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DESCRIPTION OF INDUSTRY

AN INTRODUCTION TO ECONOMICS

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DESCRIPTION OF INDUSTRY

CHAPTER I

WORK

"A body is said to be well organized when each part has its own work to perform, when by performing this work it contributes to the well-being of the whole, so that any stopping of this work injures the whole; while, on the other hand, each part depends for its own well-being on the efficient working of the other parts."—MARSHALL.

THIS book undertakes to describe the business world, and to explain the rules and principles that control men as citizens in that world. The badge of citizenship in the business world is work. Everyone who lives must live from work, for there is no other way of producing those things that support life or that contribute to the comforts and pleasures of living. While work may not be, and should not be, the chief end of living, it is the chief occupation in life. It is for this reason that a study of the nature of work, of the conditions under which men work, and of the rules and principles according to which efficient work may be done, is a highly important study. To understand the business world is a significant part of education.

§ 1. The Nature of Work.—The nature of work will be adequately presented by considering four points respecting it.

(a) *Its Definition.*—That work is bound up with energy and effort is the common experience of all; but not all effort and energy is work. Work is a means to an end; it is not an end in itself. This distinction will be clear when it is seen that an expenditure of effort and energy may be

either work or play according to the conditions under which it is made, or the reasons for which it is undertaken. When boys play ball, for example, they put forth a large amount of effort and energy, but this is not work. They play for fun, they do not play for pay. It is not a means by which they secure an income. The physical pleasure of action and the mental pleasure of emulation is all the pay they ask. When, however, a member of the American League plays ball he does so for the money paid him as a player. When he receives money for playing, he is no longer an amateur; he becomes a professional ball player. He is a worker and as much a member of the business world as a man who digs coal in a mine, who drives a locomotive, who clerks in a store, or who follows the calling of a teacher.

From this illustration, and many others will suggest themselves, one significant fact is disclosed with regard to work. (The word covers all effort, energy, or activity put forth as a means to an end, that end being the attainment of an income.)

(b) *Not Bound up with Pain.*—It is commonly said that work is bound up with pain, but this assumption is not quite correct. Some kinds of work are painful. All kinds of work may be painful under some conditions; but the pleasure that comes with mental and physical effort, when one feels strength and vigor, is quite the same whether the effort is work or play. The difference is that effort put forth as an end may be stopped when one has had enough; while work, effort put forth for an end and under the pressure of an organized service, is seldom stopped this side of exhaustion.

The idea that work is painful and on that account to be

shunned, grew up because workers have been driven, or drive themselves, beyond the limit of endurance. When one rises in the morning refreshed by healthful sleep, he feels ready for anything. He goes to work and for a time his work is a pleasure. As the hours pass, and he has spent the freshness of his vitality, he begins to know that he is working. He is conscious that his muscles and nerves need prodding. He is inclined to stop because he has had enough.

This, however, is not the way of the business world. Work commonly continues until the last hour of the working day. Then work brings pain and only the lashing of the will keeps the weary mind and body up to the mark. This picture of the working day is, of course, a figure of speech, but it makes clear the fact that, while work in itself is not painful, we have come to think of it as bound up with pain, because we remember only the pain that comes with over-work. If a decree should go forth that all men must play for twelve hours a day, and for six days in a week, they would, at the close of a century, hate play worse than they now hate work. Even school boys get tired of too much vacation.

This explanation of the desire to shun work is of considerable importance, for one who desires to know the true nature of work, and this is as far as we care to carry the analysis at this time.

(c) *Mental and Physical Work.*—In speaking of work we commonly hold in mind physical effort, but mental effort put forth for industrial ends is also work. Indeed, a close study will show that the two kinds of work cannot be separated. All physical activity requires some degree of mental effort, and all mental effort is bound up with some

degree of physical activity. Work is called mental or physical according as the one or the other of these two kinds of effort is predominant.

This distinction between mental and physical work is made primarily for our convenience in the study of industrial matters. The work of the physician, the legislator, the teacher, or the preacher is called mental work. The management of an industry, whether great or small, falls in the same class. On the other hand, carpenters, masons, and all men who follow trades, are classed as physical workers. The same is true of farmers, miners, employees of railways, and the like. The impression to be gleaned from this paragraph is, that the common distinction between mental and physical work is of slight importance. Both classes of workers are citizens of the business world, and both must be considered in a study of industry.

(d) *Co-operative in Character.*—Another fact respecting the kind of work one sees in the business world is that it is co-operative. No man makes all the things he requires to sustain his life or to give him pleasure. On the contrary, he works at a particular trade, or gives all his time to some particular factory, or follows some particular profession or calling. In short, the work of every member of the business world is special in character. Every man produces more of that which he makes than he can possibly consume, and he does so day after day, and year after year. This he is safe in doing because he knows that what he makes can be sold, and that with the proceeds of the sale he can buy other things that he does not make.

This means that every worker who confines himself to a single line of work, does so with the understanding

that other workers will produce other lines of goods and that by exchange of goods between all workers, each can satisfy his many and varied wants.

§ 2. Organization Through Division of Labor.—The foregoing paragraph reads as though each worker owned the product of his work, and kept for himself the proceeds of its sale. This, of course, is not the case. The modern industrial world is a highly organized affair. One feature of this organization consists in the separation of workers into groups and the assignment of some particular task to each group or individual within the group. The combined result of work done in this way is a continuous flow of consumable goods of all kinds and sorts; that is to say, of those products that minister to the many and varied wants of men. The relation thus established between co-operative workers creates what is called industrial society,—a result of the extensive application of the principle of division of labor.

One feature of the organization of workers under the influence of the principle of division of labor is found in the many kinds and grades of industries that together make up the business world. Agriculture, Manufacturing, and Transportation may be named as grand divisions of industry, and many independent lines of production are to be found within the boundaries of each division. Every productive process, in its turn, is separated into business units which stand for groups of organized workers. The production of cotton goods may serve for an illustration. Here we have the growers of the raw cotton; the brokers and the railways who collect and carry the cotton bales to the factory; the factory which manufactures the raw cotton into cloth; the distribution of the cloth by the

wholesale dealers to the retail dealers; and, finally, the sale of the cloth by the retail dealers to the thousands of customers for whom it was made. In this illustration, six independent lines of business are combined to furnish consumers with cotton goods.

The application of the principle of division of labor may be seen also in the organization of each particular business. Every business unit shows as many groups of workers as there are clearly defined kinds of work. The manufacture of furniture, for example, calls for the selection and preparation of the lumber, the sawing to pattern, the carving or turning, the assembling of parts, the painting or finishing of the product. In large plants the arrangement of the buildings as well as the assignment of workers to working groups, shows the co-operative character of work within the factory grounds. An independent worker in a factory is impossible.

Even within the factory group, the results of the principle of division of labor may be seen. Each group worker may be assigned a different task and confine himself to the performance of that task. In the paint shop of our furniture factory, for example, one workman may have charge of finishing mahogany, one of cherry, one of maple, while to others may be given the task of finishing painted furniture. Specialization of the same sort will be found in the other groups of workers. But the important fact is that the work which each workman does fits in with what other workmen do and the result of this combined work is the finished factory product.

It thus appears that the principle of division of labor is responsible for the manner in which the productive process is organized. It first breaks up industry into a large num-

ber of business units, such as the growing of wheat, the mining of coal, the manufacture of shoes, the selling of groceries, and the like. In the second place, it breaks up these large units into groups of workers, and assigns to each group a specific task in the process of production. And, finally, specialization of work within the several groups is under the control of the principle of division of labor. Organization through specialization is the watchword of modern industrial methods.

The advantages that accrue on account of specialization in work, are many. It develops efficiency and skill on the part of individual workmen and by this means increases both the quantity and the quality of current production. It calls for an analysis of the various processes of production, and thus leads to the invention of labor-saving machinery. It provides an opportunity for men of peculiar gifts to do the kind of work for which they are best fitted. It makes general the benefits of varying climates, soil, mineral deposits, and the like. In short, it makes the industrial process a single process, in which each individual finds the place where he can do the best for himself and for the community, and in which Nature's gifts, although localized on the earth's surface, are made general for all. It is, of course, true that, at any particular time, the principle of division of labor is limited in its application, and that some of the results of the way in which this principle works are unfortunate. This, however, is nothing against the principle as such. It means rather that the perfect industrial organization has not yet been worked out. Our present lesson is that modern industrial efficiency rests on organization, and business organization in its turn is a result of the principle of division of labor.

§ 3. Meaning of Industrial Society.—It is usual for writers to use the phrase industrial society rather than business world, when explaining the manner in which the workers of the world are bound together. This phrase makes clear the fact that the idea of a business world is something more than that of an individual at work. Robinson Crusoe, while alone on his island, occupied most of his time in getting and fashioning those things necessary to sustain life and to gain some degree of comfort in living; but Robinson Crusoe, with his fishing, his planting, his herding, and his building, was not an industrial society. The point is that work, as it exists among peoples who have progressed beyond primitive conditions, is done by groups of workers organized under well-established and well-known conditions. We cannot understand the modern business world if we confine our attention to individuals. We must think of men as members of groups of workers, and of these groups as held together by some bond of common interest. (We must think of them as forming an industrial society.)

(Society may be defined as a union of men in unity of purpose.) There are as many societies as there are kinds of purposes or aims that lead men to act together. An organization for the control and management of school athletics is a society. So is a church, or the political union of men which makes the State. Industrial society stands for the union of men organized for the production and purchase of those things that minister to the necessities, the comforts, and the luxuries of life, or which in any way satisfy what is called our economic wants. It is a little difficult to grasp this idea of co-operative work as distinct from individual work. As a help to such an

understanding, three facts will be mentioned, designed to show the difference between work done individually and work done by groups industrially organized.

(a) *The Co-operative Product.*—The total amount of well-being, so far as that depends on the production and purchase of the products of work, is increased many fold by the fact that men work co-operatively rather than individually. Assume, for the purpose of illustration, a community composed of 10,000 men, and that each man working by himself can produce in a year one x wealth. The aggregate amount of wealth produced would be 10,000 x wealth. Suppose now this same number of men to work as a well-organized and well-administered body of workers; that many of these men are specialists and work together for the production of some particular things, which they offer in exchange for things produced by other workers; the amount of wealth produced under such conditions would be far in excess of the 10,000 x which resulted when each man in the community endeavored to satisfy his personal wants by his own labor. The product of 10,000 men organized as a body of industrial workers, might be 30,000 x wealth, the difference, or 20,000 x wealth, being the result of co-operation.

It is the extent to which team work, organized work, specialized work, is carried on that makes the industrial world of to-day so different from that of centuries ago. The fact that all work is now co-operative is the secret of the enormous growth of wealth in modern times. Even machinery and capital, of which we hear so much, is the result of co-operative industrial effort. The lesson to be learned from this paragraph is, that the manner in which men work is of more importance, so far as results

are concerned, than the fact that work is done. To understand the industrial organization, and to know the place which each worker holds in that organization, are the primary aims of a study of industrial society.

(b) *The Directing Intelligence.*—A second fact that helps to explain co-operative work is that organized industry seems to have an intelligence far beyond the intelligence of the men, or specialized groups of men, of whom industrial society is made up. The wonderful thing about the business world is, that some one somewhere knows the wants of every man and is working to make the particular thing that is able to satisfy those wants. A cowboy in Texas wants a dipper and he buys it at some cross-roads store. This dipper is made by a tinsmith in St. Louis, who buys the tin of a factory located in Indiana. For the manufacture of tin, sheet iron is needed, which is procured from Pittsburg where iron is manufactured. To make iron, ore is needed which comes from the mines in Minnesota. How does the man who digs ore in Minnesota know that the cowboy in Texas wants a dipper?

Or perhaps the Minnesota miner wants a woolen shirt, which he buys at the company store. The shirt is made by a clothier in St. Paul out of flannel manufactured in Massachusetts, out of wool grown in Argentina. How does the sheep herder in Argentina know that the miner in Minnesota wants a flannel shirt?

Or, to turn the illustration about, a physician in London prescribes beef tea for an invalid, and the cook is told to buy some beef to make the tea. This beef, procured from a London marketer, is cut from a quarter of beef that once roamed the plains of Texas and was herded by our cowboy who bought the dipper. How does the cowboy

know that an invalid in London will be in need of a cup of beef tea?

Most things appear simple until we try to explain them. The answer to the questions asked above is, that the Minnesota miner does not know that the Texas cowboy wants a dipper. The Argentina herder does not know that the Minnesota miner wants a flannel shirt. The Texas cowboy does not know that the London invalid wants a cup of beef tea. No one who works to make things for the market knows by whom they are to be consumed. There are millions of groups of workers making things that will be consumed by hundreds of millions of people diffused through many lands. The producer does not know the consumer, nor does he need to know him. There seems to be in industrial society an intelligence that works automatically and adjusts the amount and kind of things that workers produce to the needs and whims of those for whom the goods are made. This is a remarkable situation. It makes yet more clear the fact that the working organization which we call industrial society is something more than a mere aggregation of workers. It is an organization guided by an intelligence that eliminates useless work, and encourages useful work. How this is accomplished will be explained in the chapter that treats of Control of Industry. For the present, the lesson of this paragraph is that, in order to understand the business world, we must think of industrial society as though it possessed a peculiar intelligence of its own. The rules according to which this intelligence works, provided these can be discovered and expressed, are what Political Economists call the natural laws of the business world.

(c) *The Element of Time.*—A third fact may be men-

tioned which throws yet added light on the character of the modern industrial world. In primitive industry, the time between the beginning and the end of a productive process was very short; in modern industry, years may intervene before a product is finished and made ready for consumption. An illustration will make this clear.

So far as primitive industry is concerned, the matter is very simple. A savage on the shore of a tropical island feels the need of food; he walks to a grove and having selected a ripe banana, plucks it, eats it, and returns to sleep on the bed of sand that the waves have spread. The period of time covered by this cycle of industrial events,—the want, the work, and the satisfaction,—may be half an hour.

An inland savage in the Temperate Zone is not so favored by nature. Here the seasons determine the harvest, and the work demanded is to gather in the Fall what is to be consumed during the Winter. In this case, the cycle of industrial events covers a period of four or five months. The wants of the future are foreseen, and present work is done to provide for future satisfaction.

Neither of these cases, however, carries the idea of cooperative work, and in both cases the amount of satisfaction is limited by what Nature gratuitously gives. Let us assume that new wants have come into existence, such as the want of clothing and of shelter, and that the industrial process has developed far enough to make clear to the worker that these new wants can be satisfied with less work if part of the working time is given to the making of tools and machines with which to work. A tool may last for twenty years, and each year of its use it lightens the work of him who made it. It permits the worker either

to satisfy his wants with less labor, or to so use his labor as to satisfy a larger range of wants.

Let it be assumed, further, that the conditions of industry have so changed that our worker is a member of a working group, and that industrial intelligence has grown far enough to permit all workers to see that the product of the same working time will be increased by specialization, that is to say: by dividing the work up between them. Before this can happen it is, of course, necessary that the wants of workers have grown far beyond the simple wants of coarse food and rude shelter. A variety of wants must be felt before workers will organize their work according to the principle of division of labor. The point, however, is that when this stage of industrial development is reached, the element of time enters in as a condition of fruitful work in every line of labor.

This is true for several reasons, two of which may be named here. When a man, or groups of men, specialize in producing a given thing, that commodity or product must be made in large amounts, and must pass through the market in order to be sold. This takes time. The period between production and consumption,—or what we have termed the cycle of industrial events made up of wants, work, and satisfaction,—is not completed until the goods are in the hands of the consumer.

Again, since production is made up of a series of dependent processes, each process must be completed for a large output before the process that follows can be begun. This also means time. In the making of woolen cloth, for example, the sheep must be raised; the wool must be sheared and rough washed; it must then be carried to the factory where it is scoured and sorted; it is then spun

and woven, dyeing also being an independent process; it is then carried to the wholesaler, where it lies until purchased by a retailer, who keeps it until purchased by the consumer. Even then it is not ready for use until it is made up by the tailor into a suit for the consumer. Three, four, or possibly five years may intervene between the birth of a lamb and the donning of a coat.

Cases may be named in the modern industrial world in which fifty or an hundred years intervene between the doing of the work and the time when the wants of all who are consumers are satisfied as the result of that work. The citizens of Jackson and Grand Rapids, for example, want electric power for making light. This power is produced at a dam on the Ausable River. One cannot say how long this dam will last. It may be fifty, or it may be an hundred years, but as long as it lasts, it will continue to deliver power. A cycle of industrial events may cover many generations.

The full meaning of time as an industrial factor cannot be here considered. The point of present importance is that no description of industrial society can be made which does not recognize time as a condition of efficient production.

§ 4. Bastiat's Picture of Co-operative Work.—One of the great writers of the last century was a Frenchman by the name of Frédéric Bastiat. He thought he was writing about men as workers; in fact, he always wrote from the point of view of organization. The quotation which follows paints a word picture of what industrial society means for an individual worker. It will help to make clear what co-operative work means.[1]

[1] This was written in 1850.

"Rousseau has said: 'Much philosophy is wanted for the correct observation of things which are before our eyes.' And such are the social phenomena in the midst of which we live and move. Habit has so familiarized us with these phenomena that we cease to observe them, unless something striking and exceptional forces them on our attention.

