corporate welfare.

To summarize: The corrective factor of changes in products to meet changes in demand can most successfully be carried out by managements with plant and technical personnel adapted to the fabrication of goods useful as materials for a wide variety of Producers' and Consumers' Goods, and by managements which are plentifully supplied with cash, and with assets quickly convertible into cash.

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[28] See p. 276.

CHAPTER XXIV

SALE AND ESCAPE

THE THESIS of expanding and declining industries has already been examined. Profits depend upon a favorable trend of demand. The industry with a favorable demand trend can solve its problems. Without demand, an industry finds it difficult to solve any problem. No one can determine the limit to an upward trend of demand. The upward secular trend for railroad ton miles lasted for 90 years. The demand for passenger urban-electric transportation service lasted for somewhat less than half of that period. No one can forecast the time limit of the rising demand for gasoline, synthetic chemicals, or business machines. There is no single rule by which the investor can guide himself. We know that the better machine or process or form of organization will prevail until the irreducible limit of cost and performance has been reached. We do not know how, or how long, this law will be illustrated in the future history of the devices of civilization. We can see the Diesel engine supplanting the gasoline motor. We know that synthetic fibres are threatening to supplant natural fibres. Newsprint will probably be made from yellow slash pine; and beyond pine, there may be cheaper sources of supply. The progress of invention and improvement is never ceasing, but the day and the hour of supersession of any product by a cheaper or better product knoweth no man. Then, too, the substitutions may be made by the same companies that produce the displaced product. General Motors, for example, is already a large factor in Diesel engines. General Electric is replacing the filament lamp with the new vapor lamp. The investor comforts himself when he peers across the stormy sea of industrial obsolescence by reflecting that the management of *his* company is competent and courageous, able to keep abreast of the times and find new products to take the place of the old, that *his* ship will survive the storms. If he could not believe this, if there was no op-

portunity in the face of declining demand to apply the essential correctives, then the investor would be as one who sorrows without hope.

The loss from the investments in declining industries is not a problem of interest only to stockholders in corporations with poor credit ratings. These catastrophes fall suddenly upon entire industries. Like a flood, they sweep away the weaker structures first, but if the flood continues, the most solid edifices are undermined. In the railway debacle which began in 1931 (aside from the Seaboard Air Line which collapsed in 1929), the Missouri Pacific and the Chicago, Rock Island and Pacific were among the first to go; but the Chicago and Northwestern and the New York, New Haven and Hartford soon followed. The *event* of capital and income loss is sudden; the forces leading to the event are years in the making. They gradually undermine the stability of the most solid investment structures. By the ordinary observer intent upon the movement of money rates; the oscillation of bond and stock averages; the government regulation of rates, services, and security issues, property valuations, and the analysis of changes in accounting, the operation of these forces are not seen. The problems are economic, technological, and merchandising. Competition exists between two or more forms of a technological process; between two or more forms of producing a Capital-Goods Service such as power, or freight transportation; or between two or more forms of producing a Capital Good, such as heat and corrosion, resistant metals, or engines for power and transportation. Competition exists also between different forms of satisfying consumers' demand. Changes in consumers' environment is a motivating factor. The adjustment of domestic life to the economies and conveniences inherent in the fractional electric motor has impaired the profits of the anthracite-coal and the ice industries. It has also built up the profits of the oil, domestic oil burner, electrical refrigeration, and electric light and power industries. The internal combustion engine in less than twenty years, has lowered the profits of the street-railway industry. It is an important factor in the fall in central city real-estate values.

These influences are not often realistically evaluated and applied. It is not correct to state that technological and competitive forces are overlooked by the accredited shepherds of the invest-

ment flock, but they are given passing and incidental consideration. It would not be correct, for example, to state that investment experts, in the period of transitional railroad economics of 1921 to 1930, entirely overlooked the competition of the truck and the bus, the decentralizing influences in American city life, the shifting from solid to liquid fuel, the increasing use of substitutes for lumber, and the decline in the demand for carbon steel. Emphasis, however, in investment analysis was not placed on these factors. Their significance was not realized. The railroad business has grown for many years; it will continue to grow though at a slower rate. Thus reasoned railroad investors of that day. Perhaps there would be a slight decrease in earning power; perhaps the common stock might not show the same rate of return, but the bonds and stocks of well-managed companies were safe. They would continue to pay interest and dividends. Even after the collapse of railroad earnings in 1931, there was slight recognition of this basic cause. The president of a large insurance company recently announced that well-selected railroad bonds were still being purchased. If the government would let the railroads alone; if rates could be advanced; if the taxing authorities would be more reasonable; if only the cost of railway labor could be reduced to figures comparable with other industries, then the railways would recover. These are the statements of railway officials even to-day. What the railroad needs, recently declared a leading official protagonist, is more earnings and smaller expenses. A remark, profoundly true, but not particularly helpful in understanding the problem of declining traffic.

The confidence in "sound" railroad mortgage bonds is still strong. Nothing but a succession of catastrophes can impair this confidence. Dividends may be passed, but interest goes on forever. This picture of an interest-paying and non-dividend paying corporation is attractive. It reflects the realities of the poorly managed and poorly financed corporations in a prosperous industry; and the bonds of well-managed and well-located companies in a declining industry. The Erie, from 1873 to 1938, went through receivership twice—in the late seventies and in the middle nineties. Except for these intervals, it paid interest on its bonds. In all these years, it paid no dividends on its common stock. The Southern Railway, reorganized in 1894, paid nothing on its

common stock until 1924. Nevertheless, it has paid its interest regularly. The Missouri-Kansas-Texas, an important property in the Southwest, since the date of its last organization in 1923, has paid interest on its fixed interest bonds. It has paid no dividends on its common stock. In the street-railway industry, there is an imposing list of companies which pay interest but do not pay dividends. The Brooklyn-Manhattan Transit has paid its interest regularly, but its common dividend irregularly. The Market Street Railway of San Francisco has paid interest on its 7 per cent bonds for many years; it has paid no dividends on its common stock. The Hudson and Manhattan Railway, and the Third Avenue Railway, have paid interest on their bonds, including, on the former, the adjustment income bonds up to the present time. The latter has paid no dividends since 1916; and the former, after paying common dividends from 1925 to 1932, suspended, and has not resumed, payment. The same trend is visible in the anthracite-coal industry. Philadelphia and Reading Coal and Iron, until 1937, had punctually paid its interest, although it had never paid any dividends. Lehigh Valley Coal has paid no dividends since 1927, and Hudson Coal since 1926. Both companies have always met their interest payments.

Even in bankruptcy, some companies, under court orders, pay interest on their senior bonds. In industries, in the mature stages of their decline, this discrepancy in the treatment of the various classes of bonds becomes less frequent. The distinction between underlying bonds outstanding in small amounts, and junior bonds outstanding in large amounts, characterizes the receivership histories of railroads in the nineties. They are not typical of the bankruptcies and attempted railroad reorganizations in the thirties. Seaboard Air Line, and New York, New Haven and Hartford have paid interest on some of their underlying bonds, but have paid no interest on their junior bonds. Wabash and St. Louis Southwestern have also paid interest, in part, on some of their senior bonds. But the passing of interest on many of the senior and junior obligations of Missouri Pacific, St. Louis, San Francisco, Chicago and Northwestern, Denver and Rio Grande Western, Western Pacific, Chicago, Rock Island and Pacific, and Chicago, Milwaukee, St. Paul and Pacific, produced consternation in conservative investment circles. The wholesale passing of in-

terest and the necessity of reorganizations of bankrupt railroads presented a situation without precedent. The refusal of the underlying mortgage bondholders to accept the new situation, and again to exchange their underlying bonds for junior and equity securities, produced a stalemate. The reluctance to accept new securities on a priority basis, different from their contractual rights against the bankrupt corporation, has made reorganization difficult. No important railroad in receivership or bankruptcy has been returned to its owners.

This seeming advantage of bonds over stocks leads investors, therefore, to maintain their holdings in the well-secured mortgage bonds of their properties long after the development of adverse influences has indicated a downward trend in the industry. The investor reasons in this manner: "The earnings of this corporation have declined. This is only temporary. Periods of declining earnings have occurred before—in 1893-1897, in 1907-1908, in 1914-1915, and in 1920-1922. These declines were followed by new waves of expansion. So it will be again. It is *inconceivable* that the railway industry should permanently decline." This is a plausible argument. If dividends are passed, that is only an incident. The common stock is a risk-bearing financial device. It participates in profits and absorbs losses. The passing of the dividend should not adversely affect the interest of the underlying bondholder. This reasoning is also plausible. If the premise is sound, the conclusions follow. The inherent stability of the earning power of the industry is assumed. However, if this assumption is contrary to fact, the premise falls and the conclusion is defective. A long record of interest payments is considered to be adequate assurance of interest payments in the future. On the other hand, the inclusion of the sorry phrase, "other things being equal," opens the door to a recognition of the fact that other things, in the declining industry, are not equal; that the facts upon which the assumption of continued earning power is based have changed; and that the argument drawn from experience of sustained earnings in the past is like sounding brass and a tinkling cymbal.

The speedy collapse of a well-managed company in a declining industry is well illustrated by the Chicago and Northwestern. This company had not defaulted in its interest payments since

it was organized in 1859. Prior to the early twenties, it had paid a $7.00 dividend on its common stock. The reduction of its dividend rate in 1924, and its passing in 1931, did not seriously impair the respect in which the bonds were held by the investor. For example, Moody's ratings of the bonds in the years preceding bankruptcy were of the highest. The following table gives Moody's ratings of the various bonds of this railroad for 1929, 1930, and 1931 and 1932:

MOODY'S RATINGS OF THE BONDS OF THE CHICAGO AND NORTHWESTERN RAILWAY COMPANY, 1929-1932

	1929	*1930*	*1931*	*1932*
1. General Mortgage	AAA	AAA	AA	A
2. Des Plaines Valley Ry. 1st m.	AAA	AAA	AA	A
3. Milwaukee & State Line Ry. 1st m.	AAA	AAA	AA	A
4. Milwaukee, Sparta and Northwestern Ry. 1st m.	AAA	AAA	AA	A
5. Manitowoc, Green Bay and Northwestern Ry. 1st m.	AAA	AAA	AA	A
6. St. Louis, Peoria & Northwestern Ry 1st m.	AAA	AAA	AA	A
7. St. Paul Eastern Grand Trunk Ry. 1st m.	AAA	AAA	AA	A
8. Sioux City & Pacific RR 1st m.	AAA	AAA	AA	A

In 1935, the company petitioned itself into bankruptcy. Shortly thereafter, the above-mentioned bonds defaulted.

The bonds of the Baltimore and Ohio, in the spring of 1937, sold at prices showing a yield of 4 per cent. Less than one year later they were selling at half these prices, reflecting a return of from 8 to 10 per cent. In the spring of 1937, Moody's rating service gave the Baltimore and Ohio first mortgage 4's and the Southwestern Division first mortgage 5's, a rating of A. Judged by market prices and investor opinion, these bonds were high-grade securities. In 1938, the company was forced to request its bondholders to make an important part of their claims contingent on earnings.

These are not isolated illustrations. They are typical of events. The mortgage obligations of other trunk lines with long and honorable dividend records were affected. Northern Pacific, Southern Pacific, Illinois Central and Atlantic Coast Line have continued to pay their interest, although the underlying mortgage bonds showed sweeping reductions in prices. The obligations of

Chicago, Burlington and Quincy, the Reading Company, Lehigh Valley, and Delaware, Lackawanna and Western, whose bonds for many years were considered among the best rails, showed heavy price declines.

It is the concentration of investment analysis upon income statements and balance sheets to which many investment tragedies can be traced. Investments are made in the individual securities of particular corporations. A given margin of earnings over interest charges is given the same weight in the profitable as in the unprofitable industry. It is assumed that earning power will continue in the future as it has in the past. No distinction, therefore, is drawn between the integrity of the margin of safety of corporations in expanding and in declining industries. Conclusions for investment purposes are drawn without regard to the probable stability of the source from which the margin of safety is derived. One dollar of net earnings in the railroad industry is considered to be as good as a dollar in the power and light, chemical, telephone, or business-machines industry.

An illustration of this method of reasoning is exhibited in a series of well-prepared and well-considered articles in 1936 in a financial journal, entitled "Banks and their Bonds." Bonds judged suitable for purchase by a small bank included Great Northern 4's, 1936; Northern Pacific 4½'s, 2047; Brooklyn-Manhattan Transit serial bonds; Wisconsin Power and Light serial bonds, and Texas Corp. 3½'s, 1951. Here are two bonds of the declining steam-railroad industry, one of the depressed urban electric-transportation industry, one of the physically expanding oil-refining industry, and another of the expanding light and power industry. They are all placed in one category. In another list, the bonds of General American Transportation, Baltimore and Ohio, New York Central, Great Northern, Atlantic and Charlotte Airline, Brooklyn-Manhattan Transit were suggested as bonds for investment purposes, with a slight "shading of quality" from the very top grade of investment quality. A modest percentage of long-term "lower flight" high-grade bonds were also included: Minnesota Power and Light; Central Illinois Public Service; Texas Electric Service; and Tide Water Power; Southern Pacific; San Antonio and Aransas Pass; New York Central; New York, Chicago and St. Louis; Great Northern;

Northern Pacific; Père Marquette, and Canadian Pacific. Of the four representative "lower-flight" power bonds, one has been called for payment; the others have shown relatively slight reductions in market values as compared with the high-grade railroad bonds included in the first list of premier bonds. Bonds in the steam-railroad industry have shown greater decline in value, exceeding, in some cases, more than 50 per cent. The margins of safety of railroad and power bonds may have been the same. The capital structures may have been the same. The mortgage provisions to protect the investor in the event of default may have been the same. The ratio of working capital to bonded debt outstanding may have been substantially comparable. The significant difference is in the sources of the earning power of the several industries. The demand for railroad services has declined. The demand for electrical energy has increased. The symptoms of arrested demand for railroad service, which were disclosed then, are disclosed now.

High-grade bonds issued by corporations in a declining industry, which have long enjoyed a high investment value, are in a class by themselves. These bonds are held as a riskless investment, as a "money" investment. They are considered immune from ordinary business risks. Even under present conditions, such an opinion is expressed of underlying bonds of the Southern, the Pennsylvania, the New York Central, and the Atchison.[1] The margin of safety for the interest on these bonds is still adequate. It is not as satisfactory as it was a decade ago. However, the 150 per cent interest-charge-standard, formerly prescribed in the New York law regulating savings bank investment, is still met by some of the companies issuing many of these bonds.[2]

There is, nevertheless, a fundamental difference between still prosperous railway companies and prosperous corporations in ex-

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[1] Note for example, the following: "Representative of what might now be termed truly riskless corporate issues are Chesapeake and Ohio, Richmond and Allegheny Division, First 4's due 1989; Illinois Steel 4½'s due 1940; Philadelphia, Baltimore and Washington First 4's due 1943; Duquesne Light First 3½'s, due 1956; Southern Bell Telephone and Telegraph First 5's due 1941—Not U. S. Rubber 5's (sic) due 1947; Southern Railway 5's due 1994; Peoples Gas Light and Coke 5's due 1942." *Investment Policies for Commercial Banks* by J. Harold Wilkinson, Jr. (1938), p. 381.

[2] The New York law has never recognized priorities among the bonds of a given railroad. Even if fixed charges as a whole are barely earned, the interest on some of the bonds may be earned several times.

panding industries. The margin of safety in an expanding industry increases rapidly in times of prosperity. It decreases less rapidly in times of business depression. Aside from cyclical business fluctuations, earnings securing interest tend to increase, while the earnings securing the interest of a declining industry tend to decline. A given margin of safety is worth more, at a particular time, in an expanding than in a declining industry. In periods of expansion, a margin of safety of two times interest of a sound company in the electric light and power industry may be worth more than a margin of safety of three times interest for the bonds of a street-railway, coal, or railroad company.

The reasoning that leads investors to accept, as a final test of financial validity, an ample margin of net income, is based again upon a premise of unchanging economic values. What has existed in the past, what exists in the present, is likely to continue in the future. The facts and tendencies of modern economic and industrial life point to the opposite conclusion. The assumption of a changing economic and industrial system is a closer approach to the truth. A sound chemical industry may be unsound ten years hence. It cannot be assumed, however, that an industry unsound now would be sound ten years hence. The risks of decline are not often balanced by the realization of advance. The sweep from prosperity to poverty is not often paralleled by a corresponding change from industrial poverty to repeated expansion. The business cycle of action and reaction, of expansion and decline, does not find its analogy in the field of industrial and business values. The forces that depress the earning power of an industry, as a rule, do not suddenly reverse themselves.[3] The secular decline in the trend of demand is normal and permanent. The decline in demand, due to the fluctuations in the business cycle, is normal but temporary. Forces that produce a general contraction of demand soon exhaust themselves. Prosperity follows depression. But the declines in the demand for anthracite, for freight transportation, for cotton, woolen, and silk textiles, or for meat and cereals, are permanent. The underlying causes are deeply imbedded, either in the buying habits of the consumer, or in the cost-price relationship of the economic machine. They do not often reverse themselves. The investor in

[3] A potential exception to this rule, the revival in the demand for musical records, is not traceable in the statements of the Radio Corporation of America.

the best grade of bonds in a declining industry must therefore adjust himself to the necessities of selling his investment at a time when the margin of safety is reasonably high, when confidence in the industry's earning power still prevails, and when it seems probable that the industry and the well-managed corporations engaged therein will continue, for some years to come, to meet the interest payments on these bonds.

This policy of disposing of good securities in the face of rising earnings, adequate margins of safety, high market prices, and general investment optimism is imperative in order to preserve the integrity of institutional investments. The small bondholder who watches income statements, balance sheets, and market movements can dispose of a reasonable number of bonds in a declining market, a market that already reflects the adverse underlying economic influences. Large holdings, however, even at substantial price concessions, cannot, under such conditions, be sold. In fact, if these holdings represent a substantial fraction of the bonds outstanding, they cannot be sold at any price. The adverse financial *event* has already occurred. The margin of safety has already been impaired. The threat and fear of insolvency hangs over the market. It is under these market conditions that heavy selling appears. The efforts of large financial institutions, and of large holders of high-grade bonds, to convert their holdings into cash precipitates a sharp, one-way decline.

The professional speculator is not active in the high-grade bond market. The opportunities for large profits arising from the purchase of high-grade bonds at 5 or 10 points below their assumed value are not sufficiently attractive to compensate for the probable losses on such purchases. These losses may be many times the possible profits. Short selling in the bond market is unorganized and occasional. It is based on personal contacts. Loans to deliver against short sales of bonds can be made. Large profits and losses on short sales of bonds have been made also. But there is no organization to facilitate short bond selling. The small investor, the bargain hunter, the seeker after investments yielding high returns, the semi-investor-speculator in quest of a return of one or perhaps 2 per cent in excess of that realized on the best grade of bonds, forms the only *important* speculative bond market.

The large owner of the high-grade, high-rated mortgage bonds may not sell. But he does not buy. An investor who buys bonds in a declining market in the face of rapidly dropping prices is no longer an investor. If he has bought excellent bonds carrying the highest ratings of standard investor's services, he has exercised sound judgment. He is looked upon as a conservative, prudent investor. He has followed the existing pattern. If the bond thereafter depreciates, and the borrowing company defaults, the soundness of the investor's initial judgment is not seriously questioned. If the investor is a representative of an institution, say a savings bank, he is not liable under the law for any losses incurred by the bank as a result of his investment decisions, providing only that he has purchased bonds with high-grade ratings. A trustee's obligation in the purchase of securities is (1) to obey the law regulating the investment of trust funds—unless, by the terms of the trust, he is allowed discretion in his buying; (2) if he has discretion in buying, under the terms of a will, he must follow the course of action which a reasonably prudent man would pursue in the management of his own affairs. If the investment turns bad, again following the same prudent course, the investment manager or trustee does not rush into the market and take a loss.[4] The decline may be temporary. The *event* of default has not yet occurred. He would be criticized for precipitate action. He waits, and waits, and waits, while the value of his bonds goes down, and down, and down.

Lulled into a feeling of security by the seeming protection of the law, and by long records of interest payments throughout business depressions, the investor is apt to overlook those forces that are undermining the integrity of the margin of safety upon which the value of his bond rests. The appearance of symptoms of decay and decline are ignored. The mind of the investor is prepared neither by training nor by a knowledge of economics and technology to recognize the early symptoms of decay. Hence, in periods of high earnings and adequate safety margins, few high-rated bonds of a declining industry are sold. The investor's danger signal, which is flashed only after the infection has developed into a breakdown, is the decline in earnings, the poor

[4] *Wills, Executors, and Trustees,* by W. J. Grange, W. A. Staub, and E. G. Blackford, p. 339.

income statements, and the rapidly retreating margin by which the interest is protected by income. A quiet and steady market is then transformed into a dramatic increase in turnover. Large blocks of bonds are offered with only a few reversals in the downward trend. Prices now move sharply downward. The retreat in price soon becomes a rout. Except at 2, 3, or 5 points between sales, bids disappear. The price descent in bonds, (except of course in times of market panic when loans secured by common stocks are freely called) exceeds in its speed and continuity the breaks in high-grade common stocks.

WEEKLY SALES OF THE BALTIMORE & OHIO FIRST MORTGAGE 4's, 1948

Week Ending	*Price Range*	*Number Sold*
Sept. 24, 1937	93-99¼	123
Oct. 1, 1937	99-99¾	304
Oct. 8, 1937	92-94¾	209
Oct. 15, 1937	91¼-93	150
Oct. 22, 1937	88½-91¾	241
Oct. 29, 1937	82-91	244
Nov. 5, 1937	75-84	99
Nov. 12, 1937	73⅝-71½	110
Nov. 19, 1937	77-79⅜	136
Nov. 26, 1937	76-78	292
Dec. 3, 1937	78⅛-80¼	181
Dec. 10, 1937	78⅝-81	94
Dec. 17, 1937	78-79	122
Dec. 24, 1937	77¾-80	164
Dec. 31, 1937	76⅜-77¾	135
Jan. 7, 1938	69-78½	79
Jan. 14, 1938	60⅞-68	214
Jan. 21, 1938	60-65	145
Jan. 28, 1938	59⅛-61	106
Feb. 4, 1938	60-64	55
Feb. 11, 1938	64-66	40
Feb. 18, 1938	64½-65⅝	88
Feb. 25, 1938	64½-65⅛	44
March 4, 1938	58-62⅛	27
March 11, 1938	41½-58	111
March 18, 1938	43-47	136
March 25, 1938	43-49⅝	64
	Total number sold	3,713

The number of high-grade bonds that can be sold under these conditions is only a small proportion of the total number outstanding. Important investment institutions often hold blocks

of particular bonds exceeding the total volume traded in during the decline from an investment to a speculative level. The Baltimore and Ohio, for example, has a first mortgage 4 per cent bond due in 1948—$81,944,850 of these 4 per cent bonds are outstanding. These bonds, in 1930, on the eve of the breakdown of the earning power of the steam-railroad industry, were given the best rating by Moody's Investors Service—AAA. In 1937, the rating was only 1 lower: AA. In the last week in September of that year, the bonds ranged in price from 93 to 99¼. Considerable selling had already developed. The bonds had sold at higher prices earlier in the year. The table on page 440 shows the price range of this bond, and the number of bonds sold weekly, from the week ending September 24, 1937, to the week ending March 25, 1938. The volume sold is based upon sales on the New York Stock Exchange, according to the weekly compilations of the *Commercial and Financial Chronicle*. To what extent the turnover was increased by over the counter sales and on exchanges other than the New York Stock Exchange is unknown.

During the same period, the prices of common stocks of numerous corporations in rapidly expanding and prosperous industries declined by a much smaller percentage. Scott Paper, Climax-Molybdenum, International Nickel, Dow Chemical, among many others, may be cited. In this rapidly declining market, the preferred stocks of most of the well-managed and expanding industrial companies, American Tobacco, National Lead, Corn Products Refining, Du Pont, showed little fluctuation. This decline in the prices of the first mortgage bonds was accomplished with a reported turnover of 3,713 bonds, or 4.5 per cent of the total number of bonds outstanding. Insurance companies held large blocks of these bonds, in some cases more than the turnover during the period of heavy sales above noted. No substantial liquidation in institutional holdings apparently was accomplished. That institutional liquidation of excellent investments is rarely accomplished, is an easily ascertainable fact. The records of the holdings of large blocks of defaulted steam-railroad bonds is ample evidence of this truth.