"Let us take, by way of illustration, a man in the humble walks of life—a village carpenter, for instance,—and observe the various services he renders to society, and receives from it; we shall not fail to be struck with the enormous disproportion which is apparent.

"This man employs his day's labor in planing boards, and making tables and chests of drawers. He complains of his condition; yet in truth what does he receive from society in exchange for his work?

"First of all, on getting up in the morning, he dresses himself; and he has himself personally made none of the numerous articles of which his clothing consists. Now, in order to put at his disposal this clothing, simple as it is, an enormous amount of labor, industry, and locomotion, and many ingenious inventions, must have been employed. Americans must have produced cotton, Indians indigo, Frenchmen wool and flax, Brazilians hides; and all these materials must have been transported to various towns where they have been worked up, spun, woven, dyed, etc.

"Then he breakfasts. In order to procure him the bread which he eats every morning, land must have been cleared, enclosed, labored, manured, sown; the fruits of the soil must have been preserved with care from pillage, and security must have reigned among an innumerable multitude of people; the wheat must have been cut down,

ground into flour, kneaded, and prepared; iron, steel, wood, stone, must have been converted by industry into instruments of labor; some men must have employed animal force, others water power, etc.; all matters, of which each, taken singly, presupposes a mass of labor, whether we have regard to space or time, of incalculable amount.

"In the course of the day this man will have occasion to use sugar, oil, and various other materials and utensils.

"He sends his son to school, there to receive an education, which, although limited, nevertheless implies anterior study and research, and an extent of knowledge which startles the imagination.

"He goes out. He finds the street paved and lighted.

"A neighbor goes to law with him. He finds advocates to plead his cause, judges to maintain his rights, officers of justice to put the sentence in execution; all which implies acquired knowledge, and, consequently, intelligence and means of subsistence.

"He goes to church. It is a stupendous monument, and the book which he carries thither is a monument, perhaps still more stupendous, of human intelligence. He is taught morals, he has his mind enlightened, his soul elevated; and in order to this we must suppose that another man had previously frequented schools and libraries, consulted all the sources of human learning, and while so employed had been able to live without occupying himself directly with the wants of the body.

"If our artisan undertakes a journey, he finds that, in order to save him time and exertion, other men have removed and levelled the soil, filled up valleys, hewed down mountains, united the banks of rivers, diminished friction, placed wheeled carriages on blocks of sandstone or bands

of iron, and brought the force of animals and the power of steam into subjection to human wants.

"It is impossible not to be struck with the measureless disproportion which exists between the enjoyments which this man derives from society and what he could obtain by his own unassisted exertions. I venture to say that in a single day he consumes more than he could himself produce in ten centuries.

"What renders the phenomenon still more strange is, that all other men are in the same situation. Every individual member of society has absorbed millions of times more than he could himself produce; yet there is no mutual robbery. And, if we regard things more nearly, we perceive that the carpenter has paid, in services, for all the services which others have rendered to him. If we bring the matter to a strict reckoning, we shall be convinced that he has received nothing which he has not paid for by means of his modest industry; and that everyone who, at whatever interval of time or space, has been employed in his service, has received, or will receive, his remuneration.

"The social mechanism, then, must be very ingenious and very powerful, since it leads to this singular result, that each man, even he whose lot is cast in the humblest condition, has more enjoyment in one day than he could himself produce in many ages."

CHAPTER II

CLASSIFICATION OF INDUSTRIES

"One of the most remarkable phenomena presented to the student of Economics is the ignorance of all sorts of persons as to their place and function in the industrial world."—TAUSSIG.

OUR first step in the analysis of the business world will be to classify the industries that compose it. The purpose of classification is twofold. In the first place, it will enable us to gain a broad view of the entire field of industry. By means of classification there will be disclosed to each worker his place in the world of industry, and his relation to and dependence upon other workers or groups of workers. The significance of co-operative work will thus be made yet more clear. In the second place, fruitful observation of what is going on in the business world will be greatly aided by bringing together in groups industries of the same class. In no other way is it possible to compare one kind of industry with another, to understand how they are knit together in a single business world, and to perceive that they are controlled by a uniform set of business principles and rules. Classification is the first step in scientific observation.

§ 5. The Fundamental Classification.—A satisfactory classification of any line of facts must rest on some element common to them all. The only element common to all lines of productive work, is the value of the product created or of the service rendered. What value is, why some things have value and other things equally useful

do not, why some things that have value can be sold for more at one time than at another; these and other similar questions will be studied later. For the present, it is enough to know that the chief purpose of industrial work is to create money value; that is to say, to produce goods that can be sold, or to render services for which a price will be paid. The kind of work involved in making the various sorts of marketable goods, or, what amounts to the same thing, the kind of value which results from productive labor, will be accepted as the basis for the classification of industries first submitted.

There are three lines of industries which contribute useful things that are bought and sold upon the market. These are:

The Extractive Industries, which have to do with getting the material out of which useful things are made,

The Manufacturing Industries, which have to do with the fashioning of that material so as to bring it into a usable shape or form or condition, and,

The Carrying Industries, which have to do with bringing things, whether raw material or completed products, from where they are not wanted to where they are wanted and can be used.

It is sometimes said that the Extractive Industries create a value of acquisition or possession; that the Manufacturing Industries create a value of form; and that the Carrying Industries create a value of place. If these phrases are used merely to draw a line between the three kinds of work above described, and are not used to explain the "nature" or "source" of value, they can do no harm and may be of help. They do suggest in a very clear manner the essential difference which exists between agricul-

ture, manufactures, and transportation, regarded as the three comprehensive branches of industry.

There is another line of work which does not seem to be covered by the above grouping of industries. This is the work of rendering a direct service; that is to say, a service useful in itself, and for which men are willing to pay, but which does not show itself in the increased value of any particular thing. The service rendered by a lawyer, a physician, a judge, a lawmaker, are illustrations of this kind of industrial work. As a matter of fact, most services that seem on their face to be indirect, do affect the value of some material things; and this class of industrial work, which, for convenience, may be called the "professions," is less significant in an analysis of industrial society than at first appears to be the case. This fourth group of industrial workers is mentioned rather to make our classification of business pursuits a complete classification, than because it is necessary to give much attention to professional or personal services in an elementary book. It is enough, for the present, to draw a clear picture of that part of the business world that has to do with the production and the sale of material things.

§ 6. The Extractive Industries.—All extractive industries fall under one of the four general heads of Agriculture, Aquaculture, Mining, and Forestration; the more common words are Farming, Fishing, Mining, and Lumbering.

(a) *Agriculture.*—Agriculture is a familiar word. It includes all forms of cultivation, from cattle grazing on wild lands to market gardening on land worth a thousand dollars an acre. Where hunting and trapping are important occupations, the definition of agriculture must be

extended to include these forms of work. The herding of sheep, horses, cattle, and the like, as practiced by nomadic peoples is an agricultural pursuit. Agriculture, as we now commonly use the word, is the primitive industry of all peoples who have bound themselves to a particular spot, calling that their home. It is the industry upon which all other industries rest, and on that account is of fundamental importance.

(b) *Aquaculture.*—Aquaculture is not a well-established word. It is here used to suggest the second class of extractive industries, and includes all those lines of work (which take from the water, or cultivate under the water, things which have a market value.)Foods, metals, jewels, fabrics, fibers,—indeed, practically all of the kinds of goods drawn from the air or the earth can be obtained in some form from the water. Aquaculture is in its possibilities second only to agriculture as furnishing an opportunity for workers. Unless the present tendency to the increase of population be in some way checked, it will, in the years to come, claim an ever increasing share of the attention of industrial workers.

(c) *Mining.*—The industry of Mining requires no descriptive definition. Mining differs from agriculture in that the work involved has nothing to do with the growth of the product. It is strictly confined to the gathering or the extracting of what nature unaided has produced. The farmer is said to produce the crop which he gathers at the harvest. The miner, in this sense, produces nothing; he is merely the harvester of a product. To use language accurately, the commodity which he places on the market for sale is not a "product," but an "output." The distinction between agriculture and mining which

these words suggest, is a real distinction. The point is that the farmer must put back into the soil all that he takes out in the form of product; otherwise, he would exhaust the soil. He must also keep the soil in a condition to enable plants to take material from the air. The miner cannot restore to the earth what he takes out; nor can his work in any way increase product. Although his labor adds to the goods on the market, it tends in so doing to exhaust the resources of the nation. Agriculture is an industry that can go on forever; mining must stop when all the minerals are taken from the earth.

This distinction between farming and mining goes far to explain the different ways in which these two industries are treated by the government. In the matter of taxation, for example, mines and farms are commonly taxed according to different principles. Another illustration is found in the fact that when lands containing minerals are sold for farming purposes, the government frequently reserves all mineral rights. Our general theory is that the title to land carries with it ownership to the center of the earth, but an exception is frequently made in the case of land supposed to contain minerals. One who wishes to understand the business world, must consider the industry of mining as a class by itself.

(d) *Forestration.*—It is common to regard forestration as a peculiar form of industry. As practiced in this country, it is essentially similar to that of mining; that is to say, the forests, the growth of perhaps an hundred or two hundred years, are cut, and no steps are taken for restoration by the planting of young trees. In many European countries, however, forestration is like farming, with a harvest every thirty or forty years. The general fact

seems to be that what may be called the tree crop will not mature within the productive life of an individual, and for that reason men are not inclined to plant forests, although the timber when grown, cut, and marketed, has a high value. Only corporations that do not die, whether industrial corporations like railways and insurance companics, or political corporations like the states and the Federal government, are warranted in making investments in this sort of commercial ventures. It is this fact that makes it proper to regard forestration as a distinct industry. It is an extractive industry; but, in view of its peculiar character, it cannot be grouped either with agriculture or with mining.

§ 7. The Manufacturing Industries.—The service of the manufacturing worker is to change the raw material into a form suitable for use. The making of cloth out of cotton or of wool, the making of furniture out of wood, the making of breakfast foods out of wheat or of corn, the making of wine out of grapes, the making of medicines out of chemicals, are all illustrations of the manufacturing process. Ordinarily, the finished product has a greater value than the material out of which that product is made, and the value thus added to the material is called the value of form. The material, having been adapted to the needs and wants of men, will commonly sell for more as a finished product than in an unfinished condition. This fact suggests clearly how manufacturing labor is useful to the manufacturer and why it commands a price.

(a) *Classification by Output.*—It is not possible to make a single classification of manufacturing industries from which one may learn all that should be known respecting this important branch of production. The classification

usually made divides manufacturing industries according to the kind of commodities produced. This is a good classification if its purpose is to show the wide range of work covered by this group of industries. It is the classification adopted by Congress in framing tariff legislation. The following is a list of the various kinds of industries covered by that law:

Schedule "A," chemicals, oils and paints,
Schedule "B," earths, earthenware and glassware,
Schedule "C," metals, and manufactures of,
Schedule "D," wood, and manufactures of,
Schedule "E," sugar, molasses, and manufactures of,
Schedule "F," tobacco and manufactures of,
Schedule "G," agricultural products and provisions,
Schedule "H," spirits, wines and other beverages,
Schedule "I," cotton manufactures,
Schedule "J," flax, hemp and jute, and manufactures of,
Schedule "K," wool and manufactures of,
Schedule "L," silk and silk goods,
Schedule "M," pulp, papers and books, and
Schedule "N," sundries.

It will be observed that some few agricultural and mining products are included in the above list but, for the most part, they are mentioned because of their connection with manufactures. It is apparent from this list that the manufacturing industry occupies a large field in the world of business. It offers an almost unlimited opportunity for investments and for choice of occupation on the part of the worker. From it one may gain a clear idea of what is meant by specialization in industry. The scope of the manufacturing industry as shown by the variety of goods made, as also the degree of excellence attained in the management of factories, is commonly accepted as the best test

of the stage of industrial development at which a country has arrived. The history of the growth of industry, especially in the nineteenth century and at the present time, is largely concerned with the history of manufactures.

(b) *Classification by Material used.*—Every manufacturer buys what he calls his raw material and sells what he calls his finished product. In many cases, the finished product of one factory will be the raw material for another. Thus, wheat is a raw material for the miller who manufactures flour; flour is the raw material for a baker. In a country of highly specialized industries, there may be as many independent factories as there are steps or processes in the making of the finished products, in which case there will be as many different sorts of raw material as there are kinds of factories.

It is because the process of manufacture is organized in this way that manufacturing industries are sometimes classified as:

Those that use crude raw materials,

Those that are one step removed from crude raw materials,

Those that are two steps removed from crude raw materials, and so on, down to the finished product. This interdependence of factories is a phase of modern business organization. It is largely responsible for the efficiency of the modern productive process. From the classification of industries on the basis of the kind of material which each factory uses, one gains a yet clearer impression of what is meant by industrial organization under the influence of the principle of division of labor. Each step in the progress from raw material to the finished product is an illustration of that principle.

(c) *Classification by Elements of Cost.*—A third possible classification of manufacturing industries rests on what is known as the elements of cost that enter into every manufactured product. These elements are various, but the illustration here submitted is confined to what is called the labor cost and the cost that covers the use of machinery. A factory that produces a product worth $500, of which $450 is the amount paid to workers as wages, is a very different thing from a factory that pays but $200 in wages in order to make a product worth $500. Some of the big questions of factory management turn on this difference. For example, the invention of a new machine to be used as a substitute for labor would be of relatively greater importance in the first than in the second of the assumed cases. The effect of a labor-saving device on prices, or of improved organization, also, is greater. This is no place for the discussion of the technique of business management, but it is worth while to know the practical bearing of a classification of industries on the basis of an analysis of costs.

§ 8. The Carrying Industries.—(The service of the industries here called the carrying industries is to bring goods to those who want them at the time when they are needed.) A loaf of bread is of no value to a hungry man unless he can get it in his possession. Coal at the mine has no value for the consumer unless he is assured that it will be put in his coal bin where he can get at it. A book printed in London has no value unless it can be delivered to him by a book dealer or the postman. From these illustrations, it is evident that any satisfactory arrangement of industry must make provision for the transportation and distribution of goods, and that those workers who

render this service are as necessary to a well-organized industrial society as those who are engaged in agricultural or manufacturing pursuits. Their labor is productive labor. This point will be explained in the chapter upon the Market. It is referred to here in order to avoid an erroneous conclusion with respect to the conditions under which value exists.

The carrying industries may be grouped under three general heads according to the character of the service rendered. These are:

The service rendered by merchants,

The service rendered by transportation agencies, and

The service rendered by bankers and other business men who have to do with what is called credit.

(a) *The Service of Merchants.*—It is the peculiar service of the merchant that he discovers the wants or needs of consumers and devotes his time and money to the satisfaction of those wants. He buys the goods from the producer or the manufacturer in order to sell them again to the consumer at the time and the place where they can be of the greatest use. He makes the oranges of Florida, the cotton goods manufactured in Massachusetts, the wheat grown in the Dakotas, available for consumption by every man, woman, and child throughout the length and breadth of the land. It is he who assumes the risk of buying in large quantities in order to supply consumers with the small amounts which they may need. His pay for this service is what is known as the merchant's profit; it is the difference between the price which he pays and the price at which he sells, less the amount required for current expenses. The merchants have always played an important rôle in industrial society.

(b) *The Transportation Service.*—Under the head of the transportation service are included those who own the machinery for, and do the work of, carrying goods. They do not own the goods transported. They are not responsible for selecting the kind of goods to be carried. It is their task to receive the goods that are delivered to them for shipment and to deliver them to those to whom they are consigned. The service which they perform is ordered before it is rendered, and, for the most part, it is prepaid. Railways do not assume commercial risks such as are assumed by the merchant. They render a definite service, and for this service make a definite charge.

A list of the transportation agencies which make up the transportation service as it appears in the United States may assist us to comprehend the significance of transportation to the modern business world. In addition to roads and highways, rivers and lakes, and water fronts for harbors and docks, the modern system of transportation covers quite a number of more or less separate industries. The following is a list of such industries: Railways, express companies, pipe lines, post-office, sleeping car companics, telegraph companies, and telephone companies. From this list, one may readily see that the business of transportation holds a very respectable place in the industrial world as that world is organized in the United States.

(c) *The Service of Banks.*—It may seem a little strange to classify banks along with merchants and railways, but such is their proper place. The most important function of banks is their exchange function, and the mechanism of commercial exchanges which the banks have created, and which they administer from day to day, has to do with

the carrying industries quite as much as the buying and selling of goods by merchants, or the carrying of those goods by the railways. It requires the joint work of banks, merchants, and transportation agencies to carry goods through the various steps of their manufacture from the producer to the consumer. A description of credit exchanges through banks will be found in Chapter XI.

In order to bring together the points covered by the foregoing classification of industries, the following outline is submitted:

Outline of the Foregoing Classification

- Industrial Society
  - 1. The Extractive Industries
    - Agriculture
    - Aquaculture
    - Mining
    - Forestration
  - 2. The Manufacturing Industries
    - Classification by Output
    - Classification by Material
    - Classification by Elements of Cost
  - 3. The Carrying Industries
    - The Service of Merchants
    - The Service of Transporters
    - The Service of Bankers

From the above outline, we gain a general survey of the entire field of industry. It gives a concrete expression to the fact that all work is co-operative in character. It makes

clear the essential unity of industrial society and discloses to every worker the place he occupies in that society.