To take another example, the Chicago Northwestern general mortgage bonds were rated AAA prior to 1931; and in that year they were dropped cautiously to AA. The company went into

bankruptcy in June, 1935. The bonds dropped to below 25 cents on the dollar. Many of the large institutional holdings, however, are still held.

The holdings of the bonds of other railroad properties now in receivership or bankruptcy generally show the same tendency. Large-scale liquidation of high-grade first-mortgage well-secured bonds cannot be made in a weak market and in the face of poor income statements. Then the large bondholders *cannot* sell. And when earnings are rising and prices are holding and buyers are buying, they usually *will not* sell. These institutions are not to be criticized for failing to sell these bonds during the decline. They could not sell them. The market for Baltimore and Ohio 4's broke about 50 per cent on sales of 4.5 per cent of the amount outstanding.

To increase the difficulty of corporate trustees with thousands of individual accounts, in disposing of bonds in which they have lost confidence, is the fact that these bonds usually appear in a large number of individual portfolios. Unless there are co-trustees to share the responsibility of decision, the trustee would be seriously criticized if he sold bonds out of two, four, or ten accounts, so reducing their losses, while leaving others to bear the burden of depreciation. Under these circumstances, he wisely does nothing.

The liquidation of an investment, under these conditions, must antedate the development of the *event*. The event is the revelation, to all who understand arithmetic, that the company either has lost, or appears about to lose, its ability to earn the interest on its bonds. High-grade investments must be sold, if losses are to be avoided, when they are apparently still high grade; when they still enjoy the superior and relatively exclusive privilege of AAA and AA ratings. The ability to accomplish this task is based upon the ability early to recognize the diagnostic symptoms already explained.

Of all the symptoms, the first and fundamental is that of declining demand for the products or sources of the borrowing corporation. The cessation of rapid and pronounced expansion in periods of general prosperity is a danger signal of the utmost importance. This symptom should not be ignored. This phenomenon, like that of monetary inflation, may assume different

forms. Demand, even in prosperity, may decrease from year to year. The company and the industry may reduce its unit costs by mechanization. It may increase its unit profits in the face of a declining demand. As a result, a higher margin of safety for fixed charges may accompany a decline in demand for the goods and services of a given industry.

The sale of high-grade bonds in periods of prosperity may preserve the investment portfolio of a particular investor. Perhaps one financial institution can save its capital by sales to other investors. The well-informed and observant investor sells his holdings to the careless, ignorant, and oblivious investor. One investor benefits at the expense of another. But—*the investors as a composite unit cannot sell their bonds.* No one else will carry the burden, unless, of course, the taxpayer agrees to accept the load of industrial obsolescence, financial decay, unearned maintenance, depreciation, and interest charges, to say nothing of unearned dividends.

This is the paradox of investment. What the composite investor buys he cannot sell. He must hold to the end. Individual shifting may occur, usually on a small scale, but the majority are fixed in their places. The theory of an open and continuous market, ready at all times to transfer an investor's high-grade holdings into cash, exists only when the investment is still a good investment. The investor then does not need to sell. His bond is good. It still produces an assured income. The market permits him to change the form of this investment. He can buy a high-grade railroad bond instead of an oil bond, or he can shift to the field of real-estate or farm mortgages. If he is confronted with no financial emergency, if he needs no ready cash, the ready market serves no purpose. The fluctuations in the price of a high-grade bond give him no clue to investment value. A high-grade bond is theoretically free from the risks of the loss of principal. It moves up and down with the movement of money rates. The assumption of a riskless principal is not always justified.

When the bond has already become unsound on the basis of recorded earnings, and on the approach of financial disaster, the open market fails. Many investors attack the market simultaneously; the demand first wilts and finally disappears under the weight of a volume of actual and attempted sales, representing

only a small fraction of the bonds outstanding. Only a few investors are sufficiently uninformed to be willing and able to purchase bonds in large amounts that are becoming, on the face of recorded facts, less and less valuable because more and more risky. Few investors are willing to assume the burden of a capital loss from other investors. The investing body as a whole absorbs the loss. Only the investors with moderate holdings can transfer a portion of their capital loss to other investors.

The investor, if he wishes to escape loss on securities of corporations operating in a declining, or stationary, industry, should sell his high-grade first mortgage, well-secured bonds upon the appearance of trouble symptoms. He must sell the AAA bonds in the face of good earnings, good business, high margins of safety, and, what is most difficult, at the high prices that prevail under such conditions. This is a difficult decision to make. The investor, as a rule, is not equal to the task. He cannot bring himself to sell, even if his investment shows a profit, a condition often presented. The high-grade, high-rated bonds of declining industries are, therefore, rarely sold. They are likely to be held until finally interred in the financial graveyard.

The liquidation of high-grade investment common stocks necessarily follows different lines. Common stocks are held for investment mainly by businessmen, active or retired. These men are temperamentally best fitted to appreciate the cyclical and secular fluctuations that are inevitable in the course of business and industrial life. They have learned, not from the printed page, but from experience. They not only know; they feel, and they act. They understand that there is no such thing as a one-way business or profit trend. In the course of time, all that goes up, comes down.

Some of these businessmen, common-stock investors, particularly those who have retired from active business, tend to reason along the well accepted and conservative lines of financial stability, so typical of the investor in safe and sound first-mortgage bonds. Like the bondholder, they hold their stocks "forever and a day." In the face of prosperity, optimism, rising earning power, and market values, they do not sell their holdings. The future is rosy. Stock prices will continue to advance. In periods of business recession, when pessimism is rampant, when values dwindle,

and earnings disappear or are converted into losses, stock prices are too low. They cannot sell. They therefore hold.

Among the businessmen group of stockholders, however, are others whose minds are attuned to the symphony of changing values. They are constantly on the alert. Some are better informed than others. Some operate on the basis of instinct. Others react to the declining demand that they clearly see within their own business. The scientific mind seeks for a generalized explanation of a complicated phenomenon. The instinct of the trader, and the sense of reality which frequently characterizes the active man, are not to be spurned by the student of financial values.

The early symptoms of industrial decline are usually paralleled by slight increases in the yields realized on common-stock investments. In the twenties, attention was frequently called to the higher yields on railroad common stocks compared with the yields on chemicals, mail order, business-machine and electric-equipment stocks. Informed investors, warned in time, are selling. Stock prices decline. The writers are personally familiar with a case in point. A retired industrialist, now "capitalist," early in 1931, on a trip to Chicago, observed that hogs in large numbers were being brought by truck. To him this was a red light. He immediately sold his common-stock holdings in the Pennsylvania Railroad. He had been an active businessman. He had sold his holdings while they were still valuable. The environment and experience of a lifetime had trained him to think of values in terms of change. That the Pennsylvania Railroad had paid dividends for generations did not have the same meaning to him that it did to the traditionally minded investor whose attention is fixed on the past.[5]

Selling of this character, in its earlier and middle stages of decay, tends, therefore, to depress the prices of the common stocks of a declining industry. The high-grade bonds remain relatively high in price. The common stocks of companies in the same industry tend to sag. Against this scattered selling of a limited number of well-informed or experienced investors, is the buying of those to whom such considerations as seasoned securities, long-maintained dividend payments, financial prestige, and tradition

[5] The escape of the first Duke of Marlborough from an investment in the South Sea Company with a profit of £100,000, an escape promoted—vigorously—by Duchess Sarah, is a classic example of successful extrication.

are important factors. Colleges and universities, charitable and educational foundations, property-insurance companies, trust estates, investment trusts, are some of the institutions whose buying falls within this classification. Securities bought must be seasoned, they must have passed through depressions. The earning power of the industry must have been tested by storms. The older the industry, the longer the dividend record; the longer the earning history, the better the security. Confidence in established value is such that skepticism is difficult to instill. Many investors accustomed to satisfactory dividend returns in 1893-1897, 1907-1908, and 1920-1921, were not worried about the future of their stock holdings in 1928.

In addition to this class of buyers, stocks are also bought by the uninformed. To this class, earnings and sustained dividend payments are sufficient evidence of value. What is good is good. Moreover, many persons in this group buy stocks on borrowed funds. They are weak investors. They cannot be expected to hold their stocks in the face of a gale. A storm soon casts them adrift. Their stocks find their way into the open market. When a sharp mark-down in security values occurs, other people who hold the stock outright also sell—some out of caution, some from necessity, still others out of the belief that an initial break is often followed by a sustained decline.

If a business depression follows the break in financial values, then the prices of common stocks decline steadily. Stock prices in all industries, expanding and declining, profitable and unprofitable, consumers' and capital goods, materials and services, every group and class suffer in a downward adjustment made in accordance with declining earnings and declining dividend payments. Under these conditions, one would expect the liquidation of investment holdings in common stock. This by no means follows. Much common stock is held by investors. The stock is bought for income, not for capital, gains. Capital gains are the gifts of the gods. They are incidental. If an assured return is obtained, market value may be ignored. In 1930, the holder of railroad common stocks; in 1913-1914, of traction common stocks; and, in 1939, of manufactured-gas common stocks, alike could argue that common stocks have declined in the past, that they will decline in the future, and that their current decline, therefore, does not suggest

danger. Stocks recovered from past depressions. They will recover from the current depression. Since the income is maintained, the investor need not concern himself with market fluctuations.

This line of reasoning brings us to another problem. The fall of common-stock values of a declining industry in a depression period is usually more far reaching than that of the common stocks of an expanding industry. What is more important, the return of prosperity does not produce the same sharp upward movements. The upward adjustments of railroad common stocks from the depths of 1893 to 1896, from the lows of 1907 and 1908, from the levels of 1914 and 1915, as well as from the 1920 and 1921 base, were not duplicated in the recovery market from 1933 to 1937. In this market, therefore, reasoning from the analogy of former depressions would have been incorrect. The investor could not liquidate at the bottom of a depression; neither could he liquidate in the rising markets of a recovery period.

The investor in common-stock values must, above all, keep watch of symptoms that tend to undermine earnings. The forces affecting the trend of demand; the economics of expansion; the trend of the selling prices of the goods and services of many industries; the habits of consumers; the competition between technological processes; between new and old materials of construction; and between new and old methods of preparing food, clothing, and other consumers goods for final distribution, must always be kept in mind. If the symptoms of a new industry indicate increasing strength, even if a long record of dividend payments is lacking, the stock *may* be good. General Motors in the middle twenties; International Nickel in the late twenties; Climax-Molybdenum in the late thirties, are illustrations. If the symptoms shown by an old industry indicate financial decay, then the common stock *may* be bad, even though the industry may have a long record of continuous dividend payments in good and bad times. Thus the condition of the railroad industry in the twenties, the ice industry in the early thirties, and the manufactured-gas industry in the middle thirties invited thorough investigation of their financial health by the investor diagnostician. The investment candidate, undergoing examination, may appear strong and robust. He may have lived many years. In his time, he may have paid good dividends. He may have shown good

earnings. But he may now be developing a fatal disease.[6] If definite symptoms are developed by examination, the stock must be sold as soon as possible. The investor cannot await the test of industrial recession and ultimate recovery to sell his securities. The common-stock investor, paradoxical though it may seem, must assume the attitude of a stock trader. When he recognizes the dangers, he must fly. He cannot escape if he awaits for the danger signal of financial reversals.

The location of symptoms of decline is usually of no assistance in determining the range of price movements of common stocks. It does not enable the investor to liquidate his holdings at relatively high prices. That is a trading problem involving the art of speculation. Symptoms may first appear at the bottom of a depression when the prices of all common stocks sell at low prices. The high-grade, high-rated, well-secured bonds in depression periods sell at high prices. Except for financial convulsions like the breakdown of the international currency system, and the resulting banking failures in the early thirties, the prices of high-grade bonds are likely to advance in business depressions. The liquidation of investment common stocks at depression prices, because of the appearance of symptoms, may involve the investor in serious capital losses. Symptoms may anticipate future investment difficulties. The early shadows of declining demand or stationary sales, relatively advancing prices for goods and services, stationary plant capacity, may foretell declining earnings, falling dividends, and default. But between the shadow and the substance of financial events there may intervene a general expansion in security prices. The common stock, which may eventually lose a large part of its value, may, intermediately, advance in price. That is the investor's good fortune. He may then liquidate without substantial loss. On the other hand, even if the prices of stocks, in whose future the investor has lost confidence, do not advance, even if they remain low, the investor may be saved from disaster, five or ten years hence, by incurring a substantial loss now.

Is there any rule by which an investor can determine at what point in the evolution of the various diagnostic symptoms an investor should sell? There is no such rule. Is it wise to sell an

[6] A song, once in favor, contains this line, "It isn't what you used to be, it's what you are to-day." A valuable body of investment literature could be built around this theme.

investment-grade common stock in the heart of a business depression if important symptoms have already appeared? If the corporation has large cash reserves, an adequate supply of working capital, if it has passed its dividends only during the depression, if it is still paying interest on its bonds, if the bonds of the majority of companies within the same industry are still paying interest, and if the bonds still hold a high investment rating, then the investor would seldom be warranted in selling. In the face of this record, it may be argued that stocks should not be sold at a loss, that they should be held until the market recovers. This opinion is not always justified by later experience. In the depression of 1932 and 1933, the manufactured-gas industry, for example, showed symptoms of arrested growth. From 1933 to 1936, the stocks of listed (New York Stock Exchange) manufactured-gas companies did not show increases in prices in harmony with the market trend. The prices of the stocks of the three companies whose securities are listed on the New York Stock Exchange are indicated in the following table:

HIGH PRICES OF MANUFACTURED-GAS STOCKS IN PARTICULAR YEARS

	1932	*1933*	*1934*	*1935*	*1936*	*1937*	*1938*
Laclede Gas Light Co.	73	80	63½	27½	33⅞	27⅞	18
Laclede Gas Light Pfd.	65	61	60	46	50¼	41½	30
Brooklyn Union Gas Co.	89½	88½	80½	71½	57	52¾	23⅜
Peoples Gas Light & Coke Co.	121	78	43⅞	43½	58	65½	42

The dividends of the Brooklyn Union Gas Company reflected the investment stability characteristic of the manufactured-gas industry. From July 1, 1927 to October, 1935, the company maintained an annual dividend payment of $5.00. Not until January 7, 1936, was the dividend rate reduced to $3.00 per share. On January 27, 1938, the dividend was finally passed. The investor would have done well to sell at the bottom of the depression in 1932 or 1933.

The dividend record of Brooklyn Union Gas was not duplicated by the two other important gas companies. The net income of the Laclede Gas Company showed an uninterrupted decline in 1935 and 1936. Both its common and preferred dividends were passed in 1933, and have not been resumed. The Peoples Gas Light and

Coke Company maintained an 8 per cent dividend from April, 1925, to April, 1932; from July, 1932, to April, 1933, the rate was reduced to 5 per cent; and in July, 1933, a quarterly dividend of $1.00 was followed by the omission of common dividends. Nevertheless, the investors in these securities had no reason to sell in 1929 and 1930, at the high market prices then prevailing. The symptoms of stagnation did not clearly appear until later. To assert that in the face of the earliest appearance of symptoms the stocks should be sold, if the symptoms first appear in the midst of a depressed state of business, is going too far. To go one step further, and assert the wisdom of selling at a particular moment, in a period of rising expansion and business recovery, is incorrect. It is sufficient to say that common stocks with an investment status should be sold after symptoms of decay appear, no matter what the market level of these securities. If prices are high, that is the investor's good fortune. If low, he would do well to sell in order to avoid a greater loss.

The decline in the price of the manufactured-gas stocks in the recovery of the thirties is characteristic of industries passing from expansion to decline. The table on page 451 gives the high and low prices of the stocks of the manufactured-ice and of the food-chain industries from 1931 to 1937. These two industries expanded in the twenties; they declined in the thirties.

Some of the common and preferred stocks in 1937 sold at prices below the lowest levels reached in the depression of 1932 or 1933. In others, stocks sold at lower than depression levels, even in the rising market of 1936. On balance, the stockholder would probably have been better off had he sold at the depression lows. The decision to sell must be based on a judgment, not only of market prices but of perceived change from expansion to decay.

If the symptoms of financial decay—declining demand, rising selling prices, etc.—appear in a period of prosperity, there can be even less doubt of the wisdom of selling, even if prices are rising. The prudent investor, informed by experience, assumes a skeptical attitude. If he is a large investor in the securities of an industry developing dangerous symptoms, if he holds thousands of shares, he must sell steadily. He must sell against the trend, and in the face of continuously rising prices.

The task of the investor is, economically speaking, simple.

HIGH AND LOW PRICES OF THE STOCKS OF MANUFACTURED-ICE AND OF FOOD-CHAIN INDUSTRIES, 1931-1937

(Stocks listed on New York Stock Exchange)

	1931		1932		1933		1934		1935		1936		1937	
	High	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*
American Ice														
Com.	31 5/8	10 1/2	21 5/8	3 3/8	17 1/2	3 3/4	10	3	4 7/8	1 7/8	4 5/8	2 1/8	4 3/4	1 1/8
Pfd	77 3/4	43	68	35	57 7/8	25	45 1/4	25 3/4	37 3/4	14 1/4	24	16 1/4	27 5/8	14
City Ice & Fuel														
Com.	37 3/8	25 1/2	28 1/2	11	25	7 1/8	24 3/8	17	24 7/8	12	23	15 1/4	21 3/8	11
Pfd.	90	63 1/2	68	43 3/8	72	45	92 1/2	67	100	69 3/4	89 3/4	72 7/8	92	57
American Stores														
Com.	48 1/2	33	36 3/4	20	47 7/8	30	44 3/4	37	43	32 1/2	36	24 3/8	26 1/2	7 5/8
Dominion Stores														
Com.	24	11	20 1/8	13	26 3/8	10 1/2	23	11	12 5/8	6 3/4	12 3/4	7 3/4	12 3/8	5
First National Stores														
Com.	63	41	54 5/8	35	70 3/4	43	69 1/4	53	58 7/8	44 3/8	58 5/8	39 7/8	52 1/4	26 1/2
(not listed) Pfd.	112	104	111	100	115	105	117	110 1/2	117	112	117	111	113	110
											(called @ 110 1/1/38)			
Grand Union VTC														
Com.	18 7/8	7	9 3/4	3 1/2	10 5/8	3 5/8	8 3/4	4	5	2 1/4	6 3/8	3 1/8	5 5/8	1 1/8
Pfd.	46	21	35 1/4	22	36 3/8	20	40	23	29 3/4	14 3/8	25 5/8	16	27 3/4	10
Kroger Grocery & Baking	35 1/2	12 1/2	18 7/8	10	35 5/8	14 1/2	33 5/8	23 1/4	32 1/8	22 1/4	28	19 3/8	24 1/4	14
National Tea														
Com.	24 7/8	6 1/4	10 7/8	3 1/2	27	6 1/2	18 3/4	9	11 3/8	8 1/4	12 1/4	7 7/8	12 1/8	3
(not listed) Pfd.	9 1/4	8	9 1/2	6 1/4	10	7	9 1/2	7	9 1/2	8 1/2	10	7	9 1/2	4 1/2
Safeway Stores														
Com.	69 1/2	38 5/8	59 1/4	30 1/8	62 3/8	28	57	38 1/2	46	31 5/8	49 5/8	27	46	18
$6 Pfd.	97 7/8	63 1/4	90	60	94 1/4	72	108	84 3/4	113 1/4	104 3/4	114	108	113	86
$7 Pfd.	108 1/2	71	99	69	105	80 1/4	113 1/2	98 1/2	114 1/2	109	114 1/2	110 1/8	113	98
$5 Pfd.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	99	96	103	70

Psychologically, the decision to sell is frequently difficult. Rising national production, increasing per-capita wealth, earning power, and per-capita consumption lead to a general increase in the demand for the goods and services of *all* industries. The demand for the products of a particular industry may not expand as rapidly as the demand for those of another industry. Its profits may, however, continue to increase. If the arrested expansion assumes the form of a relatively slight increase in production, as compared with the general trend, the declining industry may still report record profits. Its investment status, based on its long record of success, may attract investment funds at low prices; and it may invest these funds to reduce its unit costs. The steam-railroad industry from 1924 to 1930 showed this effect from large investment in betterments applied to stationary freight traffic. The rise of railroad earnings, dividends, and stock values to the highest recorded prices was paralleled by the emergence of symptoms of decline. A reduced per-year-to-year expansion in ton miles to the *lowest* rate ever recorded in a period of expansion; the trend toward higher freight rates on those articles in which the railroads encountered no serious competition from the motor truck, boat and pipe line, the concentration of management on betterments and cost reduction to the exclusion of additions to increase capacity, all were symptoms of arrested growth. The industry was no longer getting its share of national production. The total volume of goods offered for transportation in relation to the total volume of goods produced was declining. The increase in earnings was due mainly to the reduction in costs.

In the railroad industry, therefore, the symptoms of decay appeared in the midst of a business boom. The prices of stocks of all industries were relatively high. The prices of railroad stocks, judged on the basis of their past history, were also high, although not on a basis of relationship to current earnings. The liquidation of investment stockholdings based upon the underlying symptoms was indicated.

The drop in earnings and dividend returns in the railroad and manufactured-gas industries is not typical of every industry. The lag between the symptoms of arrested growth and of declining earnings and dividend and interest returns is not standardized, neither between one industry and another, nor between one cor-

poration and another. In the face of declining demand, and advances in relative selling prices, corporations may continue to pay dividends for many years. The cane sugar-refining industry may be cited as an illustration. Dividends fell sharply during the depression, and did not recover their former levels. The industry has an excess capacity. Few new plants have been built in recent years. The specialization on betterments to the exclusion of additions is characteristic of arrested growth and relative decline. Yet, since 1922, American Sugar Refining has paid a large debt —$30,000,000—from earnings. Its common dividend was increased from 2½ per cent in 1929 to 5 per cent in 1930 and 1931. It was reduced to 3¼ per cent in 1932; and further reduced to 2 per cent in the period 1933 to 1936 inclusive. In 1938 it was passed. The industry as a whole is declining. The symptoms are clear. The bondholders have fared well, and the stockholders have received reasonably good dividends, although on a declining scale. Softpile fabrics and confectionery and candy are other industries in which stagnation and decay have appeared in the past ten years. This has not prevented the Bigelow Sanford Carpet and Hershey Chocolate from earning and paying common dividends. In each case, the industry, as a whole, has not preserved its dividend-paying power. A number of the leading corporations, however, have been able to accomplish both. Their dividends have been amply covered by their current earnings.

The declining industry rarely reverses its downward trend Despite a favorable current working-capital position, the maintenance of good earnings, and the ability to secure a reasonably favorable yield upon an investment in such an industry of well-established and seasoned earning power, experience discloses the advisability of liquidation. The investor must ignore the visible evidences of financial strength. He must act on the basis of economic experience which indicates that a permanent decline in demand is at hand. Under these circumstances, if the investor is to preserve his capital, the stocks of well-managed and financially strong companies must be sold.

PART IV

CONCLUSION

CHAPTER XXV

THE PRESERVATION OF INVESTMENT VALUE

THIS DISCUSSION of investment income has reached certain conclusions:

(1) Obsolescence is a universal characteristic of industry. In expanding industries it is latent, overbalanced by the forces of growing demand. In declining industries, obsolescence is an active infection, certain, if not checked by the application of remedies (corrective factors), first to weaken and then destroy its victims.

(2) Obsolescence can be recognized by certain symptoms. The most important symptom, ranking with the rise of body temperature in medical diagnosis, is stationary demand. This primary symptom is accompanied by others: (a) rising prices, (b) emphasis on capital expenditures on betterments, as contrasted with additions, (c) the borrowing of money.

(3) When these symptoms are recognized, management attempts to restore earnings by the application of correctives, either through cost reduction or by the shift of production to lines of expanding demand.

(4) The successful application of demand correctives depends upon (a) the possession of a non-specialized plant; (b) upon the quality of management that corresponds to the flexibility of plant; (c) upon the possession of large cash resources above the working-capital requirements of the business, which can be applied to develop the new lines, and (d) upon an efficient and well-maintained research department developed in advance of the need.