The outline renders also another service. It prepares us to recognize that each of the three classes of industries named shows results peculiar to itself. Further study will disclose the fact that the natural business laws which control agriculture do not apply to manufacture, and the business principles which control transportation are peculiar to this branch of industry. We must, therefore, be prepared to approve different rules and different policies for the treatment of various lines of business, according as they are grouped under the Extractive, the Manufacturing, or the Carrying Industries.

§ 9. The Business of Buying and Selling.—In one respect the foregoing outline leaves a wrong impression. The service of the merchant is grouped under the Carrying Industries. So far as the nature of the service is concerned, this is correct. The work of the merchant does give rise to a value of place. Merchants render a useful service in that they bring things from where they are not wanted to the place where they can be used. (It would be incorrect, however, if one should conclude that the function of buying and selling is confined to the particular class of business men called merchants.)

The truth is that every kind of industry of which one can imagine, if it is carried on as a part of industrial society, must buy and sell. The farmer buys fertilizer and sells grain; the fisherman buys bait and sells fish; the manufacturer buys raw material and sells a finished product; the management of a railway buys locomotives and cars and sells transportation. So evident a truth might not be worth the saying, were it not for the fact that

it is frequently overlooked. Many laws passed by Congress and Legislatures fail to recognize that buying and selling pertain alike to all lines of production The above outline is correct only when the service of the merchant is confined to those whose main business is that of buying goods for the purpose of selling them again at a higher price.

CHAPTER III

THE LEGAL FRAMEWORK OF INDUSTRY

"The place of Law in Political Economy is a subject which has received from English Economists no attention at all commensurate with its far reaching importance."—J. R. COMMONS.

SOONER or later everyone must make a place for himself in the world of industry. He must choose what he will do in order to make a living. For some this is to find a job; for some, it is to choose a trade; for some, it is to take up a profession, or to enter upon some definite line of business. But whatever the grade or kind of work chosen, everyone, when he begins to work, finds himself surrounded by laws which he must obey, and by established business rules and commercial customs to which he must conform. He also finds himself under the protection of government. It is these laws and these rules, together with the machinery of government by which they are enforced, that make up what is here termed the legal framework of industry.

§ 10. The Principle of Liberty.—A study of the legal background of industry comes to be, from one point of view, a study of the manner in which the principle of liberty gives life and form to industry. The bearing of this statement will be suggested by three remarks respecting our system of modern industrial law.

It must not be supposed that laws and rules of conduct, even though they may be enforced by the police and courts, curtail the liberty which men so highly prize. On the contrary, such laws and rules are essential for the realization of what is called industrial liberty. The framework of a

house raises a barrier between the householder and those adverse elements that lie without. Its walls give protection against heat, cold, and rain, and the encroachments of evil-minded men, but within the dweller moves freely and with safety. So it is with industrial laws and business rules. Not only do they give character to industrial society; but they raise a barrier against pernicious interference with the manner in which one chooses to manage his own affairs. They serve primarily as the protector of each and every citizen in the exercise of his industrial rights and business privileges. Within the protection of these laws and customs, the industrial worker moves safely and without restraint. There can be no liberty without law.

Another result of the fact that work is carried on under carefully devised legal conditions is that the efficiency of all work is thereby increased. These rules serve to direct and to co-ordinate all kinds of industrial effort, and thus make effective the power that lies in industrial freedom. This, also, may be illustrated by an analogy. The framework of a locomotive confines the power generated by the burning of coal, and this it does in order to subject that power to control, and thus force it to expend its energy in a useful rather than in a useless or possibly a destructive manner. In the same way, the force of self-interest, the desire for money, or the ambition to control great business enterprises, may be destructive rather than productive, unless guided and controlled by laws so framed as to require men to work for a common end.

It is a fundamental principle of mechanics that control over power is obtained through the restraint of power. This principle applies equally well in the world of business. The legal framework of industry is that which guides and

controls men in the exercise of their industrial freedom. The laws and political institutions that stand back of all organized industry are essential for industrial success.

A third fact may be noted which throws further light on the character of industrial laws and business customs. The apparent purpose of all such laws and regulations is to encourage work by stimulating the self-interest of workers. It is recognized that industrial liberty is necessary for a high degree of industrial efficiency. There is, however, another purpose equally important and perhaps more fundamental, if one may judge by the history of the English speaking people. This purpose is so to organize co-operative work that the force which lies in organization will contribute to the welfare of the community as well as to the advantage of the individual. This explains why so many of the laws that touch industry are prohibitive laws. For example, the traffic manager of a railway is not permitted to favor one shipper as against another. This would be "discrimination," and "railway discrimination" is prohibited by Congressional act. Another illustration is found in the fact that no man is permitted to carry on a business that is a public nuisance or that disregards public interest. The end held in view by our system of industrial law is that the enduring welfare of society should be established and maintained.

From the foregoing, one may learn a significant lesson. The principle of liberty which for six centuries has been guiding the history of the English speaking people, finds its industrial expression in the system of law which that history has evolved.

§ 11. Classification of Legal Adjustments.—Industrial laws and customs are of two general sorts according to

the authority upon which they rest. They are either facts of history, like the absence of slavery or the institution of private property, or they are laws passed by some legislative body which prescribe the conditions under which men may work. Laws which prohibit child labor or which lay down rules for working in mines are illustrations of such enactments. The interpretation of laws given by courts or administrative officers falls under the same heading. Such interpretations define the conditions under which men must work. If to such legal adjustments are added the protective functions of Government, provision will have been made for a complete survey of the legal framework of industry. An outline of such a survey is found in the following classification of those laws and rules of conduct which make up the background of our industrial society.

Analysis of the Legal Framework of Industry

- Legal framework of Industry
  - I. Primary rights that rest on history
    - 1. Law of Property
      - a. Property in Land
      - b. Property in Capital
      - c. Property in Organization
      - d. Property in consumable Goods
    - 2. Law of Person
      - a. Industrial freedom
      - b. Equality of opportunity
      - c. Number and movement
      - d. Voluntary association
  - II. Secondary rights that rest on Acts of government
    - 1. Rules imposing Conditions of work
      - a. Laws which prescribe condition
      - b. Laws which provide for supervisory control
      - c. Laws which provide for administrative control
    - 2. Government as Protector
      - a. Protection against aggression from without
      - b. Protection from violence within
      - c. Enforcement of legal contracts

To understand the above outline in all its bearings calls for a knowledge of industrial history greater than those for whom this book is written are likely to possess. For that reason, we shall pass without comment the philosophy which underlies our industrial history and come at once to the consideration of some of the practical results that flow from the system of rights and duties recognized by the modern business world. This will be done under the four headings named in the outline, that is to say:

The Law of Property,
The Law of Persons,
Laws imposing Conditions, and
Government as a Protector.

§ 12. The Law of Property. — The necessity of a law of property of some sort is an eternal necessity. No society, at least no industrial society that puts into practice the principle of division of labor, can exist without a law of property. The important fact about property is that it gives control over the thing owned. It gives some one the right to say where and how a thing is to be used. Under no other conditions will free men consent to work. Nature is quite as willing to produce a crop of weeds as to raise a crop of corn. She must be guided, controlled, coerced by men so to use her energies as to bring forth from the soil things useful to mankind. But no man will trouble himself to coerce Nature, that is to say, no man would undertake to cultivate the soil as a responsible worker, without some assurance that the crop, when grown, will belong to him.

What is true of the work of the cultivator of the soil, is equally true of every other kind of work. No one, except he be a slave, will work as a responsible producer

unless he has some interest in the result of his work. The sense of possession is a necessary condition to production. Modern peoples, let us say the Christian nations since the 16th century and especially the English speaking peoples, have sought to give this security to industrial workers by creating for men a property right in the instruments of production. (This, and all that it implies, is what is known to our law as the institution of private property.) According to this system of law, men may become proprietors of the instruments of production and are acknowledged owners of the products that result from the use of these instruments. They may buy and sell as they see fit those things which they own, and in every way control their use except it be that in their use they do something contrary to the interest of the public as a whole. From this it is evident that the institution of private property has given to men that liberty of action and control over work to which history gives the name of industrial freedom.

Further light will be thrown on modern industry by observing the kinds of things which the law gives workers the right to own. The present law recognizes

property in land,
property in capital,
property in organization, and
property in consumable goods.

(a) *Property in Land.* In the foregoing chapter, it was suggested that agriculture is the primitive industry, from which it follows that property in land is of very early date. Speaking generally, however, ownership of land used for cultivation was originally a common ownership. It was not until the 16th century that the right of in-

dividuals to exclusive ownership of land for industrial purposes was recognized by the English speaking people. At present, this idea of land has been extended to include all natural agencies of production which for any reason men may desire to own as private property. The income which the owner receives because of the fact of ownership is called rent. How rent arises, and how it is measured, will be considered in another place; for the present, it is sufficient to know that property which bears a rent is a class by itself; that the interest of the owners of such property is what is termed the landlord's interest; and that landlords will continue to be a permanent class in our industrial organization as long as private property in land continues to exist. (Land includes all instruments used in industry which Nature gratuitously provides.)

(b) *Property in Capital.*—A second class of industrial instruments are those which men have made by work. These instruments are covered by the comprehensive word "Capital." (Capital, then, may be defined as a product of past work used by workers in current production.) In this sense, a machine is capital. Improvements made on land are capital, and the food which workers use for present existence while working on goods that will not be completed for some considerable time, is capital. Our law recognizes these instruments of production as objects of private ownership. This fact gives rise to an industrial class known as capitalists and to the form of income known as interest. How capital assists production, what determines the interest paid for the use of capital and other similar questions will not be here considered. Our present purpose is satisfied when we recognize that those things which men fashion, or those goods which they accumulate

in order to assist present and future production, may be privately owned, and that this ownership gives rise to a capitalist class which receives an income in the form of interest.

(c) *Property in Organization.*—Our present law also recognizes property in organization. Work, we have learned, is co-operative, from which it follows that some form of organization must be created in which each worker finds a place and under which workers or groups of workers are directed and controlled for efficient production. The building of a business is quite the same as the making of instruments of production which we have called capital. It is not strange, therefore, that our law should recognize organization as an object of private ownership. (The revenue which comes to those who own industrial organizations is profit,) and owners of this class of property are spoken of throughout this book as industrial managers. They are responsible for combining land, capital and work in specific industries. They pay rent for the land occupied, interest for the capital used, wages for the workmen employed, and receive as their pay the difference between the cost of making a product and the proceeds arising from its sale.

(d) *Property in Consumable Goods.*—The end of all production is consumption. Things produced are said to be consumed when they are used up in the satisfaction of the wants for which they are designed. This, at least, is normal consumption. The eating of bread by a hungry man is consumption. To wear out a suit of clothes is consumption of the clothes. To wear a clean shirt until it is soiled and ready for the laundry is to consume the cleanness of the shirt. To be warmed by the coal burnt in a furnace is to consume the coal. To live in a house while the paint grows

old and dingy is to consume the paint. For thousands of men to ride millions of miles behind a locomotive until finally the locomotive is passed to the scrap heap, is to consume the locomotive. Thus consumption, or rather the satisfaction of human desires through consumption, is the end of all production.

Speaking generally, the law of private property applies to all kinds of consumable goods. There are very few things over which the state assumes the right of exclusive purchase. And when an individual in the exercise of his right buys a commodity, he can do with it as he sees fit. Without going into details, it is evident that the legal system under which we live aims to give the same liberty of choice in the realm of consumption as in that of production. Freedom of individual action in the latter realm is attained through the law of property in land and capital; freedom in the former is attained through the law of property in consumable goods. In both cases, the purpose of the law of property is to place full and complete responsibility on individuals for their industrial conduct and their personal happiness.

§ 13. The Law of Personal Liberty.—The social aim of the English speaking people, as disclosed by their history, is the realization of personal liberty.

The rights conferred and the duties imposed by what is sometimes called the Law of Persons, so far as they pertain to industrial affairs, may be grouped under the following heads:

Individual Freedom,
Equality of Opportunity,
Number and Movement, and
Voluntary Association.

(a) *Individual Freedom.*—A study of the growth of industry shows three conditions under which the great body of workers have been obliged to work:—first, that of slavery; second, that of serfdom; and third, that of free-men working for wages. The class of workers to whom this generalization applies are commonly called laborers, and that word will be used in what follows.

Under *slavery*, the laborer is the property of his patron or his master. The various ways by which men came under the yoke of slavery, while an interesting story, pertains to another study than the one which now claims our attention. It is sufficient to recognize that under this form of industrial organization, the slave has no rights. He assumes no duties. In short, he has no standing whatever before the law. Great civilizations, as for example the Roman civilization in one period of its history, have rested on slave labor, but these civilizations were in almost every particular different from the world with which we are familiar.

In order to understand the condition of *serfdom*, we should know feudalism. A serf is a feudal laborer. He is not property in the sense that a slave is property, nor is he a freeman in the sense that the modern wage earner is a freeman. His rights and his duties are clearly expressed by the industrial customs of the time. The point of importance is that the serf was recognized by the law. That tremendous thing known as Feudalism was built on serf labor. Its organization, its rules of production, as also its industrial results were different from the world with which we are familiar.

By contrast with the slave and the serf, the *laborer* of to-day is a workman who stands before the law as any other,

worker. If one must speak of laborers in the language of property, the modern laborer owns himself and the law does not permit him to part with that ownership. So far as the law is concerned, there is no labor class. All men are equal before the law. No man is compelled by law to be a laborer. This is our first important lesson.

When, however, one observes the situation as it is in the modern business world, he is obliged to recognize a labor class, and to acknowledge that this fact gives character to modern industry. The labor class of to-day is composed of freemen who work for wages. It is a wage earning class, and the peculiar fact respecting it is that laborers have no property in the instruments of production. The ownership of land gives rise to the landlord class; the ownership of capital gives rise to the capitalist class; the ownership of organizations gives rise to the class of responsible managers; but the wage earner is, from the point of view of industry, a propertyless man. His income is the wages he earns.

The recognition of these four industrial classes, and of the kind of income which each receives out of the common output of co-operative work, is important for the student of industry. It shows the industrial result of the laws of private property and personal freedom, as they have worked up to the present time.

This study of the legal background of industry enables one to understand, also, what is meant by the phrase, that the modern business world is built on the wages system. Every decision of industrial management, every contract between employers and employees, every industrial law contemplated by our legislators, is adjusted to the fact that the great body of workers are freemen

who sell their strength, their skill, and their time for so much a day. As the Roman civilization was based on slave labor, as feudalism was made to rest on serf labor, so our modern civilization rests on what is known as the wage system. This second lesson is well worth remembering.

(b) *Equality of Opportunity.*—It lies in the theory of industrial law that all men shall be granted the same opportunity of industrial success. This is attained by the abolition of classes, so far as classes are recognized by law. In the modern world, no legal privilege is conferred by the accident of birth. There are no industrial rules which limit men in their choice of a place in industry. Every profession, trade, or line of business, opens its doors to the choice of industrial freemen. A son is no longer limited to the industrial station which his father occupied. On the contrary, it is assumed by the legal system under which we live that every avenue of work is open to every man, and that he has the choice to make good or to fail in any profession, trade, or line of business that he chooses.

The industrial theory which springs out of this fact of law is that, through freedom of opportunity, society as well as individual workers will reap the highest possible benefits. It assumes that, under equal opportunity, every worker will do the best possible for himself, and that in so doing he will contribute in the highest degree possible to the well-being of all workers. The legal framework of modern industry places no barrier to the highest success which it is possible for any citizen of the business world to attain.

(c) *Numbers and Movement.*—Among the technical rights conferred by the modern system of law, are the right of

marriage and the right of migration. The bearing of these rights on industry comes through their influence upon the growth and territorial distribution of population. Workers are merely people working, and the number of people who must be sustained by the working organization is at any time an important fact. The increase or decrease in numbers depends upon the relation of the birth rate to the death rate, from which it follows that a system of law which names the right to establish a family among the personal rights of individuals, refrains from exercising any direct control over the increase or decrease in population. The question of population is a difficult one from whatever angle it may be regarded. The point here to be noted is that, (in so far as numbers influence in any way the character of industrial society, the law refrains from exercising any control.)

The number of workers for any particular nation is also affected by what is termed the right of migration. Speaking generally, the situation is as follows. Birth gives to every man a recognized place in a particular society. This birthright he is at liberty to abandon, but he has no right to demand a place in the society of another nation. Immigration is a privilege conferred and not a right of fundamental law. For the most part, however, those nations which have large industrial opportunities always welcome an influx of workers, provided they are of the right sort. The growth of population in the United States is in part due to immigration. It is important for the student of industry to recognize these two sources of increase in population, and the fact that while one is the result of a fundamental right which rests on the law of personal freedom, the other is under the control of current legislation.

Of more importance is the right of movement from place to place within a country. For the United States, this right of migration within the jurisdiction of the Federal government is guaranteed by the Constitution. Certain important results flow from this well-established fact. It gives what is termed mobility to capital and to labor. The distribution of industry throughout the country is determined by the choice of men who control the capital, and, consequently, what is termed the industrial development of the nation, so far as the spread of industry is concerned, is free from the dictation of the law.