(5) There is no instance on record among the corporations whose securities are listed on the New York Stock Exchange where the application of cost and quality correctives has revised the downward trend of profits. Cost and quality correctives do

not operate upon demand, and so are unable to remedy the trouble, which is due to declining demand.

(6) Declining industries, therefore, usually continue to decline until they reach the point where they pay nothing to the investor. This characterization applies with peculiar force to public-utility industries whose profits are limited by law, which are forced to inflate their debt during their period of expansion, and which, when the evil days draw nigh, have no adequate cash resources which might be used to apply demand correctives.

(7) Investment in any security issued by companies in any industry is permanent. Losses cannot be avoided—by the entire body of investors—by shifting the ownership and the risks of ownership from one to another. Like the river Thames in Blackstone's famous simile, to describe the corporation—the body of investors remains, although the membership of the body is changing every instant.

This is the paradox of investment. Some investors can preserve their capital intact (barring the effect of sweeping commodity price changes, seriously impairing the purchasing power of money) by shifting their holdings, when symptoms of decay are recognized, to holdings in well-managed corporations operating in expanding industries and whose managements, plants, and financial resources make possible the shifting of production to keep pace with the shifting demand. For the mass of investors, however, and especially for the institutional investor, with their immense holdings of securities, such shifting is impossible. These investors make the market. They can sell only to themselves. They are fixed in their positions. "O wretched man that I am, who shall deliver me from the body of this death."

This situation is fraught with danger. The financial structure of the United States is built upon the investment structure of its major industries. Many of the bonds and mortgages issued by private corporations and public (governmental) corporations (exclusive of the bonds issued or guaranteed by Federal and State Governments) are exposed to the hazards of obsolescence. Already heavy losses have been sustained in municipal bonds, real-estate bonds and mortgages (urban), from mortgages, railroads and industrial bonds. Other losses are in prospect. Existing industries, infected by incurable obsolescence, cannot, as a practical matter,

be reconstructed. A substantial number of industries, still prosperous, are threatened with active obsolescence.

On the other hand stands the imposing group of expanding industries, with simple capital structures, vast cash reserves, progressive managements, advancing profits, and dividends. Only a small part of the securities of the companies in these industries, aside from light and power securities, are found in the portfolios of life-insurance companies or savings and commercial banks. Property-insurance companies have them, and many private foundations draw large revenues from oil, chemical, and tobacco, among others. As sound investments, however, they are not fully accepted. The conservative manager of trust funds, even as the New York banking department forbids him to purchase—but does not order him to sell—three billions of railroad bonds; as he is forced to abandon the channels of investment tried and true, looks back longingly to the days when simple arithmetic, with an occasional use of logarithms, could solve any investment problem. He knows that he must shift his buying to new channels, and yet he does so with hesitation and regret. Meanwhile cash and government bonds pile up, and finance committees are at their wits' end to invest their funds to yield 3 per cent.

In suggesting a solution of this problem, we must base that solution upon the main conclusions which have emerged from the facts already presented: that industry is everywhere, and to an increasing extent, subject to change, that obsolescence is its outstanding characteristic. It follows, therefore, that a sound investment policy must recognize the fact of change and the dangers of change. Nothing is permanent. In the process of transforming one mechanism, process, or product into others more appealing to the buyer, or cheaper and more efficient, existing companies, no matter how liquid their resources, no matter how progressive their management, cannot guarantee that twenty years from now they will be as profitable as they are to-day. Business structures, no matter how firmly founded, contain the germs of obsolescence. Other managements, in charge of other corporations, in the expanding industries of other days, have broken their hearts and gone to their graves, leaving little save memories behind them, as the gulfs of obsolescence closed over them. Investment policy must recognize this fact.

Since all investment is at risk, all investment, if risk is to be minimized, must be replaced, or at least substantially reduced out of profits, before profits are available for spending. Just as plant and equipment depreciate, so does evidence of ownership of such plants depreciate. Just as depreciation on plant is an operating expense, deducted from gross earnings before profits are realized, so is the depreciation on ownership expressed in stocks and bonds. There is this difference between the two forms of depreciation. Plant depreciation is certain. It must be provided for. Provided that management keeps ahead of the trend of demand, ownership depreciation, in theory, need not be taken. The plant wears out and must be replaced out of earnings. The corporation is supposed to be immortal. In practice, however, this distinction between plant and ownership life breaks down. The mortality of business is high. Only 30 per cent of these companies are alive twenty years after their incorporation.[1] When it is recalled that groups of corporations in a particular industry do not reach investment status for many years, and that in many of these industries the entire group is threatened by decay that will eventually destroy the value of their securities, the necessity of providing against such obsolescence by building up reserves to compensate for such losses is apparent.

Such provision against loss of investment value can be made by two methods, either singly or in combination: (1) The corporation may itself, by a sinking fund, retire a portion or all of its bonds, preferred stock, or even the common stock purchased in the market, thus restoring their capital to creditors or owners, a method which operates like a write-down of plant value; and, (2) the investor, in his own accounting, may supplement the action of the corporation in reducing the amount he has to risk in its securities.

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[1] Burtchett, *Corporation Finance*, p. 908, tabulates the lives of 8,962 corporations in a number of leading industries.

Years	*Per Cent*	*Years*	*Per Cent*	*Years*	*Per Cent*
0	10.0	20	30.9	40	10.8
5	66.8	25	23.6	45	8.6
10	50.1	30	17.7	50	7.0
15	39.8	35	13.8	100	0.5

The significant column on this tabulation is headed, "Percentages [of these companies] which survive a given number of years." (Reprinted by permission of Harper Brothers.)

The amortization sinking-fund method is familiar and widely used. National governments maintain sinking funds. The late Andrew W. Mellon, as Secretary of the Treasury, by persistently understating revenue and overstating expenses, no doubt in perfect good faith, following his conservative banking instincts, succeeded in reducing the public debt during his administration nearly ten billion dollars. He drove congressional spenders into frenzied denunciations. He was repeatedly charged with intentional deceit, but he reduced the debt. It would almost seem that Providence guided him to the provision of a large reserve of credit in the dark days which were to follow.

Municipal bonds almost universally provide for the levying of taxes sufficient to extinguish each debt by the date of maturity. The building and loan association mortgage provides for serial payment within twelve years, by building up a fund in the stock. Industrial bonds, almost without exception, and utility bonds issued within recent years, carry sinking funds or provide for serial repayments. Industrial corporations, moreover, when earnings permitted, have frequently gone far beyond the requirements of their sinking funds. Certain types of industrial bonds, secured by "wasting" assets (for example, coal and lumber), are issued on the serial plan. Railway-equipment bonds, also secured by wasting assets, have long followed the same pattern, fifteen years being the common limit for their payment. Only the railway companies and many utility companies, secure in their pride of antiquity, ignored the requirements of safety. They did not maintain sinking funds and relied upon refunding at maturity. Some preferred stocks carry sinking funds, and their issuers have often used callable provisions to refund or to retire them. Only common-stock charter contracts, generally speaking, carry no provision for retirement. At that, large amounts of common stock often have been retired by purchase for the treasury or for cancelation.

The precedents for the use of the sinking fund are numerous. The objects are always the same: to protect the corporation against the maturity of debt at a time when it may be inconvenient to pay it, and to protect the investor by returning to him a part or all of his investment, while the company responsible to him is able to reimburse him.

As long as securities, senior or junior, debt or stock, common

or preferred, remain outstanding, they are at risk. The risk may be small, but it is always there. These small risks, like clouds no larger than a man's hand, may expand into serious hazards. As the amount of the outstanding issue is reduced, the risk diminishes. Current-assets restrictions, enforced by prohibition of dividends, or even by threat of default, are well enough in their way, as admonitions to management, but they are not often enforced. Nor has the stipulation of a minimum ratio of stock to bonds, a provision that both the Interstate Commerce Commission and some state commissions have endeavored to enforce, availed to protect the bondholders whose bonds were sold in the land of peace, and matured in the swelling of Jordan. When latent obsolescence develops into active obsolescence, bonds and stocks go down and out together.

The sinking fund reduces the income paid to original subscribers, or purchasers of the bonds which carry the sinking fund. It reduces the amount available for dividends. It reduces the amount of bonds that a given amount of earnings will support. A substantial amount of profits, which would otherwise be available for dividends and to support junior bonds, must be used to return this capital to the investor. When large sinking funds shorten the average maturity of bonds, permanent investment is made more difficult. The investor is forced to shift and change his holdings. His money was at risk. Now he has some or all of it back. He has the opportunity to correct his mistakes, to revise his judgment. He is not forced, because he has lost confidence in his investment, to risk a loss of principal by sale. Within a few years, a substantial amount is restored to him. This he can reinvest in other securities more to his liking. The general use of sinking funds, to-day, is rightly considered to be insurance against the risks of ownership obsolescence. It is the more valuable because it protects not only the prudent and well-informed investor, who, if a small holder, may need no protection, but the mass of the ignorant and uninformed.

But this is not enough. Few bonds, aside from serials, are paid off in twenty years. Fortunate are their holders to receive back half their principal before maturity. One-third is a more reasonable expectation. To the protection against individual ownership depreciation, as well as the depreciation of institutional and estate

holdings which are too large to be sold without heavy losses, there should be added two additional measures of protection: (1) the diversification of holdings, and (2) amortization reserves maintained by the investor.

The laws of New York State that regulate the investments of savings banks require diversification of holdings. Savings banks may invest 70 per cent of their assets in first mortgages and bonds secured by first mortgages on unencumbered improved real estate situated within the state up to 60 per cent of its assessed value. They may invest not more than 25 per cent of their assets in bonds, notes, and equipment obligations in any Class I railroad company located within the United States which has paid all of its fixed charges during five of the last six fiscal years and which, in addition, has earned during this period an average amount equal to its fixed charges. Savings banks may also invest 10 per cent of their assets in bonds of electric power, telephone, and gas corporations provided that no more than 2 per cent of the assets of any bank shall be invested in the assets of any one such company. They may also invest, without limit as to percentage, in the bonds of the United States Government, the State of New York, any municipality of the State of New York, and a large list of other public obligations. By these provisions a limited diversification is required. It is impossible for a New York savings bank to place all of its assets in any one class of private securities. Insurance companies, with certain exceptions, may invest in any bonds which meet the required standard.

It is not diversification that is at fault. Institutional investors have not failed to diversify. They have diversified too largely in decadent industries. But diversification of securities will not alone suffice in the face of obsolescence, that pervasive and corroding influence which is ceaselessly at work throughout the industrial structure.

How, then can an investment policy be accommodated to the observed fact of industrial obsolescence? In the first place, investment managers, who represent the best brains of their calling, who are far superior in investment judgment to the run of private investors, to a far greater extent than in the past must recognize the fact that entire industries, within a comparatively short time, may decay.

Diversification is a sound and necessary principle of investment, but, to exert its full effect of stabilizing values, it should be applied to securities of expanding industries. These are the industries that operate within the prevailing trend of demand, the companies that keep abreast of the time, the companies with large cash reserves, progressive managements, flexible plants, and continued expansion into new fields. The superiority of even common stocks of financially expanding companies over the senior bonds of declining companies is manifest. Diversification in the expanding groups will minimize the risks of mistaken selections. Since 1930, the losses in rubber and oil refining would have been offset by the gains of electrical equipment, chemicals, and containers. On balance, the expanding industries, over a period of years, can absorb the inevitable mistakes of selection among them.

If this is to be done, the laws regulating the investments of insurance companies and savings banks must be modified. They limit these investments to bonds and preferred stocks. Bonds are not a favorite form of security for prosperous companies. Large amounts of bonds are issued. Compared with stock, however, their total amount is small. Furthermore, issues of preferred stock by these companies, compared with the billions of their common stock now outstanding, are also small. The insurance law of New York has been recently modified to allow larger purchases of preferred stock, but this is not enough. Common stocks also should be recognized. Institutional prejudice against common stock as a vehicle for the investment of trust funds is still strong, although not as strong as it was before the collapse of railroad bonds and real-estate mortgages. This prejudice must give way to the facts. Can it be doubted that if the money invested in the three billion dollars of railroad bonds recently thrown out of the New York legal investment list had been placed in common stocks of a group of companies operating in the expanding industries—this investment could have been easily made during the twenties—the present situation of the fund would have been much greater than that received from bond investments? If experience is a safe guide to future policy, the lessons of the recent past should not be ignored. Stocks should partially take the place of bonds in investment portfolios.

Valid objections to stocks, as compared with bonds, have been removed both by the event and by a recognition of the immobility of institutional investment. As we have shown in the preceding chapter, a large number of common stocks have shown larger returns over a period of years than the senior securities of competing industries. Institutions are not traders. They purchase income. Their returns do not, like those of many investment trusts, come from market realizations. Although many changes are always being made as opportunity offers, the bulk of their holdings remain untouched. This permanency of holding is involved in the size of the holdings. Corporate trustees are faced with the same necessity to hold what they buy, because they cannot discriminate between individual trusts. Too long has the reverence for bonds persisted in law and custom. The investor has already paid a heavy price for his secured priorities. "Though He slay me, yet will I trust Him."

The second feature of a sound investment policy is the establishment of reserves against depreciation of securities.

Gold mining, from the beginning of corporate activity in this field, has been looked upon as an extra hazardous undertaking. A recognition of this fact appears in the practice of issuing assessible stock of gold-mining companies so that additional capital can be called up in unforeseen contingencies. It also appears in the general practice of buying gold-mining securities on a basis of a high per-cent return. Of this return, a portion should be considered as the return of capital, the balance as the return on capital. In other words, the investor in gold-mining securities was supposed to maintain his own sinking fund. If the dividends on his stock were maintained for a sufficient time, he would replace his original investment and would have his return in addition.

Beyond the requirements, now reasonably well fulfilled in recent bond issues, that the borrowing companies themselves must provide for amortization of all senior securities, the future safety of institutional and individual investments requires, as a matter of settled policy the setting up, against each purchase of securities, of what would appear to be ample amortization reserves.

Banks have always carried concealed reserves against bad debts by failing to mark up their security values. Institutions and foun-

dations—the Carnegie Foundation for the Advancement of Teaching, is a good example—have put the profits on the sale of securities into a reserve for security depreciation. As a result of this prudent practice, for which the Foundation gives partial credit to the late Frank A. Vanderlip, for many years Treasurer of the Board, the losses in railroad bonds, held by the Foundation were charged against the reserve, without impairment of the principal. Many individual investors follow the same method.

If we may judge from the published statements of institutions and foundations, this practice of accumulating ownership reserves is not as general as might be wished. "And if the righteous scarcely are saved, where shall the ungodly and the sinner appear?" If insurance companies and banks have not protected themselves against security depreciation by adequate reserves, how can it be expected that the private investor will show the necessary restraint and caution so to protect the principal of his holdings? The method by which such a reserve can be accumulated is to deduct from interest or dividends, as received, an amount equal to, say, 2 per cent of cost or market value, whichever is higher, and credit this to a reserve, reinvesting the amount according to the investor's preference in a corresponding "fund." This fund, with its accumulations of interest or dividends and the continued reinvestment of annual accruals, is built up to a sum large enough, in the judgment of the investor, to offset any probable depreciation in the value of his holdings. Beyond that sum, if only it is large enough, and here the error should be far on the pessimistic side, the accumulation can stop, and the investor can use his income as he pleases. When blessed by appreciation in value due to increases in dividend distribution, present or prospective, the reserve may be built up by credits to value of securities owned or held. During the period of reserve building, and to the extent of recurring losses, the return on the securities held in the portfolio is reduced. Assuming an average interest and dividend return of 5 per cent on principal, and an amortization charge of 2 per cent, only 3 per cent is available for expenditure or distribution to depositors or beneficiaries. Three per cent is the return on the investment.[2]

[2] Under present circumstances it is too much to ask that the Federal Bureau of Internal Revenue should allow this current appropriation to be deducted from taxable income. They allow a deduction of loss where the security is sold,

Institutions, as at present conducted, do not follow this policy. The life-insurance companies, for example, are required to protect their policies through the establishment of a reserve, computed, generally, on a 3 per cent basis. Any investment earnings above 3 per cent are available for distribution to stockholders in a stock company, or to policy holders in a mutualized company. The life-insurance companies have vigorously competed with each other, dangling before their prospects large dividends on their policies, including in "savings" below assumed expense and assumed rates of mortality the difference between 3 per cent and any higher per cent which the company is able to earn on its assets. The large companies do not treat this difference between the assumed rate of return on which the reserve portion of the premium is compounded, and the amount earned on the investment as a reserve to be held as a protection to the policy-holders and stockholders against a depreciation in the market value and earning power of the investments securing these obligations. These dividends have, at times, been very large. They are always substantial. If the companies were required by law to reinvest a portion of these dividends in reserves to amortize losses in security values, policy-holders could look to the future with greater confidence.

The amortization of ownership, supplementing the retirement policies of companies that have issued senior securities, based upon diversification within expanding industries, irrespective of the type of securities issued, and confined to companies that are able and determined to keep ahead of the trend of demand, is a policy which, if followed, will reduce to the minimum the hazards of investment. No policy, however conservative, can altogether remove these hazards. To the small return, which at any point of time the investor may count upon, may be added the results of sound judgment in the selection of companies, and of good fortune, "luck," which, as La Rochefoucauld puts it, with good temper, rules the world.

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but they would not allow a deduction of an annual credit to the reserve. In the long run, of course, this refusal to recognize current appropriations to ownership reserve is of no tax consequence. It is equalized with the losses as they occur.

APPENDICES

APPENDIX I

NOTE ON METHODOLOGY

THIS COMPILATION and computation of common dividends, preferred dividends, and interest is based upon *Moody's Manuals of Industrial Securities, Railroad Securities, Public Utility Securities,* and *Banks and Financial Institutions.* Some data from 1930 to 1936 were taken from the compendiums of the *Commercial and Financial Chronicle.* In the early years, the Manuals, because of the unavailability of corporate data, were not entirely satisfactory. The most embarrassing problem was the proper determination of interest. Frequently interest was included in an item called "Fixed Charges," or "Income Charges, etc." These descriptive titles, in many cases, embraced not only interest but other items, such as inventory adjustments or exchange losses. Some complications in the computation of dividends arose from the fact that "Dividends Paid" did not separate common and preferred dividends, thus making impossible a year-to-year comparison of common and preferred dividends. In other cases, descriptive statements indicating the rates paid per share on common or preferred stocks or both were not accompanied by an income statement showing the accurate amounts paid in dollars.

Moody's Manuals were therefore supplemented by analysis of the applications made by the corporation to list securities on the New York Stock Exchange. If the information was not made available in this way, letters requesting the missing data were sent directly to the corporations involved. A gratifying amount of assistance was rendered by officials of these companies. Our compilations contain material which could not be obtained from any other source.[1]

If the balance sheet revealed no liabilities involving the payment of interest, then it was assumed that no interest was paid. In some cases, this assumption did not tally with the facts. Descriptive statements following the balance sheets described bond issues outstanding, for either the company, or controlled subsidiaries.

The computation of interest paid by a corporation in bankruptcy

[1] For the list of corporations furnishing data on this subject, see Appendix II.

or receivership presented some difficulty. The annual reports of the companies, and the financial manuals servicing the investing public, publish the interest paid by corporations under court protection on an accrued basis. It is assumed in these publications that the interest paid by the company prior to receivership or bankruptcy proceedings continues until the reorganization of the company with a new scale of fixed charges. This assumption usually is contrary to fact. All the interest charges are not usually paid by a company under court protection. Indeed, the major purpose of resorting to the legal processes is to avoid the payment of interest. If the company was a railroad or a utility, a letter asking for the interest paid was written to the company. If correspondence did not disclose the accurate amount paid, it was assumed that the corporation paid nothing. For example, Seaboard Airline Railway has been in receivership since 1930. The fixed charges of that railroad for 1929 amounted to $11,165,504. The fixed charges, as reported in the existing financial manuals, show no appreciable reduction for years subsequent to that period. Correspondence with the company discloses that the interest paid in 1931, however, amounted only to $2,688,741; in 1932, $1,434,938; in 1933, $1,453,553; in 1934, $1,326,736; in 1935, $1,328,511; in 1936, $1,010,308. Similar discrepancies between reported interest and interest actually paid are found in other properties: Missouri Pacific, New Orleans, Texas and Mexico (for one year); New York, New Haven and Hartford; Norfolk Southern; St. Louis and San Francisco; Wabash; Chicago, Milwaukee, St. Paul and Pacific; Chicago, Indianapolis and Louisville; Chicago and Northwestern; Western Pacific; Chicago, Rock Island and Pacific; Chicago and Eastern Illinois.

In metropolitan street-railway transportation, the interest paid in cash under court order by Philadelphia Rapid Transit and Interborough Rapid Transit were obtained from correspondence. There were no bankruptcies or receiverships for the companies embraced in the telephone, power and light, natural-gas, and manufactured-gas categories of the utility group. In the other classifications, embracing corporations whose prices are not regulated by public-service commissions, information on the interest paid for those years in which the companies were in receivership or bankruptcy was generally not available. It was therefore assumed that these companies paid no interest. The margin of inaccuracy arising from this assumption cannot be definitely established.

In the payment of dividends on shares of partly controlled subsidiaries held by stockholders, other than the controlling corporation, certain assumptions were made. It was assumed, first, that, since ma-

jority common dividends could not be collected unless minority common dividends were also paid, dividends paid to minority stockholders were preferred dividends. Minority payments thus increased the preferred dividends of the controlling corporation. If the subsidiary, controlled through ownership of a majority of common stock by another company, had preferred stock outstanding, then the preferred dividends paid by the subsidiary to holders other than the corporation itself were considered as preferred dividends. There is thus included in preferred dividends of the controlling company: the dividends paid on its own preferred stock, the preferred dividends paid on the preferred stocks of the subsidiary companies not owned by the parent company, and the common dividends paid on that part of the common stock of subsidiaries not held by the parent company.

In several classifications this treatment of minority payments results in a duplication of dividend distributions. If a corporation listed on the Exchange owned less than 100 per cent of the common or the preferred stocks, or both, of any corporation whose securities were also listed on the Exchange, then, to the extent of the dividends paid on stock not owned by the controlling corporation, a duplication resulted. For example, Federated Department Stores, since 1930 has owned less than a 100 per cent stock interest in Bloomingdale, Filene, and Abraham and Straus. The securities of these three companies are listed. The dividend and interest distributions of Federated Department Stores, and of each one of these three organizations, were included in the distributions of the centrally located metropolitan department-store classification. To the extent that the common stock of each of these three department stores was owned by Federated Department Stores, the common dividend paid to Federated was counted twice. Other duplications exist: The ownership of a block of United States Industrial Alcohol common by the Air Reduction Company; of Liggett and Myers and American Tobacco common by Standard Commercial Tobacco; of a substantial block of the Class A and common shares of Revere Copper by General Cable; of 46,000 shares of Beech-Nut Packing common by Gold Dust Corporation in September 1929; of 32 per cent of the stock of Seaboard Oil by Texas Corporation; of a substantial interest in Flintkote common by Shell Union; of Revere Copper and Brass common by American Smelting and Refining.

In the steam-railroad industry, the duplications are extensive. Atlantic Coastline owns stocks in Louisville and Nashville, and Nashville, Chattanooga and St. Louis; Pennsylvania, directly or through subsidiaries, in New York, New Haven and Hartford, Boston and Maine, Norfolk and Western, Lehigh Valley, and

Wabash; Baltimore and Ohio in Buffalo, Rochester and Pittsburgh, and Reading; Missouri Pacific in Texas and Pacific and New Orleans, Texas and Mexico; New York, Chicago and St. Louis in Wheeling and Lake Erie; Chesapeake and Ohio in Erie, Père Marquette, Chicago and Eastern Illinois, and New York, Chicago and St. Louis.

These duplications do not, however, disturb the *direction* of the movement in the trend of dividend and interest payments. The duplications increase payments slightly more rapidly in the period of prosperity—1923 to 1929—and decrease payments slightly more rapidly in the period of adversity—1930 to 1933. Since this is a study of trends, the elimination of these duplications is, therefore, not essential.

In the non-railroad classifications, one duplication was eliminated. The dividends received by Du Pont on its holdings of General Motors common were deducted from the distributions to its own security-holders.