The fact that laborers have the right to migrate from place to place carries with it another significant result. If wages are high in one locality and low in another, the tendency will be for laborers to migrate from the place where wages are low to the place where wages are high. This means that the labor market is nation wide. Not only does it tend to equalize wages between different parts of the country, but it makes it possible for industries to plant themselves where the natural conditions are the most inviting. For a variety of reasons, laborers do not readily move from place to place, but, so far as the law is concerned, the right of such movement is fully guaranteed. This, also, is a fact of immense importance to the student who desires to understand modern industrial society.

(d) *Voluntary Association.*—An important corollary of industrial freedom is the right of contract. Workers of all classes are at liberty to enter into any industrial arrangement they may agree upon, provided such agreement is not contrary to the public interest. An important industrial fact is that the co-operation of workers, to which reference was made in the first chapter, is realized through

the exercise of the right of contract. The right of contract is an expedient provided by the law in order that men may choose freely what they will do and how they will do it. All arrangements for co-operative work, whatever they may be, stand before the law as voluntary associations. They are associations entered into voluntarily by men who are free to make contracts.

There are two phases of voluntary association of sufficient importance to warrant mention. The first of these is what is known as corporations. This is the age of big industries. Individuals are not able to maintain themselves in the business world with the amount of capital that they, as individuals, are able to command. For this reason, many men, each of whom has a little capital, come together and organize a corporation. This corporation is a big capitalist. It stands for the little capitalists who have entrusted their funds to it for the purpose of business management. (The corporation is a voluntary association) and is at liberty to act in the business world very much as an individual might act. The place which corporations occupy in the modern business world, and the influence which they exert by virtue of the fund of capital which they control, are problems which the student of industry cannot avoid.

A second illustration of voluntary association is found in the organization of the labor interest; that is to say, in the trade unions. These, like corporations, are voluntary associations. Their influence upon the world of industry is unquestioned. Nobody quite knows what their exact position is in the eye of the law. Their existence, like that of corporations, presents many perplexing problems to the student of industry. Our present lesson,

however, is learned when we recognize not only that trade unions exist, but that they have come into existence as a result of the exercise by laborers of those personal and industrial rights which our law confers.

§ 14. Statutes Imposing Conditions of Work. — In the foregoing discussion, attention was called to the fact that the results of industrial freedom as we see them to-day, do not in all respects harmonize with the idea that lies back of the legal system by which that freedom is conferred. This should not be the occasion of surprise. A system of law which confers equal opportunities upon men who are not equal in strength, in skill, or in the amount of education they are able to acquire, cannot produce equal results. Nevertheless, the purpose of the law is firmly held as the purpose for which government should strive, and it is the result of this striving that one reads in the industrial statutes of the day. Their purpose is the elimination of the evils which spring from competition, and the subjection of the exercise of freedom to such restraints that equality of results, as well as of opportunity, may be realized, so far as this can be done without impairing the efficiency of work.

Three kinds of laws or groups of enactments may be named which hold this end in view. These are:

Laws which prescribe conditions,

Laws which provide for supervisory control, and

Laws which provide for administrative control.

It is not intended to discuss the merits of these laws, but rather to illustrate them in order to make clear the place they occupy in the legal framework of industrial society.

(a) *Laws which Prescribe Conditions.* One important

fact, although not a legal fact, must be recognized in order to understand those enactments which lay down the conditions under which men may work. This fact is that those who manage business do so because of the profit they are able to reap from the work of management. The merchant, for example, who renders the important service of selling goods to the consumer where and when he wants them, makes his income out of the difference between the price paid for the goods and the price at which he sells them to the consumer. If there were no margin of profit, he would not continue this work. The manufacturer, also, works for profit. He invests in a building and in machinery; he buys the material out of which to make a product; he pays wages to those who work upon his material with his machines; and he sells the product on the open market. His profit is the difference between the proceeds of sale and the costs of production. Unless the proceeds of such sale exceed the cost of production, he will not continue to work as a manufacturer. Everywhere in industry, the desire to make a profit is the immediate object of those who manage the business.

Under such conditions, it is evident that the merchant who buys the cheapest, or the manufacturer who produces at the lowest cost, will make the greatest profit. This leads to a struggle on the part of all producers to reduce the cost of production, and it is because of the unfortunate results of this struggle for cheapness that many of those laws which aim to control the conditions under which work is done, have arisen. Laws which regulate the employment of children in factories are a simple illustration of this class of enactments.

(b) *Laws which Provide for Supervisory Control.*—There are certain industries which, for one reason or another, provide the conditions for the success or the failure of men engaged in other industries. The railway industry is such an industry. Those who live along the line of a railway are dependent for industrial success upon the cheap and certain transportation of their products. An illustration will make this clear.

Suppose three men are producing soap for sale upon the open market. Their product is of the same grade and their process of manufacture equally efficient. Under such conditions, the purpose of the law in providing industrial freedom would be realized, both for the producer and the consumer. The profit to each soap maker would be a fair profit, and the price to the consumer a fair price. Suppose, however, that the railway carries the goods of one for less money than it charges the others. This would give the favored soap maker an advantage in the market, and sooner or later he will drive the others out of business.

In order to obviate this result and to guarantee an equal opportunity for all producers, the law prohibits discrimination on the part of railways and other similar industries. It is, however, difficult to determine exactly where and how discrimination occurs. The problem is not a simple one. Its solution requires expert knowledge of the business of transportation. This being the case, the law-makers provide for permanent commissions whose duty it is to supervise the management of the railway, in so far as this may be necessary, in order to keep open the door of opportunity for all merchants and manufacturers in all parts of the country. The laws which created the Interstate Commerce Commission and the Public Service

Commissions of the several states, are illustrations of laws which provide for supervisory control.

(c) *Laws which Provide for Administrative Control.*—It is possible for the government to keep open the door of opportunity, and to protect society from the evils that follow unregulated competition, by adopting another line of policy. In the case of railways, for example, instead of creating a commission to supervise their private management, the government might undertake to own and operate the railways. It is a suggestive fact that everywhere in the world, except in those countries influenced by English law, the policy of government ownership of trunk line railways is the accepted policy. Provided one sees that government ownership and direct administration of industries like railways may be adopted as a means to obviate discrimination and favoritism, we have learned the lesson which it is here designed to teach. The point is that a system of law framed to realize industrial freedom can make room for direct governmental administration over industries.

§ 15. Government as Protector.—It is not correct to say that the government has no part in industry. On the contrary, a just and strong government is the most important single fact for the attainment of industrial success. History does not provide a single case of a flourishing industry under a corrupt or weak government; but it furnishes many illustrations of fields unworked, and of industries falling into decay, because workers were deprived of the protection of strong and just governments. Government as a protector is an essential condition of an effective and progressive business community. It is in this sense that we include the protective function of government as a part of the legal framework of industry.

The protective functions of government of importance to industry are:

Protection against aggression from without,
Protection from violence within, and
Enforcement of contracts.

(a) *Protection against Aggression from Without.*—The world is made up of many races and many governments, and the history of the world is full of aggressive movements by one people on the possessions of another. With the necessity of such aggressive movements we have nothing to say. Our point is made when it is seen that a nation which aspires to build up an efficient industry, or to attain a high standard of living, must be a strong nation. It must be able to protect its citizens against foreign aggression of all sorts. Thus the government must be able to repel invasion should invasion be threatened. There could be no industry, except the industry of enforced labor, in a country under the domination of a foreign usurper. The government of a free people, also, must protect its citizens who enter into foreign trade. The home courts cannot give protection, and the citizen, if his rights are disregarded when doing business in a foreign country, must be able to appeal for protection to the diplomatic representatives of his country residing abroad; that is to say, the Ambassador, the Minister, or the Consular agents.

Other illustrations of aggression from without might be named. This is a big question, the discussion of which belongs to political science. Our lesson has been learned if we see that industry lies in the hand of government, and that no high industrial development is possible except under the protection of a government that is

willing and able to repel aggression of any and every sort.

(b) *Protection from Violence Within.*—It is not to be expected that all men at all times should feel that they receive justice at the hands of the business world. Strikes on the part of laborers; lockouts on the part of employers; the outcry against high prices and monopolies; the charge of tyrannical use of power on the part of managers who are entrusted with large funds of capital; these and other complaints that are common, show the leaven of unrest to be working in our business world. There is nothing improper in this unrest. Indeed, among free peoples, it is the forerunner of those changes that mark the path of social and industrial reform. It is essential, however, that the peace of society should not be disturbed, or the entire industrial structure will tumble; and it is the peculiar task of government to protect the existing order against the violence that sometimes goes along with the expression of even just complaints.

This protection against violence from within must be given by government, without regard to the justice or injustice of the complaint that caused the violence. This is defensible for two reasons. In the first place, unless the violence of discontented citizens is held in check, the entire fabric of industry is threatened. A sense of security is essential for an industrial society built on the principle of personal liberty. The point in issue, so far as the government is concerned, is the maintenance of a rule of law. No greater disaster could possibly happen than the spread in the community of a contempt for law, or for the methods of settling disputes which the law provides.

In the second place, the system of law under consideration has been worked out by self-governing peoples, and the law itself may be changed if it is found to work an injustice of any sort. It is the first duty of government to grant protection to all men who observe the law as it is, and then to encourage such reform, either in industrial procedure or in the law, as will remove all cause of serious conflict.

(c) *Protection of Contracts.*—The courts are an important branch of the government service. It is their function to settle disputes and protect contracts. The importance of this task becomes evident when one calls to mind, that the organization of industry rests on agreements, and that the principle of division of labor requires for its application the enforcement of those agreements. Workers are free to make bargains or not, as they see fit; but a bargain once made, cannot be broken. To permit men to break their bargains would result in the overthrow of industry, for all modern industry rests on contracts and agreements.

The lesson to be learned from the above cursory statement is, that government can never be separated from industry. In the exercise of its protective function, it provides for that security without which no industrial enterprise would be undertaken. The protection it affords, is essential for that industrial freedom which is in large measure responsible for effective and fruitful work.

CHAPTER IV

FACTORS OF PRODUCTION

"Man's power over nature tends, thus, steadily to grow, and every stage of his progress towards power is accompanied, naturally and necessarily, with diminished resistance to his further efforts."—
Henry Carey.

We have learned what work is, and some of the reasons why modern work is effective. We have learned, in broad outline, the kinds of industries in which work is done; we have learned, also, what industrial society is, so far as its form and character are determined by history and by law. We shall next inquire respecting the factors of production; that is to say, those material things with which and upon which men work.

§ 16. The Factors,—Land and Capital.—The factors of production are land and capital. Under these two headings may be grouped all those things and forces used by workers in the production of goods. Many writers include labor along with land and capital as a factor of production, and, from the point of view of the business manager, something may be said for such a classification. A proper correlation of these three elements,—land, capital, and labor,—is necessary for efficient work, and it is the peculiar task of the manager to see that such a correlation is realized. It is natural, therefore, for the business manager to think of labor as a commodity to be measured and bargained for in much the same way that he measures and bargains for land and capital.

So long as the problem under consideration is to explain

profit, or value, or price, this narrow point of view serves fairly well; if, however, one desires to learn how our present industrial society came to be what it is, how it acts as an organization of men for co-operative work, and what tendencies it holds for the future, it is necessary to distinguish land and capital as factors in production from labor which, after all, is nothing else than workmen at work. Land and capital are non-human things: they have no will; they respond to no motive. The force that lies in labor, on the other hand, is put forth and directed by the conscious purpose of workers. An analysis which treats labor as it is proper to treat the material factors of production, would exclude many considerations that are powerful in giving character to the modern industrial world.

§ 17. Meaning of Land.—The word "land," as commonly understood, may be defined as the dry portion of the earth's surface; but the industrial meaning of the word is summed up in the statement that land furnishes space for living and working. All kinds of agriculture require space where seeds can be exposed to the chemistry of the sun and the rain, and growing plants find standing room on the soil. Land also provides space for the building of homes or factories, or for conducting water or electricity to be used as power by an industrial plant. Roads and highways, railways and canals, suggest yet another use made of the surface of the earth. Space is also essential for parks which cities reserve as breathing places for over-crowded populations, or which the government sets aside because of their beauty or for the pleasure of citizens. It is thus evident that the peculiar service of land, the service through which it exerts its most direct influence

on industrial affairs and on the well-being of man, is that it provides space for living and working. It furnishes opportunity for work, and at the same time limits the results and controls the form of work.

The meaning of the word "land" is broadened by industrial writers to include aquaculture, mining, and forestry. This is quite proper. The economic laws that control these industries are the same as those that control the use of land for agricultural purposes. All these industries call for space on the surface of the earth and all disclose the fact that different pieces of land are valued differently because of the differences in their location, their richness in product, and their ability to produce profit.

The simple idea of land has been yet further extended. The modern industrial world makes use of many different kinds of natural forces, such as the force of gravitation as realized in a water power plant; the force of friction, which gives stability to the train moving on the rails; the force generated by chemical combinations, as exemplified in the explosion of gas in the cylinder of a gas motor, or the force of coal when burned in moving an engine, electrical force, and the like. These forces are given freely by Nature for the use of industry, and the relation they bear to the success or failure of the industrial enterprise that makes use of them, is much the same as that which the land of the farmer bears to the results of agricultural work. It is for this reason that all Nature's forces and Nature's gifts are grouped with land in a consideration of the factors of production.

We may now frame a more comprehensive definition of the word "land." Besides the direct uses made of land,

the word covers all things and forces that Nature supplies for the production of goods, or for permitting one class of workers to render a useful service to another class of workers. That they all belong to the same group will be made clear when it is seen that the industrial law of rent is, in its broad outlines, the same for all. Land is a comprehensive term; it covers every productive factor not covered by the term capital.

There are two things which must be learned respecting land as a factor in production. The first is the commercial law according to which the productive forces in land submit themselves to control through work: the second is the conditions which give different values to different parcels of land. An explanation of the former discloses what is termed the "law of diminishing returns"; a statement of the conditions which determine land values leads to a consideration of the "law of rent."

§ 18. The Law of Return from Land.—The work of one who tills the soil consists almost entirely in directing and stimulating the productive forces which pertain to land. Nature seems to have no special regard for men. She is quite as willing to grow weeds for the flowers they bear as to grow corn for a harvest. If man wants corn rather than weeds, he must prepare the soil, sow the seed, cultivate the field, and gather the harvest.

Nature seems ever willing to grant the prayer of work for more to eat, but she decreases the amount granted for each new petition. The harvest does not increase in proportion to the work applied. This is the most important physical fact with which the business world has to deal. Its statement is called the Law of Diminishing Returns. To understand the law of diminishing returns

we must think of work as applied to land in successive units or "doses." We are then able to state the law as follows: Each unit of work applied to a given piece of land gains a reward, but its reward is less than that gained by the preceding units. The practical result bound up in this law is, that the per capita harvest decreases as the number of workers increases.

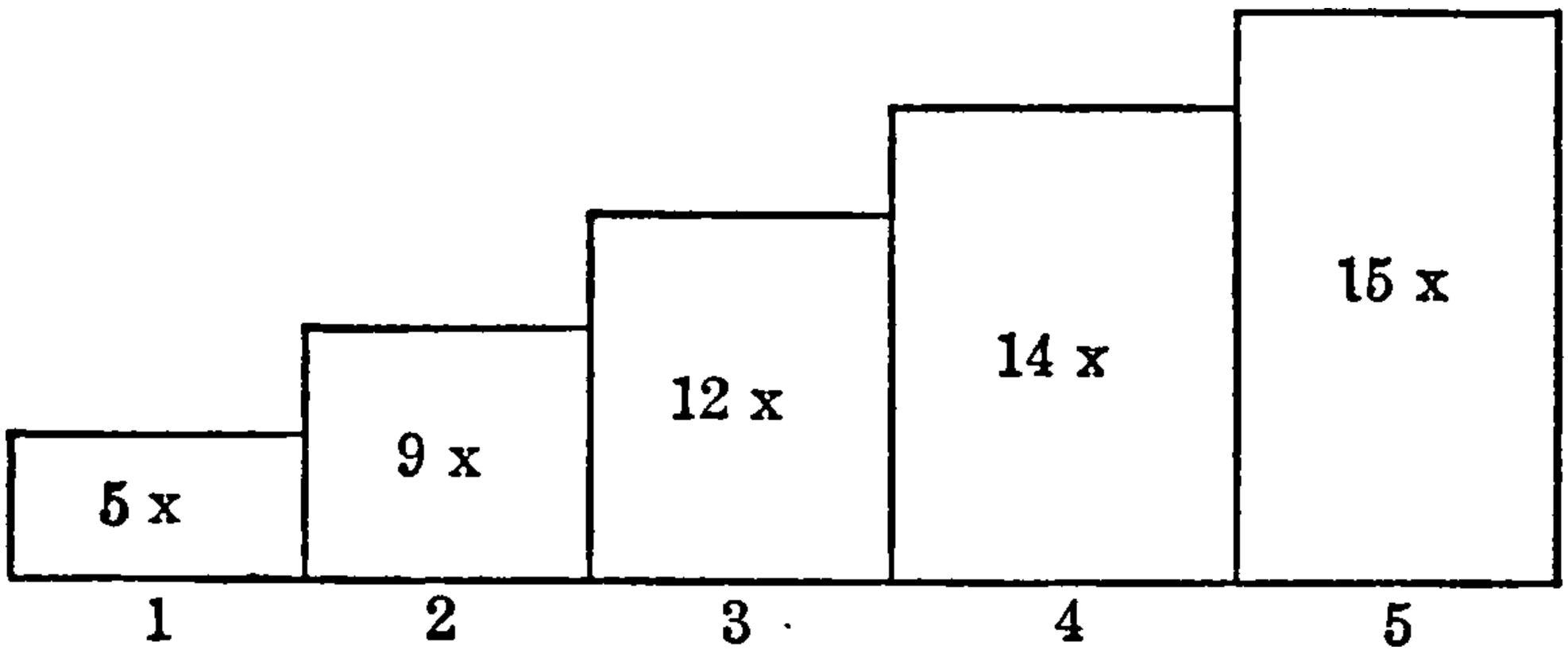
The influences that affect the cultivation of land are so confusing that a truthful illustration of the law of diminishing returns is likely to be misleading. However, if we understand that the purpose of the illustration which follows is to explain what we mean by the law, and not to draw an accurate picture of farming, it may be helpful.