The other duplications, however, remain. In some cases, inadequate data leaves no other course open. Corn Products Refining, for example, has for many years held an assorted list of investments. Not until 1934 did it make its security-holdings public. Its investment list for 1934 revealed substantial holdings of railroad preferred stocks, common stocks and bonds; preferred stocks of power, trolley, and gas companies, of utility holding companies; of common stocks of telephone and power companies, banks, and various industrial enterprises; and of the bonds of power and trolley companies, and of industrial enterprises, such as restaurants, raw cane sugar, rubber, dairy, anthracite coal, and business machines. Few companies carry such a list of assorted investments.

In other cases, the precise number of shares owned each year changes; and the precise number of shares thus held annually is not made public. This characterizes the ownership by the Air Reduction in United States Industrial Alcohol common. In other cases, the exact number of shares held at any time in one company by another is not stated. Typical examples are as follows: Holdings in Chicago Yellow Cab common by Parmelee Transportation; in American Locomotive common by American Car and Foundry; in Virginia Carolina Chemical, United States Steel, and Sloss-Sheffield Steel by Allied Chemical and Dye; in Budd Wheel by Budd Manufacturing. Because of the non-payment of common dividends on many of these stocks, the apparent duplications are more nominal than real. For example, American Locomotive has paid no dividends on its common stock since 1931; United States Steel paid no com-

mon dividends from 1933 to 1936, inclusive; Virginia Carolina Chemical has paid no common dividends for many years.

Since duplications, due to inadequate data, could not be eliminated, the elimination of other duplications on the basis of published information might lead to grotesque results. The elimination of duplications, wherever possible, on the basis of available information, would eliminate one duplication and perpetuate another. No single common denominator, under these conditions, can be applied; hence these duplications remain.

In industrials, as in railroads, no disturbance in the *direction* of the trend, on the basis of tests made in those cases in which information was available, would have occurred.

In this study, "distributions," means cash distributions in dividends, rentals, and interest. This understates the return received by the stockholders of many companies. The value of stock dividends is excluded. Occasionally, the preferred stock declared as a stock dividend is later redeemed in cash by the declaring company. Coca Cola and Montgomery Ward are illustrations. The cash realized from the redemption of these stocks is not included in these computations, although it is the equivalent of a deferred cash dividend. There is also excluded the value of special dividends in the form of securities of other corporations. For example, General Electric in 1925 paid a dividend in the common stock of Electric Bond and Share. The price of this stock increased in the four-year period succeeding the date of the dividend declaration. The value of Electric Bond and Share common is excluded from the distributions of General Electric. Other illustrations of property dividends follow: In 1936, Corn Products Refining distributed to its shareholders 101,200 shares of Allied Mills common; in 1935 Standard Oil of New Jersey declared a dividend in the stock of the Mission Corporation; in 1933, Great Western Sugar gave its common stockholders one share common of Cashe La Poudre for each five shares of Great Western Sugar common; and on October 7, 1936, the assets of Cashe La Poudre were distributed to the stockholders of Great Western Sugar at the rate of $25.17 per share; in 1935 Du Pont distributed a dividend of 1/55 shares of General Motors common stock to its stockholders. These property dividends are excluded.

The value of rights to subscribe to additional stock at prices below the existing market—a right that is reflected in marketable form, making it possible for the stockholder to realize in cash the value of these rights—is also excluded.

In using the trend of dividend and interest distributions as an index to industrial prosperity, another inaccuracy, arising from ac-

quisitions and mergers already explained in Chapter VI, "Classification of Investments," arises. A few specific illustrations may further clarify the problem. The increase in common dividends of Consolidated Oil from zero in 1928 to $14,759,810 in 1929 was due, in part, to the acquisition of other companies; it did not reflect a corresponding and proportionate increase in earnings or dividends of the oil-refining industry. In soaps and cleaning compounds, the increase in common dividends of Procter and Gamble from 1929 to 1930 from $9,998,870 to $15,114,295 was due largely to the acquisition of James S. Kirk. In the proprietary medicine group, the increase in the common dividends of American Home Products from $668,200 in 1927 to $2,142,552 in 1929 was due mainly to acquisitions. In building equipment, the increase of American Radiator and Standard Sanitary dividends from $6,613,100 to $14,338,334 from 1928 to 1929 was explained by the acquisition by American Radiator of Standard Sanitary. In synthetic building materials, the rise in interest charges of Certainteed Products from zero in 1927 to $599,175 and to $743,137 in 1928 and 1929 was caused by the acquisition of another company with the proceeds realized from a bond issue of the acquiring company.

It was necessary, therefore, to adjust the published disbursement figures of these companies, representative of particular industries. Adjustments were made by adding the disbursements of the *acquired* companies to the disbursements of the *acquiring* companies for the years prior to the date of acquisition. A more accurate approach to the movement of disbursements of an industry was, by this method, accomplished. In some cases, also—Standard Brands and General Foods, for example, which were organized late in the expansion period—it was possible, by including the disbursements of the constituent companies of these consolidations, to provide a continuous record back to 1923.

In many cases, the dividends and interest paid by the acquired company prior to its acquisition by the acquiring company were not available. If the record was not found in *Moody's Manual,* an examination was made of the listing applications to the New York Stock Exchange of the acquiring company. Correspondence with the corporations involved was the next step. A gratifying amount of assistance was rendered by officials of these companies. Our compilations contain material which could not be obtained from any other source.[2]

These methods did not, for some companies, supply the missing

[2] For list of corporations furnishing data on this subject, see Appendix III.

information on the distributions of the acquired companies. In those cases it was impossible to make the adjustments by *adding* the dividends and interest of the acquired company prior to its acquisition by the acquiring company. The adjustment was made by the *deduction* of the dividends or interest, or both, paid by the acquiring company on its stocks and bonds issued to gain control of the acquired company. Only cash dividends and interest paid by the acquiring company were deducted. Rights to subscribe to additional stock in the acquiring company to its new stockholders, who received the stock in exchange for securities of the acquired company, were ignored. Stock dividends were also ignored. However, the cash dividends paid on the stock of the acquiring company distributed as a stock dividend were included.

These methods of adjustment for the dividends and interest payments of the acquired companies were not applied to those acquisitions that were financed by cash payments of the acquired company. Such a method of financing did not create new securities calling for increased payments by the acquiring corporation. The corporation financed its acquisitions by utilizing its working capital. The expansion in financial strength and in earnings of the industry did not flow from an increase in its capital liabilities. The superior strength of one of its units, the acquiring corporation—a strength which was built up from the profits realized within the industry itself—increased the dividend or interest payments, or both, of the corporation itself, and of the industry. Also, unlike the acquisition by security exchanges, this method did not involve the supersession of one group of security-holders by another. The selling group received cash.

This method of correction is by no means perfect. The flexibility of the instruments of corporation finance makes it difficult in this, as in so many other instances, to follow one method exclusively. The purchase for cash of the stocks or the assets of other corporations did not always mean that the acquisition was financed from the purchasing company's cash. The cash was frequently obtained from the sale of its own securities. Under such conditions, the acquisition was financed by an exchange of securities, one step removed. The form was different, but the substance was the same. It was necessary to make the same adjustment for the dividend and interest payments of the acquired company as that made when the terms of acquisition involved a direct exchange of securities between the corporations directly involved. The attempt to make this adjustment for corporations acquired with cash realized through the sale of securities by the acquired company encounters serious diffi-

culties. The proceeds of a bond or a stock issue are not, generally, allocated with sufficient accuracy to enable the investor to determine the cash to be expended for one purpose or another. Occasionally, it is true, the proceeds of a bond issue are used for only one purpose. Some examples may be cited: Manhattan Electrical Supply used the proceeds of a bond issue in 1927 to acquire control of Troy Laundry Machinery; Gotham Hosiery in 1926 to acquire Onyx Hosiery; Barnsdall in 1926 to acquire Waite Phillip; and Lane Bryant in 1930 to acquire the Coward Shoe. More frequent was the use of the proceeds to finance a part of the cost of control of other enterprises. The additional cash was raised through the sale of treasury securities or provided from working capital. The amount of cash required to finance the acquisition of an existing property was sometimes stated with reasonable clearness. Frequently it was not so stated. Illustrations of the former were the acquisition of Spang Chalfant by National Supply in 1930; Congress Cigar by Porto Rican American Tobacco in 1926; and of Michigan Steel by National Steel in 1931.

Unfortunately, however, numerous instances of bond and stock issues of the acquiring companies to finance the acquisition of other enterprises, where the terms of exchange were not available, were encountered. In 1928, Spang Chalfant acquired Standard Seamless Tube for cash, raised partly by bonds and partly by preferred stocks in amounts not accurately stated; in 1926, Colonial Beacon Oil issued bonds to retire purchase-money notes, working capital, and for other corporate purposes, the latter including the acquisition of Colonial Filling Stations. In April, 1928, International Cement issued $18,000,000 of bonds and 56,200 shares of common stock to finance the retirement of $9,549,800 preferred stock par value and for the purchase of plants, etc. In April, 1926, Manhattan Oil issued $3,000,000 of 6 per cent bonds in order to retire $650,000 of bonds of a subsidiary, to acquire a minority interest in another company involving an expenditure of $650,274 for improvements, to retire current debts incurred in financing recent acquisitions, and to improve working capital. Other bond issues financed the retirement of purchase-money notes and other obligations which had been originally issued to acquire other properties. Under these conditions, it was impossible either to compute the dividend and interest record of the acquired companies or to make adjustments in the form of reduced dividends and interest payments of the acquiring companies.

The sale of common and preferred stocks for cash, and the use of the proceeds to buy control of other corporations, are even more widespread than the sale of bonds for cash for the same purpose.

The issue of corporate bonds is accomplished under the provision of mortgage or indenture contracts which specify the purposes for which the bonds may be issued. For railroads and public utilities, official approval, required, in most jurisdictions, for the issue of debt obligations, is based, in part, upon the disclosure of the purposes to which the proceeds of the issues are to be dedicated. In most jurisdictions, the same considerations apply also to stocks. In non-railroad and non-public utilities, public regulation, at least prior to the advent of the Securities and Exchange Commission, frequently revealed little information concerning the disposition of the proceeds of security issues. The use of the funds raised through the sale of stocks was disclosed only by statements of the company to stockholders, bankers, or in the listing applications presented to the New York Stock Exchange. A few examples will illustrate the problem involved. Liquid Carbonic in July, 1926, sold 100,000 shares of common stock, and a value of $3,950,000 was applied against this stock. In August, 1926, the company purchased Baur Carbonic and Kentucky Carbonic for a cash consideration of $405,556. It may be inferred that part of the proceeds of the common-stock sale of Liquid Carbonic was used to effect control of the two new companies. This is no more than an inference. The acquiring company states there is "no connection between the cash realized from the sale of the 100,000 shares and the $405,000 paid for the business of the two companies mentioned." [3]

A notable acquisition in the packaged-food industry was the purchase of Chase and Sanborn by Standard Brands in 1930. A plan of exchange for the securities of the former by the latter was published. Since the number of shares of common and preferred stock of Chase and Sanborn was not published, it is not possible to determine the number of shares of Standard Brands issued to effect control of the acquired property. The balance sheet of Chase and Sanborn, published in the listing application to the Stock Exchange, expressed the financial condition of that company on a partnership basis. The partnership was shortly thereafter incorporated in order to facilitate a plan of exchange of stocks with Standard Brands. Another illustration along this line, although in a somewhat different form, is furnished by Flintkote:

In December of 1926 the Flintkote Company sold 40,000 shares of common stock at $40 a share; and $2,500,000 par value 7 per cent cumulative convertible preferred stock to retire $452,200 of 7 per cent cumulative first preferred stock, to pay bank loans of $350,000, to provide working

[3] Letter from The Liquid Carbonic Corporation, March 14, 1939.

capital, and to acquire the Chatfield Manufacturing Company and the roofing department of the Richardson Company. In November 1928, and later, the company acquired certain assets of the Dawson Roofing Company and other companies. There is no official statement revealing the amount of securities of Flintkote Company issued directly or indirectly to finance these acquisitions. Late in 1928 the Anglo-Saxon Petroleum Company agreed to purchase, and later purchased, from Flintkote Company 330,614 shares of Class B stock of the Flintkote for $9,734,838.98. It is impossible for the outside investigator to prepare an accurate statement of the increase of capital liabilities of the Flintkote in consequence of these actions.[4]

In this case we assumed that the cash proceeds of the two common stock and one preferred stock issue was used to retire the 7 per cent preferred in 1936, to pay the bank loans of $350,000, and to retire the preferred stock at 110 on October 15, 1928. The balance of the common shares was used to secure control of the various companies noted above.