Let us assume that a man with a team, a plow, a harrow, and a few other necessary implements of agriculture, undertakes to work a quarter section of land. This is too much land for one man to cultivate. His plowing is shallow; he harrows but one way; he has no time for rolling the ground; and he plants his seeds in a field of clods that prevent vigorous growth. Nevertheless, this may be the best kind of farming that one man can do on 160 acres of land, and experience shows the farmer that such cultivation will give a higher rate of return in money than if he cultivate a smaller amount of land and put in more work per acre. He makes, let us say, an average of five bushels of corn a day, counting all the days of the year. This is the measure of what a given quantity of land will produce under such cultivation. Five years pass and the price of farm products has gone up so that our farmer desires to get more per acre for the purposes of sale. He hires a man to help him; he buys another team; he drains hollows so that spots which before grew nothing now grow

something; in short, he raises the grade of cultivation by adding more capital and labor. The output per acre will undoubtedly increase, but it will not increase in proportion to the increase of capital and labor. When the farmer worked alone, the land paid him at the rate of five bushels a day. Now the land will pay him and his helper, let us say, nine bushels a day, which is at the rate of five bushels for the farmer and four for his helper. The average return for work on the land has fallen as the result of higher cultivation from five bushels to four and a half per man. The actual return has increased, but the rate of return has diminished.

This illustration could be carried on through all the stages of agricultural development. In the diagram that follows, this is done until five men with an appropriate amount of capital are at work on a given piece of land.

The figures that appear under the line from left to right stand for the number of work units used at any point on the line. The parallelogram erected over each figure represents the amount of harvest resulting from the number of work units used. Thus one work unit gains



$5x$ product; two work units gain $9x$ product; three work units gain $12x$ product, and so on. If we divide the prod-

uct by the work units used to produce it, we shall find that the amount produced per unit; or, if we assume that each work unit is a worker, we shall find the amount produced per capita at each stage in the development of agriculture.

The adjustment of the figures in the above illustration shows $5x$ product for one laborer, or a per capita harvest of $5x$; it shows $12x$ product for three laborers, or a per capita harvest of $4x$; it shows $15x$ harvest for five laborers or a per capita harvest of $3x$. The per capita harvest falls as the number of workers increases. This is the law of diminishing returns. It is what is meant by those who say that Nature is niggardly in her dealings with workers.

(a) *Proof of the Law.*—Such is a statement of the law; what is its proof? The proof of the law of diminishing returns is that certain things happen in the business world which could not be explained if land produced a harvest in proportion to work expended in its cultivation. Assume, for a moment, that one x work brings one y product; that ten x work brings ten y product, that one hundred x work brings one hundred y product, and so on to the end of numbers. Under such an assumption who would care to own land? Manifestly, under such conditions of work, land would be as free as air. Thus the fact that land is bought and sold, and that men desire to own land, is proof that the products of land do not fluctuate directly with the amount of work on land.

Again, the fact of migration is a universal fact of history. Migrations which respond to industrial motives are commonly from countries where the number of people per square mile is high, to countries where the number of people per square mile is low. The State of Iowa, for

example, is one of the most fertile states in the Union, and yet, the young men of that State leave the farms where they worked as boys to take up land in North Dakota or Saskatchewan. If as much could be earned on the home farm as by working on the new lands, there would be no migration. A glance at the above diagram shows why young men who wish to farm leave their homes to begin life in new fields. At home they must work, let us say, in the third block, where three units of work gain twelve units of product, and the share of each is four units; on the new lands they work in the first block, where one unit of work gives five units of product. The industrial migration of agricultural workers is in obedience to the law of diminishing returns; the fact that agricultural migration takes place is proof of the truth of the law.

(b) *Results of the Law.*—The results of the law of diminishing returns are far reaching. In the first place, it is this law which limits the amount of product that workers will undertake to produce. Sooner or later the increased return that comes from an increased dose of labor will be reduced to a point that no added labor will be applied to the land, and, unless there are new lands to take up, the growth of industry in all its branches will be arrested.

In the second place, under the conditions of production imposed by this law, the growth of population means a depression of the standard of living. It is of no use to say that every new mouth that calls for food brings with it a pair of hands to supply the food needed, for each added pair of hands must work harder to produce the required food. Unless other industrial forces counteract the tendency bound up in the law of decreasing returns, an increase

in population means that a continually larger portion of the people will live in poverty.

(c) *Criticism of the Law.*— At this point, some one will raise an objection. At no time in the history of Western peoples has the general standard of living risen so rapidly as during the past one hundred and fifty years; and yet this same period shows a phenomenal increase in population. Does not this fact prove the law of decreasing returns to be untrue? The United States, for example, in 1790 had a population of 3,500,000; in 1917, it was not far from 105,000,000; but the per capita product of the citizens of this country is much greater now than at the earlier date.

This apparent discrepancy is explained by two facts, one of which calls for a slight modification of our statement of the law of diminishing returns.

In the first place, the past century and a half has brought large amounts of wild land under cultivation. The industrial crowding of agricultural workers is relieved by the migration of workers from old fields to new and untilled fields. One of the most significant results of railways, which began about 1830, is, that they permit settlers to break away from the rivers, which were then the only means of carrying goods to the market, and to strike out for those localities where land is abundant and of high quality. Africa, South America, Australia, Canada and certain parts of Russia, all have much untilled land, and cheap transportation makes these lands available. There seems, therefore, to be no reason in the nature of the case why population and prosperity should not go hand in hand for some generations yet to come.

In the second place, the kind of work applied to land

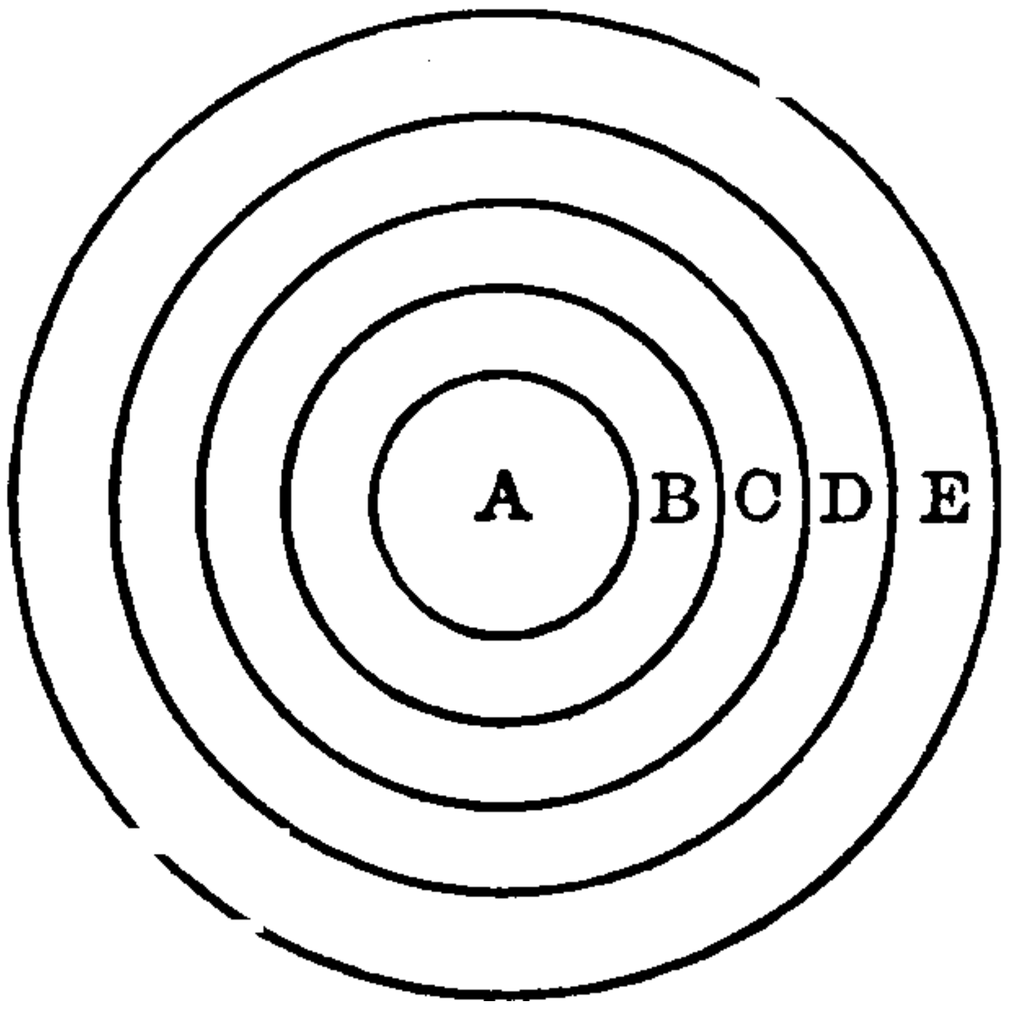
has changed during the past century and a half. This period is one of scientific discoveries and inventions. Not only have the numbers of workers increased but each worker is more productive because he works with machinery and follows scientific methods. The true statement of the law of decreasing returns requires this proviso, that the increase in labor is an increase in work units of the same kind, and that the new workers remain on the old lands.

It seems then that poverty, the logical result of the law of diminishing returns for increasing populations, is set aside by the fact that the new workers migrate to new lands, and that the spirit of inventions and the ability for industrial organization are not, as yet, played out. Nevertheless, the law of diminishing returns, so far as Nature's forces are concerned, is a true law. It cannot be ignored by one who undertakes to explain the things that occur in the business world. The time may come, [indeed in countries like China and India it has come,] when this law will be the controlling factor in industry.

§ 19. The Law of Rent.—The second question respecting land that calls for answer, pertains to the fact that different parcels of land have different values. Land in the center of Detroit is worth $50 a square foot; land on farms two miles from Ann Arbor is worth $150 an acre: land in the upper Peninsula of Michigan is worth $40 an acre; land up in Canada three hundred miles north of the Canadian Pacific Railway is worth nothing.

Professor Seager, in his book on Economics, has stated this fact of receding value in the form of a diagram which is here reproduced.

"a" is the center of a city where land is high. Its use is for building sites for stores and offices.



"b" stands for residences, whether for rent or occupied by their owners.

"c" stands for lots in the suburb of the city, used for truck farming or some other form of intense agriculture.

"d" stands for a block of farm land used for the production of staple goods like milk, wheat, corn, potatoes, hogs, and the like.

"e" stands for land used for the grazing of sheep and cattle, or for the cutting of wild hay, and such like cultivation.

"f" stands for land yet free, used for nothing but hunting, trapping, fishing, etc. It is land awaiting cultivation.

These different uses of land are not bounded by lines as sharp as the lines in the diagram. On the contrary, the facts as we find them show different prices of land in the same locality used differently. Thus, going out from the center of a city, we find small resident lots and truck farming side by side; as we go farther out, we find neighboring farms devoted the one to nursery planting, the other to crop farming. There are no hard and fast lines such as appear in the diagram, and yet the impression left by the diagram is a correct impression. The kind of uses made of land change as one goes from a dense population to a sparse population.

This is not only a fact to be observed, but it is the essen-

tial fact in an explanation of land values. One use of land is more profitable than another use and the territory peculiarly fitted for that use is on that account valued more highly. Of several pieces of land some may be more profitable than others, therefore, they are valued more highly. All valuations of land are comparative, and it is easy to explain why one piece of land is worth more than another, provided we can find some place to start the comparison. To find a starting point is fundamental in the explanation of land values.

Wherever workers are able to claim the total product of their work because they pay nothing to the owner of land for the opportunity of working, is the point, or place, or location, from which all land values are measured. This location is called the margin of cultivation. It is where the most crude industrial use of land butts up against wild land. It is where a million of acres of free land exist and only ten thousand are used for crude cultivation as, for example, grazing. Manifestly, such land can have no value, except possibly a speculative value. One might as well speak of the value of air. It is this no-value land that gives us a starting point for computing the value of those lands that have value.

The significant relation is the following: what workers make on the border land of cultivation comes to be a measure of what they can get when working on lands that give higher returns. The difference between what workers make on land and what they can retain for themselves goes to the owner of the land. This difference is rent, and the rent of land capitalized is its value.

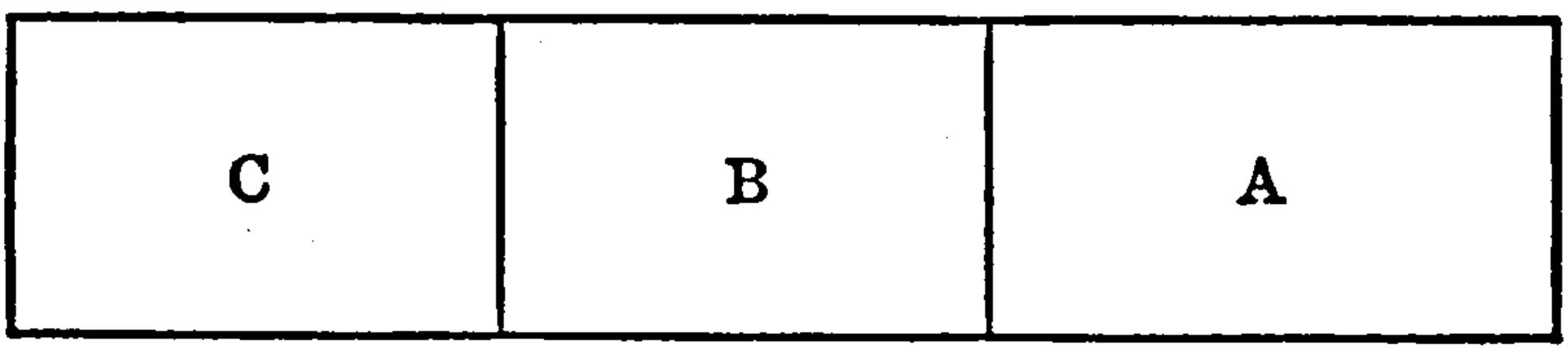
An illustration will make this clear. Let us assume

ten units of work to be applied to border land and that it results in a product that can be sold for what amounts to forty dollars a month to the worker. As already explained, this will be kept by the worker. There will be no rent. The ownership of such land is worth nothing. Let it be next assumed that, a thousand miles away, the same amount of work devoted to agriculture results in a product that can be sold for what amounts to forty-five dollars a month. In this case, forty dollars will go to the worker and five dollars will be kept by the owner of the land. Such land is worth owning. It gives five dollars rent; and, if the situation is such that five dollars rent comes from each acre of land owned, such land, assuming interest at ten per cent, will be worth fifty dollars an acre. The point of this illustration is, that the value of the land and the rent of the land are interchangeable terms. The value of land is the capitalization of the rent of land at an assumed rate of interest.

Some one will ask why the workers do not claim this excess product as their own. Why do they give it up to the owner of the land? The answer is, they are forced to give this up by competition between workers for the opportunity of working this rent producing land. Assume, for a moment, that these workers refuse to work this high grade land unless they are permitted to keep all the land produces. Other workers stand ready to take their places. Those who work on the border land and keep all they make, are receiving only at the rate of forty dollars per month, and they are ready to work the high grade land for less than a monthly return of forty-five dollars. Thus competition springs up, with the result that the lowest price offered by any competitor will be the amount

that can be made on the no-rent land. The difference between this amount and what land anywhere produces, will go to the owner of the land as the price charged by him for the opportunity of working on high grade rather than low grade land.

This relation between the workers' return and the owner's return may be expressed in another way. The amount of wheat needed at any time depends on the number of people living, and, since bread is a necessary article of diet, we have the right to say that the amount needed will be produced. If now, there is a sufficient amount of high grade land to produce all the wheat that is needed, the price paid for wheat would be its cost on the best land. This must be returned to the workers. There will be no rent. If, however, there is not a sufficient amount of first grade land to produce the needed amount of wheat, or if the location of a part of this first grade land is far from the market, a different result will follow. The price for wheat would then come to be its cost of production where it costs the most, and since those farms that produce for a less cost will receive the market price for what they produce, such farms will command a rent and consequently have a value. A simple diagram will make this clear.



A, B, and C represent three blocks of land. Let us assume that all are equally good so far as the soil is concerned, but that they lie at different distances from the market which, in the diagram, is supposed to lie in block A.

Let us further assume, for purpose of illustration, that all the wheat needed can be produced on the land in block A and that it can be produced at a cost of $1.00 a bushel. The price on the market will be $1.00 and no land outside of block A will be cultivated for wheat. Further, since the market price and the cost are the same, there will be no surplus to bring rent or value of land into existence.

Let us assume in the next place that population increases, that more wheat is needed, and that this increased amount of wheat can be produced cheaper by cultivating land in block B than by putting more work on the farms in block A. This means that a new cost mark is raised for wheat. It is now the cost in block B rather than in block A that makes the market price. The new cost mark may be $1.25 per bushel rather than $1.00 per bushel as before. But the cost in block A is still one dollar, and if wheat produced at one dollar cost is sold for one dollar and twenty-five cents, the difference, or twenty-five cents on each bushel, is kept by the owner of the land. If sixteen bushels of wheat are produced on an acre of land, each acre will yield the owner four dollars a year as rent.

A similar result follows the use of land in block C, where perhaps it will cost $1.50 a bushel to raise wheat and carry it to the market. The price is now determined by the cost on land C. A rental return of 25 cents a bushel appears on land in block B, and the rental return on land in block A is raised to fifty cents a bushel.

The real situation is not, of course, as simple as it appears from this illustration. There are hundreds of grades of land on which wheat can be raised; there are

thousands of uses to which land can be put besides the raising of wheat. These may be passed with the assurance that nothing different and nothing new, so far as principle is concerned, would be disclosed by a detailed study of every conceivable use to which land may be put.

Our conclusion is as follows. The rental value of any piece of land rests on the difference between the cost of producing those goods for the production of which it is used, and the market price of such goods. The value of the land is what one is willing to give for the right to receive annually the rent which the land commands.

§ 20. Meaning of Capital.—Two factors in production, land and capital, cover all things and forces used by workers as means to production. The significant industrial fact respecting land is that it provides workers with standing ground for work; the significant industrial fact respecting capital is that it provides workers with tools, and machines, and training with which to work. (We may then define capital as the product of past work designed to assist future production.) This is sometimes expressed in another way. "Capital," it is said, "consists of wealth used to help us in producing more wealth." These two statements mean much the same thing, the chief difference between them being that one looks on industry from the point of view of work, and the other from the point of view of wealth. We shall endeavor to maintain the former point of view throughout this analysis of capital.

"The great advantage of capital," says Professor Jevons, "is that it enables us to do work in the least laborious way. If a man wants to convey water from a well to his house, and has very little capital, he can only

get a bucket and carry every bucket-full separately; this is very laborious. If he has more capital, he can get a barrel and wheel it on a barrow, which takes off a large part of the weight; thus he saves much labor by the labor spent upon the barrel and barrow. If he has still more capital, his best way will be to make a canal, or channel, or even to lay a metal pipe all the way from the spring to his house; it costs a great deal of labor at the time, but, when once it is made, the water will perhaps run down by its own weight, and all the rest of his life he will be saved from the trouble of carrying water."

The above quotation makes clear three things respecting capital:

First. Capital is a help to work, and permits the results for which work is undertaken to be attained with less expenditure of time and energy on the part of the worker than otherwise might be necessary. The substitution of a barrel and a barrow for a bucket in carrying water illustrates this class of benefits.

Second. Capital is a substitute for work. The laying of the pipe which makes it unnecessary for the man to carry water at all shows what is meant by the substitution of capital for labor. The pipe enables the force of gravity to do what before was done by the direct expenditure of human strength.

Third. The service of capital as a factor in production may be stated without regard to ownership. Questions raised by the private ownership of capital are not necessarily included in a chapter that deals with capital as a factor in production. In what follows we shall try to keep clear of this ownership question.

Some light will be thrown on the meaning of the word

"capital," if we pass in review the various classes of things called capital.

(a) *Improvements in Land.*—All improvements in land are properly classed as capital except those that are incidental to the tilling of the soil. Fences, barns, silos, and the like, are capital. Plows, cultivators, reapers, mowers, hay rakes, and the like; in short, all the tools, implements and machinery used by the farmer in raising and gathering a harvest, are farming capital. Ditches for draining, hedges used instead of fences, the trees in the orchard, the plants in the vineyard, are capital. All these things and forces of like character are the product of past work devoted to future production.

It is thus evident that a farm, as we understand that word, has a value, part of which is the value of the land, and part of which is the value of the investments on the land; that is to say, of the capital. This distinction applies equally to the town dwelling or to any unit of property in which the land element is the more important. Land, with its improvements, is commonly called real estate, and is bought and sold without recognizing that both of the factors in production are covered by the bargain. The line that separates land from capital must not be lost to view in a description of the productive factors.

(b) *Manufacturing Machinery.*—The greater part of the value of a manufacturing plant represents capital rather than land. The building in which the plant is housed; the machinery used in the process of production; the engines which provide the power for the movement of the machinery; the canals which transport the power, if water is used; the dynamos, the sub-stations, and the

transportation wires, if the factory in question relies upon electrical power; all these are capital used in the process of manufacture. They are all the product of past work used, or to be used, for current and future production. The preponderance of the value in most manufacturing enterprises represents capital rather than land.

(c) *Property used in Transportation.*—Three elements are involved in the transportation service. These are,—the way, the vehicle, and the power. A railway, for example, has a right of way upon which the ties and rails rest; its vehicle is the cars in which passengers and goods are carried; and the power for steam railways is furnished by the locomotive. From this statement it is evident that a very considerable portion of the value of a railway exists in the form of capital rather than in the form of land. In the case of water transportation, practically all of the value of the property used stands for capital. Companies engaged in the transfer business make use of capital in the form of automobiles, or of wagons and horses. If wharves, docks, warehouses, elevators, stock yards, and the like, are included with transportation property, capital comes to be relatively of more importance. The point for us to notice is that the portion of the property which is the product of work rather than a gratuity of Nature, is properly classed as capital.

(d) *Stock Awaiting Sale.*—In the classification of industries submitted in Chapter II, attention was called to the fact that merchants are producers. They perform the service of holding goods in large quantities until such time as buyers may care to purchase. The compensation which they exact is the difference between the amount

paid for the goods and the amount received when the goods are sold. This fund of goods held for future sales, whether such sales are to manufacturers or to the ultimate consumer, are properly classed as capital. They are the product of past labor devoted to future production.

In what manner, it may be asked, is a fund of wheat carried by a wheat merchant, or a stock of cloth carried by the merchant tailor, devoted to future production? The answer to this question is simple, provided we hold to the point of view of production. One service of capital is to enable workers to work in a roundabout way. In order that co-operative work may be efficient, the work of to-day may not result in the production of consumable goods until two, three, four, or five years have elapsed. Unless the market were stocked with large funds of consumable goods, workers could not afford to work in this roundabout way. They would be obliged to give their time and strength to the production of those things required for immediate consumption. It is thus clear that the existence of a large stock of consumable goods is essential for efficient production, and that this stock of goods renders a service quite the same in its results as the machinery which represents capital invested in a manufacturing plant. One function of capital is to overcome the adverse element of time in industry. This function is served by a stock of goods laid by out of the product of the past, and consumed by present workers while they are engaged in the production of things that require two or three years for their production. It is in this sense and for this reason that stocks of goods carried by merchants are classified as capital.

(e) *Organization*.—The business world, as we know it, is made up of organized industries. Partnerships, corporations, partnerships of corporations, and the like, are facts of common observation. An individual, also, by continuing in a particular line of business for a period of years, may have built up a business which, in the ordinary language of the street, is a "going concern." It is easy to see that houses, machines, and physical improvements of all sorts are the result of past labor to be used for future production; the organization of a business is quite the same thing. An engineer, for example, may construct a railway. It is made up of rails, ties, bridges, culverts, and all the elements of the right of way; it includes station houses, round houses, switching yards, and other physical units; but these things are merely the dry bones of business. They must be brought together and used for rendering the service of transportation before a transportation industry is created. This takes time. It requires work. There is no reason why capital should be defined so as to include the physical units devoted to industry and to exclude business organization.

(f) *Training for Industrial Service*.—The question is sometimes asked whether or not an education, by which men are prepared to play their part in the business world, is capital. Under our definition, the reply is in the affirmative. Training for specialized work, or indeed training of any sort which renders men more fit to perform industrial service, is capital. It is the result of work to be used in future production. Like a labor-helping or labor-saving machine, it increases the efficiency of work, and results in the production of a larger amount and a higher grade of services than otherwise would be the case. The

industrial training of an individual is not only personal capital, but it adds to the fund of national capital.

(g) *Is Money Capital?*—There is no objection to saying that money is capital, provided we know what is meant. Money is a device used to facilitate exchanges. In a complicated business world like the one in which we live, a world which is carried on by the buying and selling of goods, and which is organized for production by agreements and contracts between various classes of workers, there must be some commodity or thing that is used as a measure for exchanges, and for the wording of contracts. The nature and functions of money cannot be considered here. For the present, it is only necessary to recognize that money is not in itself capital. Its possession means simply that the man who has it has the right to claim a certain portion of existing capital. Let us assume that a man wishes to build a new cotton factory. What he wants is brick and mortar with which to construct the building, and the services of men to make the machinery and adjust the plant. This he can secure provided he has money, but he does not build the factory out of money. Money is simply the means used to command labor. Workers are willing to give their time in exchange for money, because they know that with money they can buy the goods on which they must subsist during the time that the factory is in process of construction. It is this subsistence fund, then, and the tools and machinery used by labor in creating the factory, that constitutes the capital. The correct answer to the question, then, seems to be the following: Money may be talked about as though it were capital. For most of the questions that arise, no error results from treating money as capital.

It is, however, in itself merely a claim on capital, whether such capital is invested or free for future investment.

§ 21. Capital Maintenance and Capital Building.—At any particular time the business world has in its possession a definite amount of capital. This may be in fixed forms such as buildings, machinery, embankments for water power, and other similar permanent forms of industry, or it may be in a free form such as stocks of food, of clothing, and the like, in the hands of merchants, which may be used to support workers in any of many lines of work. The amount of capital, as compared with the population, measures fairly well the stage of industrial progress at which a country has arrived. This is true because capital consists of those things that are a help to workers, and we may assume that all capital is wisely applied. The creation of such a fund of capital is the result of capital building in past years, and any increase in that fund from year to year shows that a certain number of men is engaged in capital building.

Another fact is of equal importance. As the increase in the capital fund measures industrial progress, so a decrease in that fund measures industrial decay. The capital fund, therefore, must be maintained, and its maintenance must be assumed, before it is possible to talk of building more capital. For this reason we first consider the process of maintenance.

(a) *Maintenance of Capital.*—The meaning of the word maintenance may be made clear by an illustration. A locomotive hauls a train from Detroit to Jackson and burns five tons of coal on the trip. The coal has disappeared. It has gone up in smoke, but what it cost is in

the hands of the railway company as revenue earned on the freight which the locomotive hauled. If, now, the locomotive is to pull the train back on the next day, its tender must be filled again with coal. Thus we see that the amount of coal required for running the locomotive is maintained in the tender by constant replacements. A sufficient sum must be taken from current earnings to replace the coal burnt each day.

So far as maintenance is concerned, however, there is no difference between the burning of coal and the wearing out of the locomotive, except the time required for each process. The coal disappears on a single trip; the locomotive lasts for 25 years. Just as the coal when burned must be replaced if the locomotive is to run, so the locomotive must be replaced when worn out if the capital fund of the railway is to remain intact. Men in the coal fields must continually dig coal to keep the locomotive supplied; in the same way, the mechanics in the shops must be continually engaged in making locomotives to replace those that are worn out and scrapped. From this illustration it is clear that while the capital fund is maintained as a fixed amount from year to year, this is done by the current production of new units of capital which replace those worn out. It is also clear that certain amounts of current work must be devoted to the maintenance of the capital fund.

The above illustration of the replacement of worn out locomotives is of universal application. The food supply is capital because it is designed to sustain workers while engaged in current production. The harvest of each fall replaces the consumption of food during the year. The ability, the skill, the efficiency of the present generation

is maintained because it is replaced by that of the next generation. This is the purpose of schools and apprenticeships. Even business organization as a phase of capital is maintained through the constant effort of those who manage the business. A very large share of current work is devoted to the maintenance of the existing capital fund.

(b) *Capital Building*.—The process of capital building is not different, so far as work is concerned, from that of capital maintenance. If all industries were owned by a single corporation or by the government, it would be found that a definite portion of current work would be devoted each year to an increase of the current capital fund, and that such work would be directed to satisfy the most pressing needs for new capital. In the case of the railway industry of the United States, for example, if it should be found that 65,000 locomotives were not able to do the work of transportation, the shops would be ordered to produce a thousand new locomotives. This would be an increase of the capital invested in locomotives, and make an addition to the general capital fund. This illustration is typical of the process of capital building. In a progressive community, a certain portion of its total work must be continuously assigned to the building of new capital.

It is common to say that new capital is the result of personal saving. A man has an income of $5,000 and spends $4,000 in living expenses. He invests the $1,000 which he has saved in the building of a new industry. So far as an individual is concerned, this may perhaps explain how a man can increase his capital investments, but it fails to picture the process of capital building as a phase

of industrial growth.) For the explanation of this process we must go a little deeper into the process.

Let us grasp firmly the idea that product, whether of past work or current work, passes through the capital fund to be consumed. The machinery is in the hands of the manager. The food stock is in the hands of the merchant. It is all in the process of being consumed. The coal burned and the food consumed must be replaced by current labor as well as the machinery worn out.

Let us grasp, in the second place, the fact that, at any particular time, there is an established standard of living, and that the stock of consumable goods in the hands of merchants will be bought for current consumption up to the full measure of that standard.

Let us grasp, in the third place, the market conditions under which new capital may be built. If the stock in the hands of merchants is not greater than the amount which will be bought under the established standard of living, no increase in the capital fund is possible. All available work will be needed to keep up production for current consumption. If, however, some of this stock remains unsold after the usual demand for consumption has been satisfied, the existence of this surplus is proof that too much work has been given to the production of the kinds of goods that the standard of living demands. This means that a portion of the customary work done to supply the customary demand will be freed from this work, and become available for work of another sort. It is available for the building of new industries, new investments, and the making of new lines of goods. That is to say, it is available for capital building.

It is not necessary to bring the idea of personal saving

and personal sacrifice into the explanation of capital building.

§ 22. The Law of Return from Capital.—We have learned that the capacity of a piece of land to produce tends to decrease as added units of work are applied. This was called the law of diminishing returns. We also learned that the value of land, or, what amounts to the same thing, the rent that workers are willing to pay for the use of land, springs from the fact that there is not enough first-class land to supply the market demand for land products. It is natural to ask if capital, as a factor in production, is subject to the same industrial law as land. Is capital subject to the law of diminishing returns?

In the case of land, if land of the first quality is not sufficient to produce all that is needed, land of an inferior grade will be brought under cultivation. This is not true of capital. Capital is the product of work, and can be created whenever there is need for an increased production of capital products. (From this it follows that only capital of the first grade will be continuously used,) and that as much of it will be used as production requires. It may take time to bring this about, but the tendency is for an adequate amount of first-grade capital to be produced.

This fact has a very important industrial result. So far as capital is concerned, the cost of making a product which the market requires will be the same for all the units of that product that are offered for sale. There is no such thing as one portion being made for any considerable period of time at one capital cost, and another portion at another capital cost; and, consequently, there is no such thing as a rental return to the owner of capital.

The return on capital is a constant return. This is the law of capital corresponding to the law of diminishing return on land.

Two results follow. In the first place, we are able to understand what business men mean when they speak of the normal or average return on capital. It means that there are no permanent differences in the rate of income allowed capital. Should the actual return of a particular investment be higher than the average, it will tend to fall because new capital will come into that business and force the income down. Should the actual returns be lower than the average or normal income, some of the capital will be withdrawn from such a business and the income forced up. There is thus a tendency to an average or normal income, or constant rate of return on capital in all industries. There is no average rent; but there is an average capital income or, as it is commonly expressed, an average rate of interest.

The fact that capital is produced by work, fixes the valuation placed on capital goods. Any property used as capital will be worth, at any time, what it would cost to reproduce it. It cannot be worth more, for no one will give more for it. Should the owner ask more, the prospective buyer will refuse to buy. He knows he can reproduce the thing for less money. Thus the cost of reproduction is the maximum value that will be placed on capital goods. Should the buyer offer less than the amount of money required to reproduce the capital, the owner (provided, of course, that the capital is producing the normal return) will refuse to sell. (This then is the law for the valuation of a capital investment. Its market price will equal the estimated cost of reproduction.)

The lessons of the foregoing analysis are as follows:—

Land is a given factor, limited in amount,

Capital is a produced factor and unlimited in amount,

Land of many grades is used to supply market needs,

Capital of the best grade only tends to be used to supply market needs,

Land, as used, is subject to the law of diminishing returns,

Capital, as used, is subject to the law of constant returns,

The value of land is determined by the rent which the land bears,

The value of investments of capital tends to the cost of their reproduction.