Other problems relating to the adjustments necessary as a result of the acquisition of other companies should be noted. If the plan of exchange involved the issue of securities by the acquiring company, and if *deductions* of payments by the acquiring company were made, it was assumed that the acquired company had no interest charges. If the acquired company had bonds outstanding, inaccuracies occurred. For example: Kennecott Copper in acquiring Chase assumed the payment of the latter's serial bonds; Continental Oil in acquiring Prudential Refining assumed the payment of the bonds of the latter company. In both cases reductions were made from the dividends paid on the stocks of the acquiring companies issued to effect these acquisitions, although neither the interest of the acquired company was added for the period prior to acquisition, nor subtracted from the interest of the acquired company after the acquisition. This departure from the ideal of accuracy is not important. It applies largely to companies with small interest payments. Most of the companies acquired by the larger companies whose securities are listed on the New York Stock Exchange were built up with little interest.

If the acquisition was effected through the issue of senior securities of the acquiring company, and if the interest and distributions of the acquired company were not available, the deductions from the payments on the senior securities by the acquiring companies, until the year in which the senior securities were retired, were made

[4] Letter from The Flintkote Company, March 27, 1939.

annually. Here, again, a departure from rigid accuracy is involved. The senior securities in some cases were retired from the proceeds realized from the sale of other senior securities of the same companies, or from the proceeds of the common stock sales of that company or of its subsidiary.

APPENDIX II

LIST OF COMPANIES SUPPLYING INFORMATION ON INTEREST AND DIVIDENDS PAID BY THE CORPORATIONS AND PREDECESSOR CORPORATIONS FOR SOME YEAR OR YEARS UNDER STUDY, 1923-1936

Abbott Laboratories
Abitibi Power & Paper Company, Ltd.
Acme Steel Company
Air-Way Electric Appliance Corporation
Allegheny Steel Company
American Chain & Cable Company, Inc.
American Chicle Company
American Colortype Company
American Home Products Corporation
American Seating Company
American Stores Company
The American Sugar Refining Company
American Type Founders, Inc.
American Writing Paper Company, Inc.
A. P. W. Paper Company
Archer-Daniels-Midland Company
Armstrong Cork Company
Arnold Constable & Company
Artloom Corporation
Atlantic Gulf and West Indies Steamship Lines
Auburn Automobile Company
Austin, Nichols & Company, Inc.

Best & Company
Blaw-Knox Company
Bloomingdale's
Bon Ami Company
Borg Warner Corporation
Botany Consolidated Mills, Inc.
Briggs & Stratton Corporation
Bristol-Myers Company
The Bullard Company
Bulova Watch Company

Burns Bros.
Byron Jackson Company

Canada Dry Ginger Ale, Inc.
Caterpillar Tractor Company
The Celotex Corporation
The Champion Pulp and Fibre Company
Checker Cab
Chicago and Eastern Illinois Railway
Chicago Great Western Railroad Company
Chicago, Indianapolis & Louisville Railway
Chicago Mail Order Company
Chicago, Milwaukee, St. Paul and Pacific Railroad Company
Chicago and Northwestern Railway Company
Chicago, Rock Island and Pacific Railway Company
City Stores Company
Collins & Aikman Corporation
Colonial Beacon Oil Company, Inc.
Columbia Pictures Corporation
Commercial Investment Trust Corporation
Commercial Solvents Corporation
Commonwealth & Southern Corporation
Condé Nast Publications, Inc.
Consolidated Laundries Corporation
Consolidated Oil Corporation
Container Corporation of America
Continental Baking Corporation
Continental Diamond Fibre Company
Cream of Wheat Corporation
Crosley Radio Corporation
Crown Cork & Seal Company, Inc.
Curtis Publishing Company
Cutler-Hammer, Inc.

Detroit Edison Company
Dome Mines, Ltd.
Dominion Stores, Ltd.
S. R. Dresser Manufacturing Company
Duplan Silk Corporation

E. I. Du Pont de Nemours & Company, Inc.
Eastern Cuba Sugar Corporation
Eastern Rolling Mill Company
Eaton Manufacturing Company
Eureka Vacuum Cleaner Company, Inc.

Wm. Filene's Sons Company
Flintkote Company

Florence Stove Company
Florsheim Shoe Company.

Gabriel Company
Gamewell Company
Gannett Newspapers
General Baking Company
General Cable Corporation
General Mills, Inc.
General Printing Ink Corporation
General Railway Signal Company
General Steel Castings Corporation
General Time Instruments Corporation
Gimbel Brothers, Inc.
Glidden Company
Gold Dust Corporation
Great Western Sugar Company
H. L. Green Company, Inc.
Guantanamo Sugar Company

W. F. Hall Printing Company
Hamilton Watch Company
Hazel Atlas Glass Company
Hecker Products Corporation
Hershey Chocolate Corporation
A. Hollander & Son, Inc.
Household Finance Corporation

Industrial Rayon Corporation
Interborough Rapid Transit Company
International Printing Ink Corporation
Intertype Corporation

Kennecott Copper Corporation
Kimberly-Clark Corporation
G. R. Kinney Company, Inc.

Lane Bryant
Lehigh Portland Cement Company
Lehn & Fink Products Company
Lily-Tulip Cup Corporation
Lit Brothers

Manati Sugar Company
Mandel Brothers
Marshall Field & Company
McCall Corporation

McGraw-Hill Publishing Company, Inc.
McKeesport Tin Plate Company
McKesson & Robbins, Inc.
McLellan Stores Company
Mead Corporation
Mesta Machine Company
Milwaukee Electric Railway and Light Company
Minneapolis-Honeywell Regulator Company
Missouri Pacific Lines
Mohawk Carpet Mills, Inc.
Moody's Investors Service
Motor Products Corporation
G. C. Murphy Company

National Bank of Commerce, Yakima Branch
National Dairy Products Corporation
National Department Stores Corporation
National Gypsum Company
National Lead Company
National Malleable and Steel Castings Company
National Steel Corporation
National Supply Company
Natomas Company
Neisner Brothers, Inc.
New Orleans, Texas & Mexico Railroad Company
New York City Omnibus Corporation
New York New Haven and Hartford
Noranda Mines, Limited
Norfolk Southern Railroad Company

Oliver Farm Equipment Company

Pacific American Fisheries, Inc.
Pacific Mills
Paramount Pictures, Inc.
Penick & Ford, Ltd., Inc.
Pennsylvania Coal and Coke Corporation
Pennsylvania-Dixie Cement Corporation
Peoples Drug Stores, Inc.
Pet Milk Company
Philadelphia Rapid Transit Company
Phillips Petroleum Company
Phoenix Hosiery Company
Pillsbury Flour Mills Company
Pittsburgh Screw and Bolt Corporation
Plymouth Oil Company
Poor & Company

Public Utility Engineering and Service Corporation
Pullman Incorporated
Purity Bakeries Corporation

Raybestos-Manhattan, Inc.
Real Silk Hosiery Mills, Inc.
Revere Copper and Brass Incorporated
Reynolds Metals Company, Inc.
Reynolds Spring Company
Ritter Dental Manufacturing Company, Inc.

Safeway Stores, Inc.
St. Louis-San Franciso Railway Company
Seaboard Air Line Railway
Sears, Roebuck and Company
Securities Company of Milwaukee, Inc.
Sharp & Dohme, Inc.
Frank G. Shattuck Company
W. A. Sheaffer Pen Company
Shell Union Oil Corporation
Sidney, Blumenthal & Company, Inc.
Simmons Company
A. O. Smith Corporation
L. C. Smith & Corona Typewriters, Inc.
Spang, Chalfant & Company, Inc.
Sparks-Withington Company
Square D Company
Standard Statistics Company, Inc.
Sterling Products, Inc.
Superheater Company
Superior Oil Corporation
Sutherland Paper Co.

Thompson's Restaurants
Thompson-Starrett Company, Inc.
Tide Water Associated Oil Company, Inc.
Twentieth Century-Fox Film Corporation

Ulen & Company
Underwood Elliott Fisher Company
Union Carbide and Carbon Corporation
United American Bosch Corporation
United Biscuit Company of America
United Carbon Company
United Drug Company
United Electric Coal Companies
United States Gypsum Company

United States Hoffman Machinery Corporation
Universal Leaf Tobacco Company, Inc.

Vadsco Sales Corporation
Van Raalte Company, Inc.
Virginia Carolina Chemical Corporation
Virginia Iron Coal and Coke Company
The Vulcan Detinning Company

Wabash Railway Company
Walgreen Drug Stores
Walworth Company
Warner Bros. Pictures, Inc.
Warren Brothers Company
Warner-Quinlan Company
Warren Foundry & Pipe Corporation
The Wayne Pump Company
Wesson Oil & Snowdrift Company, Inc.
The Western Pacific Railroad Company
Westvaco Chlorine Products Corporation
White Rock Mineral Springs Company
S. S. White Dental Manufacturing Company
White Sewing Machine Corporation
Wilson & Company, Inc.
F. W. Woolworth Company

L. A. Young Spring & Wire Corporation

Zenith Radio Corporation
Zonite Products Corporation

APPENDIX III

LIST OF CORPORATIONS WHICH FURNISHED INFORMATION ON ADJUSTMENTS RELATING TO ACQUISITIONS AND MERGERS

Air Reduction Company, Inc.
Allen Industries, Inc.
Allied Stores Corporation
Allis-Chalmers Manufacturing Company
American Brake Shoe and Foundry Company
American Car and Foundry Company
American Ice Company
American Machine and Metals, Inc.
The American Rolling Mill Company
American Smelting and Refining Company
Anaconda Wire & Cable Company
Archer-Daniels-Midland Company

Blaw-Knox Company
Borg Warner Corporation
Bucyrus-Erie Company
Edward G. Budd Manufacturing Company
Budd Wheel Company
Byron Jackson Company

Campbell, Wyant & Cannon Foundry Company
Childs Company
Cluett, Peabody & Company, Inc.
Commercial Investment Trust Corporation
Consolidated Oil Corporation
Continental Can Company, Inc.
Continental Oil Company

The Detroit Edison Company
Dixie-Vortex Company
E. I. Du Pont De Nemours & Company, Inc.

Flintkote Company, Inc.

General Cable Corporation
General Foods Corporation

General Time Instruments Corporation
Gotham Silk Hosiery Company, Inc.

Hemphill, Noyes & Company
Holly Sugar Corporation
Houdaille-Hershey Corporation

Industrial Rayon Corporation
International Paper Company

Jewel Tea Company, Inc.

Kennecott Copper Corporation
G. R. Kinney Company, Inc.
Kroger Grocery & Baking Company

Lehigh Valley Coal Company
Lima Locomotive Works, Inc.
Liquid Carbonic Corporation

R. H. Macy & Company, Inc.
Marlin-Rockwell Corporation
Mead Corporation
Milwaukee Electric Railway and Light Company
Murray Corporation of America

National Dairy Products Corporation
National Gypsum Company
New York Shipbuilding Corporation
Nichols Copper Company

Outlet Company

Park Utah Consolidated Mines Company
Penick & Ford, Ltd., Inc.
Pillsbury Flour Mills Company
Pittsburgh Stock Exchange
Poor's Publishing Company
Procter & Gamble Company

Raybestos-Manhattan, Inc.

St. Joseph Lead Company
Savage Arms Corporation
Servel, Inc.
Frank G. Shattuck Company
Simms Petroleum Company

Socony-Vacuum Oil Company, Inc.
Stewart-Warner Corporation

Thompson Products, Inc.
Tide Water Associated Oil Company, Inc.
Timken-Detroit Axle Company

Union Carbide and Carbon Corporation
United States Rubber Company

Waldorf System Inc.
Warren Brothers Company
Westvaco Chlorine Products, Corporation

Yale & Towne Manufacturing Company
L. A. Young Spring and Wire Corporation

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