These are the general truths that pertain to land and capital as factors of production. Many apparent exceptions may be noted by a close observer of the business world, but such exceptions need not be considered until after we have learned something more of the nature of competition, the character of the market and the laws of price.

CHAPTER V

MACHINERY IN INDUSTRY

"The Industrial Revolution was not the result of the great mechanical inventions: rather the inventions were the result of the Revolution."—J. DORSEY FORREST.

THUS far we have learned that the organization of industry is directed by the principle of division of labor and that industrial efficiency is greatly increased thereby. We have also learned that the legal framework of our business world has been fashioned under the influence of the principle of liberty; that the free play of personal interest is granted by this principle; and that this is a strong stimulus to effective work. But these principles do not, by themselves, explain the marvelous productive capacity of modern industrial methods. That explanation is bound up with the development of machinery. It is the purpose of this chapter to recite the story of that development and to trace its influence on the modern business world. The story deals with what is called The Industrial Revolution.

§ 23. The Industrial Revolution.—The industrial revolution is the most important event in the development of the English speaking world since the 16th century. The influence which it exerted upon business methods and business organization is exceeded only by the recognition of the institution of private property. In one sense this is not a revolution but an evolution. The industrial forces which it liberated are not yet exhausted, nor are

the paths of experiment and discovery which it opened up fully occupied even in our own time.

In another sense, however, the industrial revolution stands for a sudden and radical change. It raised a new point of view from which to regard industry. It means that business men, almost within a generation, came to understand the rôle of machinery in industry. The change covered by this so-called Revolution was a change in method, a change in purpose and a change in the outlook of business men. It is in this latter sense, the psychologic sense, that we now use the phrase *Industrial Revolution*.

It must not be thought that the industrial revolution is in any sense a local affair. Australia and Canada and other English speaking colonies, as well as the United States, have accepted and are working out the new industrial point of view. The nations of Europe, the Latin peoples of South America, and Japan among Oriental peoples, are what they are to-day because of the change in industrial methods and ideals that began in England in the latter part of the 18th century; and what is called the awakening of China is, in fact, the recognition on the part of that ancient people of the necessity of adjusting their industrial life to the new industrial conditions of the Western world. We are here dealing with a comprehensive, a fundamental, and a worldwide influence,—an influence which, however, in some of its phases, has been carried farther in the United States than in any other country.

(a) *Control of Power.*—On its formal side the industrial revolution consists in a substitution of machinery for tools. No definite line can be drawn between a tool and

a machine, but a significant difference in the manner of their working may be noticed. An industrial society that rests on tools is limited in its growth as well as in its annual production. The fund of muscular and nervous energy that inheres in its workmen, the number of workmen and the degree of skill used by them,—these are the elements that measure the productive capacity of an industry based on tools.

This is not true of an industry based on machinery. In this case it is the available power of nature, rather than the labor values of human bodies, that sets a limit to industrial growth or to the possible annual production. The efficiency of machinery, or what is known as the economy realized through the use of machinery, rests at any time on the extent to which the intelligence of man has succeeded in controlling the forces of nature. What is called a labor-saving machine is merely a method or device by which some power of nature is forced to do what before was done by the expenditure of human power, or to increase the efficiency of human power, or to do what human power is incapable of doing. In this fact, that is to say, (the substitution of the power of nature for human power,) do we find the secret of modern industrial efficiency. This means the same thing as the substitution of machinery for tools.

(b) *The Changed Point of View.*—The beginning of the changes which have resulted in the substitution of machinery for tools appeared in England about 1760. This date is significant because it marks a change in the way people thought about industry. Prior to 1760 the idea of invention as a means of multiplying the efficiency of work, was not an effective idea. It did not present it-

self to workers as a means either of lightening their work or of increasing their output. By 1820 or 1830, however, the importance of invention was fully recognized and the genius of invention was heartily encouraged. The business world of to-day is what it is, very largely, because of this change in the point of view from which workers regarded industry.

It is difficult for us, who accept the blast furnace and the aeroplane as somewhat ordinary and common place achievements, to understand the state of mind in which men were content to rely almost exclusively on human power. Such, however, was the fact. In the textile industry, for example, but two changes in the method of doing work had been made between the time of the Greek civilization and the latter part of the 18th century. Penelope, who worked at her loom while awaiting the return of Ulysses, would have found nothing very strange in the art of weaving, could she have made a visit to the home of a textile worker in the beginning of the reign of George III. The spinning wheel had taken the place of the distaff, and a rough contrivance like a water wheel had come into use for fulling cloth. Outside of these two inventions, the process of carding, spinning, dyeing, weaving, and finishing the cloth was in England, in 1760, what it had been the world over, time out of mind. The life of the people, their social conditions, their industrial organization, and their market relations, were adjusted to what was called the "Domestic System of Industry"; that is to say, to hand work carried on in the homes of the workers.

§ 24. Steps in the Development of Machine Industry.—In 1760 it was the custom for an English weaver to

own or rent a small piece of land and to divide his time between its cultivation and work at his trade. The women and other members of the family were accustomed to spin the yarn of which the weaver would make cloth at a hand loom set up in his cottage. The first textile invention, of a long series of inventions that followed, was the invention of the spinning jenny, by Hargraves in 1765. This was a contrivance by which the spinner could spin a dozen or more threads at once. It was used secretly for some time and was not patented until 1770. About the same time Arkwright invented what was known as the water frame, the chief significance of which was that it was designed to be worked by water power. One reason for the tardy use of these new contrivances was the fact that the threads they made were not hard enough or smooth enough to be used in the weaving of fine cloth. This was finally overcome by the invention of roller spinning. There is some doubt whether Arkwright or Wyatt was the inventor of the "spinning engine without hands," as it was called, but for our purpose this is not important. In 1779, Crompton invented "the mule," so called, because it was a hybrid machine. It combined the elements of the jenny and the water frame, and produced a thread that was at once fine and strong. "The result of these three inventions was the definite conquest of the spinning industry by the factory," although the perfection of these devices was not brought into general use until 1825.

These inventions, although of great importance, would not, of themselves, have changed the course of the industrial world. They do not show, at least in a clear manner, a conscious purpose to save labor by the use of

machinery and by the application of scientific knowledge to business ends. This changed point of view may be illustrated by three events which will now be mentioned. The use of spinning machinery gave to the hand weavers more yarn than they could readily use. There was thus an industrial demand for the invention of a power loom. As the story goes, the necessity of such an invention was the subject of conversation at a dinner at which a clergyman named Cartwright was present. He undertook to produce a machine for using power in the weaving of cloth. The success of Cartwright in the invention of the power loom is the first significant case in which a clearly recognized need of a machine was the occasion for its invention. This invention, together with the three inventions mentioned in the foregoing paragraph, revolutionized the textile industry and laid the foundation of England's superiority in the production of cotton and woolen goods.

Another step in the transformation of industry pertains to the control of power. The water frame was designed to make use of water power in spinning, but the inadequacy of this form of power for all kinds of industry was quickly recognized. In 1785, Bolton and Watt made a steam engine for use in a cotton mill and the success of this appliance gradually extended the use of steam engines to all kinds of manufacturing in which machinery had been substituted for tools. The fact that heat could be converted into motion by the medium of steam had been known for many years. A crude contrivance called a steam engine was used for pumping water out of mines before 1760, but the development of this mechanism so as to adapt it to the use of the factory, required years of

application and the expenditure of considerable capital. This perfection of the steam engine, so as to make it commercially available, is a second illustration of the fact that the recognition of a demand for a mechanical contrivance leads to the construction of that contrivance. In this case, especially, the desire to bring a force of nature to do the work heretofore done by human power, was the stimulus to the invention. The invention of the steam engine supplied for machinery an almost unlimited amount of power, and this, in turn, made possible an expansion for production of which no one before had dreamed.

The power made available by the steam engine is generated through the combustion of coal. The mining of coal was dangerous on account of the fire-damp in the mines. For nearly a generation the development of machine industry was retarded by the danger incident to the mining of coal. In 1815, Sir Humphry Davy devised a lamp which the miner might carry with safety. This reduced the cost of mining coal, and provides us with a third illustration of the change in the point of view from which the industrial world had come to be regarded. The laboratory of the foremost scientist of the century was used to forward the development of industry. Another incident of the same sort is found in the development of chemical bleaching. Sufficient, however, has been said to make it clear that by 1825 the outlook upon the business world had been entirely changed from what it was in 1760. The development of industry was no longer limited by the amount of human power available for work. On the contrary, the only boundary that can now be assigned to the outswing of industry is the growth of

scientific knowledge that can be applied to commercial ends. When the genius for invention is exhausted, the story of the development of our business world will have been told.

§ 25. The Development of Steam Transportation.—The spirit of invention has shown itself in many lines other than that of the textile industry, but these need not here be narrated. All teach the same lesson. There is, however, one way in which power has been applied to industry of sufficient importance to deserve special notice. In order to produce goods cheaply by machinery, they must be produced in considerable quantities, from which it follows that a restricted market will of itself limit the benefits that may result from the use of machinery in production. There is thus raised a demand for cheap transportation as well as for cheap production, a demand which was met by the development of steam railways for inland transportation and of steamships for water transportation.

The importance of improved means of transportation was recognized in England in the 18th century. The names of Telford and Macadam stand high as engineers who devoted their lives to the construction of roadways. We still have macadamized roads. The Duke of Bridgewater built a canal for the transportation of coal in 1758. Thus in the latter half of the 18th century the close connection between production and transportation was recognized.

The significant development of transportation, however, awaited the perfection of the steam locomotive. The name of Robert Stephenson will forever be remembered as the inventor of the locomotive, that is to say,

an engine propelled by steam, capable of drawing cars over iron rails. The year 1830 may be accepted as the date which marks the beginning of the era of transportation by rail. For twenty years the claims of canals as means of transportation were strongly urged by engineers, but by 1850, in the United States at least, the business intelligence of the country was fully converted to the use of railways. The application of steam power to water transportation, which began with Robert Fulton, was also developed during this period.

It is not possible for one who writes the history of the business world in the 19th century to overstate the importance of railways, but a comparison taken from the history of our own country, will suggest the industrial significance of steam transportation in a very graphic manner. In 1845, the Secretary of the Treasury desired to learn something about the manufacturing industry in the United States, and among other things he learned that manufacturers were not able to sell their goods more than about two hundred miles from the place where they were made. This, of course, means that machinery could not be used to its full capacity for production; to do so, would be to produce more goods than could be sold in a small market of four hundred miles in diameter.

Such a situation is almost unthinkable as compared with that of the present time. Shoes made in Massachusetts are sold in Texas. Oranges raised in California appear on the breakfast table of a citizen of Maine. Hay raised in Michigan goes to Arkansas, Maryland, and Connecticut. Peaches raised in Georgia will be eaten in Wisconsin. There is no such thing in this country at the present time as a localized market, all of which is due

to the wonderful development of railways and steam transportation.

Perhaps enough has been said respecting the formal part of the industrial revolution. That the changes described are revolutionary in character must be admitted, when the outlook upon the modern business world is compared with that of the 18th century. In the changes here recited, is found the explanation of modern wealth, of national power, and of the high standard of material well-being. Nor is there any reason to expect that further progress will be arrested. The genius for invention shows no mark of exhaustion. The boundary set to the possible development of industry is no longer the available amount of human power applied to hand work. A new power has been geared to the shaft of industry whose strength has not yet been measured. This is the chief lesson which a study of the industrial revolution teaches.

§ 26. Measurement of Increased Efficiency.—It is sometimes easy to say a thing without really grasping its significance. So familiar is the industrial use of power, that we are in some danger of losing the point of our lesson. It may, therefore, be well to submit an estimate designed to show in a graphic manner the efficiency that comes with the industrial use of power.

Since the significance of machinery consists in the substitution of Nature's powers for the muscular force of man, and since the consumption of coal in the boiler of a steam engine is the chief means of effecting that substitution, it follows that the labor required to mine coal, as compared with the power for work that lies in the coal mined, will show how much the industrial world has gained by doing work in this roundabout way.

The latent energy in a pound of average coal is something like 12,600 heat units. This pound of coal, if burned in an engine of fair efficiency, delivers for work an amount of energy equal to 982,000 foot-pounds. If now, a coal miner is able to mine two tons of coal a day, he gives to industry, as the result of eight hours work, an amount of available energy equal to 4,480 times 982,000, or 4,390,000,000 foot-pounds. This figure must be compared with the energy, measured in foot-pounds, which our miner could give in a day if he applied his muscular power directly to the production of those things that are now produced by the machinery, driven by the engine, fed by the coal which, as a miner, he has dug.

For this comparison we accept the engineers' formula that one horse power is equal to 33,000 foot-pounds and that a man power is one-twelfth a horse power. From this it follows that the standard measurement of a man power is 2,750 foot-pounds. It should next be noticed that the horse power unit is confined to one minute of work. It means the amount of energy it would take to raise one pound, one foot, in one minute. The figure given above for the coal dug by the miner is the result of eight hours work, from which it follows that the 2,750 foot-pounds, which means the standard energy that a man can deliver in one minute, must be multiplied by 480 in order to find the amount of energy delivered in an eight-hour day. The multiplication shows this to be 1,320,000 foot-pounds.

We have now the two figures to be compared. If a miner of coal works eight hours a day and produces two tons of coal, he creates available power of 4,390,000,000 foot-pounds: in doing this work he expends muscular

energy to the amount of 1,320,000 foot-pounds. The net gain to industry in available power is the difference between these two figures. The efficiency of this worker, due to machinery, is increased more than 3,000 fold. Three thousand times as much working power gets into work as was the case when man used tools.

The above analysis is, perhaps, more graphic than accurate. It takes no account of sorting, transporting and otherwise handling coal in order to make it available for factory purposes, nor the loss in power if used far from the place it is generated; but the comparison is sufficiently accurate to support the lesson taught. We find in the extended use of power machinery the key to the secret of that marvelous increase in producing ability displayed by the modern business world. The world is growing rich, because, by the means of machinery, nature is made to work. But nature asks no pay and the pay of man is on that account increased many fold.

(Work is also made effective by removing the obstruction to the free use of power.) The steel rail over which a locomotive draws a heavy train of cars is an illustration. Some idea of the extent to which the scientific application of power adds to its productive ability may be learned from an experiment recorded by Babbage, in his remarkable book, "Economy of Manufacture." The experiment refers to the force necessary to move a block of stone which, he says, "will vary according to the mechanical knowledge employed in their transport. From this experiment it results, that the force necessary to move a stone along:—

	Part of its weight
1. The roughly chiseled floor of its quarry is	2/3
2. Along a wooden floor	3/5
3. By wood upon wood	5/9
4. If the wooden surfaces are soaped	1/6
5. With rollers on the floor of the quarry	1/32
6. On rollers on wood	1/40
7. On rollers between wood	1/50"

A comparison of the various methods used in moving the stone, shows the saving of power that results from the application of mechanical principles.

As Mr. Babbage observes, "At each increase of knowledge, as well as of the contrivance of every new tool, human labor becomes abridged. The man who contrived rollers invented a tool by which his power was quintripled. The workman who first suggested the employment of soap or grease was immediately enabled to move, without exerting a greater effort, more than three times the weight he could before."

Some years ago a computation was made, designed to show the increased efficiency of machine work as compared with tool work. The result of this computation, applied to the present day population of the United States is, that it would take 426,000,000 people to produce with tools what 100,000,000 people now produce with machinery. This computation, it should be said, rests on an investigation of the mechanical trades. It takes no account of the increased numbers required to provide food for the increased number of mechanical and manufacturing workers. The figures are not altogether trustworthy, but the impression which they leave is a true impression. They give something of a measurement of the tremendous increase in industrial power due to the substitution of machinery for tools.

§ 27. Some Results of the Industrial Revolution.—The substitution of machinery for tools has brought with it quite a number of social and industrial results which must be known by one who desires to understand our modern business world. Three of them will be named.

(a) *Reclassification of Society*.—The development of that business organization necessary for the employment of large amounts of capital, is responsible for the appearance of both the "capitalist class" and the "labor class" as those words are now used by business men. This does not mean that there was no capital and no labor prior to the substitution of machinery for tools; but that the conditions under which capital was used and laborers employed prior to 1760, were different from their use and employment in the modern business world. This may be best illustrated by reference to the textile workers. The textile industry prior to 1760, was carried on under what is known as the "domestic system." According to this system the workman owned or rented his home; he owned or contracted for the material upon which he worked; he owned the tools with which he worked; he sold the product of his work; and he accepted the proceeds of such sale as his wages.

A complete description of the industrial conditions as they existed in England in the 18th century, would modify somewhat this concise description. There are a few illustrations of what we may call the modern factory; that is to say, the assembling of workmen under the roof of an employer. By the middle of the 18th century, also, there had grown up in England a middle man whose specialized business it was to furnish weavers with yarn and pay them for cloth. Speaking generally, however,

and holding in mind the purpose for which the description in the text is made, it may be accepted as conveying a true picture of working conditions prior to the industrial revolution.

If now, we consider industrial organization, after the transition to the factory system had been accomplished, we find a number of interesting facts.

First: The laborer had been separated from the soil. He had come to be a dweller in the city where the machinery was situated, and lived under city rather than rural conditions.

Second: The home, or cottage, or tenement of the laborer, no longer sheltered the implements or tools used in work. These had given way to machinery driven by water power or steam power, and were set up permanently in a building known as the factory. This was necessary, for not only was the machinery too large to be set up in the home of the worker, but, in the case of the steam engine, the power had to be used close to the spot where it was generated.

Third: These machines came to be the property of those who first caught on to the idea that production by machinery had a great future. They assumed the risk, they were successful, and the property in all mechanical helps to workers came into their hands. There was no other feasible method, at the time, of bringing the laborers and the machinery together. The result was that the value of the tools which the laborers owned was destroyed because there was no longer any extensive use for tools in production. The laborers were, in consequence, obliged to come to the owners of the machines to seek for an opportunity to work. It thus came about that the

change from tools to machines made of the old laborers so far as industry is concerned, a propertyless wage-earning class.

The converse is true of the class we now call the capitalist class. Somebody had to own the machines and assume the risks. Somebody had to employ labor if the factory system with machinery was to prove a success. These small capitalist employers, having reaped the increased profit resulting from the first substitution of machinery for tools, came to be the large capitalist employers of to-day. They grew into a capitalist class as naturally as laborers grew into a wage-earning class. This reclassification of society on industrial lines is the most far reaching result of the industrial revolution.

(b) *Corporate Organization of Business.*—The profitable use of machinery calls for large amounts of capital under the direction of a single management. It means the growth of "great industries" and makes necessary some kind of an organization by which great industries can be held together and controlled. The type of organization most successful for this purpose is the corporation. Its cursory description is necessary in a treatise that undertakes to draw a picture of the modern business world. This description will be found in Chapter XIII of this treatise. It will there be shown why the corporation is the business organization peculiarly adapted to the needs of great industries that rely on machinery. One of the most stupendous facts of our time is the development and the insidious influence of corporations. It is a result of the industrial revolution.

(c) *Organization of Wage-earners.*—Another fact of great significance is the organization of the labor interest,

that is to say, the rise and growth of trade unions, trade federations, and the like. A trade union is an organization of workmen in a given trade, to the end that they may act as a unit, rather than as individuals. The engineers that work on the railways, for example, band together and agree to bargain for wages in a body. They make what is called a collective bargain for wages. By this means, wage-earners believe they are able to get more for their work than they would get if each struck a bargain for himself.

Before the industrial revolution, there were no trade unions in the sense in which that word is now used; at present a large part of workers in trades, and in some countries agricultural workers and clerks, are members of some kind of labor organization. It is sufficient for the present to see that the organization of labor, like the organization of capital, may be traced to the changes that came over industrial society when hand work was displaced by machine work. How to treat trade unions is one of the most perplexing questions of modern times. The destiny of the industrial world depends upon the answer given.

CHAPTER VI

MOTIVE IN INDUSTRY

"Desires extend themselves with the means of their gratification; the horizon is enlarged in proportion as we advance; each new want, equally accompanied by its pleasure and its pain, becomes a new principle of action."—BENTHAM.

IN explaining property and the need of private property it was said, that men will not undertake severe work unless they are fairly sure of being paid for their work or of making a profit out of their industry. This means that men will not work without a motive. If we desire to find the cause of work we must discover the force or motive that sets it in operation. As Nature's forces are the power that makes machinery effective, so motive in industry is the force that lies back of work. It is our purpose in the present chapter to describe and classify industrial motives, and to consider the various ways in which industrial motives are presented to men in order to induce them to work.

§ 28. Wants as Motives to Work.—The most important fact in explaining industry is the fact that men have many and varied wants. To satisfy wants is the purpose of work and the explanation of industry. This statement may be proven by assuming the contrary. If the wants of men could be supplied without work, there would be no farming, no manufacturing, no buying and selling, no paying or receiving of wages, no anything as we now know it in the world of industry. Indeed, one cannot imagine what kind of a world it would be if everything men desire were as free as the air. This fact that work is set going

by the desire to gain possession of the things that Nature does not freely give, is fundamental in every attempt to explain the industrial world. We have here a cause, a means, and a result. The cause is human wants; the means is human work; and the result is human satisfaction. What work is we have already learned from the first chapter; we must now consider the nature of wants and the conditions under which wants are satisfied, and learn what influence the consumption of those things that are produced by work may have upon the extent to which and the manner in which men work.

(a) *Analysis of Wants.*—An economic want is not the lazy wish to have something. A boy lies in the shade and, in a dreamy sort of way, wishes that he had a motorcycle. But that does no good; it puts no money in his pocket. The wish leads to no definite purpose on his part and, consequently, no result follows. But if the boy's wish for the motorcycle is so great that he is willing to mow the lawn to get the money, or to give up ice cream sodas to save the money, then his wish is what political economists call an effective economic want. (An economic want, then, in the sense in which we shall use the word, may be defined as a desire combined with the purpose of securing the means of satisfying that desire.) It is the cause of work.

The different kinds of wants are so many that they cannot be numbered. They are as various as human nature. The usual classification of wants places them under three general heads, as follows:

Wants of the necessaries of life,
Wants of the comforts of life, and
Wants of the luxuries of life.

The general idea underlying this classification is that necessaries comprise those things that sustain life, such as food, shelter, and clothing. The comforts of life include perhaps the same kinds of goods, but made up in such a way as to give rise to an added pleasure beyond the pleasure that comes with the bare satisfaction of physical or animal wants. Thus, food well served, a house well arranged and well furnished, clothes that fit and are of good color and material, are illustrations of this class of goods. They are desired because their use makes us feel rested, contented, and respectable. In short, they minister to what one calls the comforts or class requirements of life. Luxuries cannot be defined except from the point of view of some particular class in society. If, however, we hold in mind how the majority of people live, all things that supply wants other than those of physical or ordinary comforts are usually regarded as luxuries. Thus, the desire for pictures, for music, for the theater, for jewels or costly pleasures, and the like, is a desire for luxuries. All these wants and desires, provided they are sufficiently strong to induce men to work in order to obtain their satisfaction, must be accounted as motives in industry.

(It is sometimes said that the want for things bad is not an economic want.) For example, is the desire for liquor, for dancing until three o'clock in the morning, or for high-heeled shoes that break the arch of the foot, an economic want? The answer to this question is that, from the point of view of the business world, these desires are no different from the desire for food, for shelter, for pictures, or for any other of those desires which by common consent are regarded as healthy desires. Provided a want is sufficiently strong to induce men to work to

secure its satisfaction, it is, from the point of view of the business world, an economic want. A social reformer may properly undertake to educate people to a better appreciation of what their healthy desires should be, but he has no right to pervert language and to say that a pernicious desire, if sufficiently strong to induce men to work, is not an economic want.

(b) *The Law of Wants.*—The pertinent fact about wants is that they grow. They seem to be capable of indefinite expansion. The satisfaction of one grade of wants permits other wants to spring up. What was a luxury to one generation becomes a comfort to the second generation, and perhaps a necessity to the third generation. Many illustrations will at once present themselves to make clear the truth of this statement.

The fact that wants are capable of indefinite expansion is of great importance, for it shows that there is no end to industrial progress so far as motive for work and effort is concerned. It suggests, also, the course that industrial progress is likely to take. Suppose the invention of a labor-saving machine enables seven men to produce as much of a certain kind of goods as ten men produced before. This does not mean that the three men thus thrown out of work will be idle. On the contrary, there will spring up in the community a demand for some other kind of goods, and these three men will give their work to the production of those goods which satisfy the new wants. This illustration shows how the growth of wants is related to industrial progress.

Every want satisfied gives rise to a new want, or permits an old desire to become an effective economic want. Every step in the increase of efficiency of workers sets

some workers free so far as old wants are concerned, and the need of these freed workers to have an income leads them to seek out new desires and to produce goods which will satisfy new wants. (This fact that wants are capable of indefinite growth is sometimes called the Law of Wants, and as such is the corner stone of any theory of industrial progress.)

§ 29. **The Law of Effort.**—It would be a mistake, however, to think that there is no limit to the work that men will do. Quite as strong as the desire for those things which work alone can gain, is the desire for leisure and for enjoyment. When the desire for leisure comes to be stronger than the motive for work, then work will stop and play, which as we have already seen is activity as an end rather than activity for an end, will begin. This is a very simple way of putting one of those universal facts of human nature which makes our business world what it is. To understand it, and to evolve from such an understanding the economic law of effort, it will be necessary for us to proceed a little farther in our analysis of wants and of work. Two points will claim attention.

(a) *Fact of Decreasing Desires.*—In the first place it should be noted that one's desire for a particular thing decreases as the amount of the thing which he has increases, until, finally, his desire for any increased amount of the thing in question ceases altogether. An every day illustration will make this point clear.

When a man is hungry, there is nothing he wants so much as a helping of bread and meat. He is willing to give a large price for it rather than suffer the pangs of hunger. After he has eaten this first helping, he may perhaps desire a second helping, but the desire for this is

not nearly as strong as was his desire for bread and meat before he had eaten at all. He would not pay as much for the second helping as he would have been willing to pay for the first, before the first stress of hunger had been satisfied. But suppose he has a second helping and his appetite is fully satisfied; under such conditions, he would not accept a third helping as a gift.

What is true in this case is universally true of the relation which exists between desire and satisfaction. The motive to work is strongest when the desire is most keen, and this motive becomes weaker the more desire approaches satisfaction. The amount of effort, therefore, which one is willing to put forth in order to obtain those things by which wants are satisfied, will tend to decrease as the amount of those things through which satisfaction is to be obtained increases, and, after a certain point, unless there is some other motive for work than the satisfaction of particular desires, no more work will be done.

(b) *Fact of Increasing Fatigue.*—In the second place, it should be noted that one's disinclination to work becomes stronger the longer one works without rest. It is said that work is bound up with pain. While perhaps this is the common experience of most men and women, it is not necessarily true under all conditions. In itself, work is no more painful than play. The idea that work is painful arises from the common experience of workers who push their work beyond the stage of healthful endurance. The motive for work becomes weaker with every hour added to the working day, or every day added to the working week, or every week added to the working year. It appears, then, that from the point of view of

work as well as from the point of view of wants, there comes a point when work will cease.

The foregoing is as true of the work of a nation as of that of an individual, from which it follows that a period of industrial growth may be brought to a close by the fact that the mass of people are satisfied with the standard of living already attained; that is to say, satisfied when their desires are compared with the increased work that further satisfaction would entail.

(c) *Desire for Money an Exception.*—At this point, some one will certainly raise an objection. How is it possible to explain the fact that men continue in the battle of industry long after they have enough to satisfy all reasonable wants? That this is true of individuals everyone knows; it is equally true of nations. The mass of men and women are not content with present attainments; they readily respond to leaders who assert that this road or that road leads to industrial progress. There must be something in men which causes them to undertake severe toil different from the simple desire to satisfy the necessaries, the comforts, and the luxuries of life. We must find out what that something is, if we are to explain our work-a-day world.

Besides the desire for things to be consumed or enjoyed, is the desire to be rich; that is to say, the desire for money, and for more money than one's neighbor possesses. The desire for money differs from the desire for things, in that it is never satisfied. (The more one has of money, the more one wants.) At least, a man who does not respond to this desire for riches quickly drops out of the industrial race, and his influence for determining the character of the modern business world may be disre-

garded. The desire for money is a force that strengthens, rather than weakens, with the attainment of the thing for which it strives.

Since this desire for money is the strongest motive in the modern business world, it may be well to study its character a little more in detail. The fact that the desire for money, or the desire to be rich, grows stronger rather than weaker with the attainment of its end, may be easily explained.

In the first place, to become rich is the badge of business success. The desire for money is merely a form of ambition. To have money makes a man distinguished; it separates him from the crowd; he is pointed out by his neighbors as a successful man. One who succeeds in business derives the same kind of pleasure from his success as does a successful doctor, a successful lawyer, a successful politician, or a successful writer of books. Moreover, not only does one desire to succeed in any task which he has undertaken, but he desires to succeed better than others who are doing the same thing, and thus become a distinguished man in the community. This is what a desire for riches means, and as an industrial motive, it is very powerful.

In the second place, it must not be forgotten that the possession of money confers power on him who possesses it. Whether we like it or not, the modern business world is an organized army of laborers over which are captains of industry, and the man who is at any time captain is the man who can control money. This desire for power is common to all men. The satisfaction that comes to one because he is in a responsible position, is universal. The business man feels this keenly. To succeed in busi-

ness not only satisfies the ambition for success, but it confers upon him who succeeds the satisfaction that comes with the exercise of recognized power.

Ambition and the desire for power are perhaps the strongest passions that move men to action. They are relentless in the demands which they make upon men for continued effort. By showing that this passion is present in the business world, as well as in other walks of life, we have discovered a motive that will carry labor and enterprise farther than the simple desire to obtain satisfaction of the so-called economic wants. With industrial ambition to spur men on, there will be no limit to the struggle for industrial progress.

The lesson of the foregoing analysis is as follows: The motives that lead men to work are the desire to satisfy felt wants, and the ambition to attain success and to exercise power. Both of these are causes of work. They must both be included in an explanation of industrial enterprise.

§ 30. Organization of Motives.—A knowledge of the nature of steam will not of itself enable a man to build an effective engine. He must know, also, the various ways in which steam may be used in order to get the largest amount of work out of burning a certain amount of coal. In the same way, a knowledge of the nature of wants, and of how desire is related to effort, will not permit one to say what particular kind of an organization of workers will be the most efficient. He must know, also, the different ways in which work may be organized and select the one which responds most effectively to the motives for work. This leads us to the study of the manner in which industry is organized from the point of view of the motivation of work.

(a) *Marks of a Well-Adjusted Business.*—It is easy to state in a sentence the marks of a well-adjusted business, so far as this depends on the manner in which the motives for doing work are presented to the workers. A business which is organized on sound principles will induce workers to strive,—

to produce the largest amount of goods possible,
to produce the best quality of goods possible, and
to do this with the least possible expenditure of time and of material.

The three tests of efficient work, are quantity, quality, and care. The larger the quantity produced the more will there be to sell; the better the grade or the quality of the product, the higher will be the price and the larger the gross receipts from sales; the greater the care of the workmen in the use of time, material, and machinery, the less will be the expense of production and the higher will be the net receipts that come from sales of the product. It is the net receipts, the profit, the amount that is left over after all costs of production have been paid, that determines future wages, future profits, and the further development of industry. It therefore follows that an organization of industry which brings all who are engaged in a business, from the foreman to the water-boy, to feel a personal interest in quantity, quality, and care, is the best organization.

It will be instructive to ask how far the modern business world has come towards the realization of this ideal. In no other way can we gain so clear a conception of the practical bearing of motive on work.

(b) *Comparative Study of Motive in Industry.*—The industrial workers of the world have been organized in

many ways. To make clear the point in hand, let us compare three types of organization. These are: the slavery system, the wage system, which is the one under which we are now living; and a system which, for want of a better name, may be called the system of co-operation. In order to avoid a long statement in the text, this comparison will be submitted in the form of a diagram, and the text will be confined to explanation of, or conclusions from, this diagram.

COMPARISON OF THREE METHODS OF PRESENTING MOTIVE TO WORKERS

Organization	Status of workman	Extent of workman's interest in work	Criticism of system
1	2	3	4
Slavery system	No rights No property in product Pay determined by animal wants	No interest in: quantity, quality, or care	No industry of high grade possible
Wages system	Has political rights No property in product Pay determined before work is done	No direct interest in: quantity, quality, or care	High technical skill may be acquired No guarantee of continuous or contented work
Co-operative system	Has political rights Has property in product Pay determined after work is done	Has direct interest in: quantity, quality, and care	Theoretically the best system for presenting motive to workers

In column 1 is found the designation of the working organizations placed in comparison. These are the Slavery system, the Wages system, and the Co-operative system. The word co-operative is not here used as many reformers use it. It should not suggest to our minds "co-operative stores," or "co-operative factories," or anything that stands for a definite kind of contract or business agreement. All of the numerous programs of reorganization that have been suggested by reformers during the past one hundred years, from piece work to socialism, are covered by the phrase "Co-operative system," as here used.

In column 2 will be found a statement of the legal status of the worker and of the place he occupies in industry. Thus the slave has no rights, for he himself is property: he does not own or have any claim upon the product of his hands, and the amount he gets as the result of his work is determined in the same way as the mule driver determines the amount of corn to be given to his mule. Both are animals to be kept in good working condition or their owner will lose his profit from their use.

The wage-worker is a freeman. He has a place before the law. In this respect he differs from the slave for he cannot be forced to work like a beast. Being a freeman he can make a contract for his pay before he goes to work. His standing in industry, however, is far from satisfactory. He has no property in the things he helps to make, and he has no interest in his work, or motive to do good work, except to keep his job at the agreed wages. What is worse, especially for a business world made up of freemen, he has no sense of responsibility. He assumes

no risks. He has no mind or thought for the success of the business to which he gives his time; at least, he does not think of it in the same way as his employer thinks of it. This is due to the fact that his pay is determined before his work is done.

The co-operative worker, like the wage-worker, has a place before the law. He is a freeman and can make a bargain; but the kind of bargain which a co-operative worker would make, is different from that made by a wage-worker. It would be such as to give him a place in industry, and make him feel a joint responsibility with his co-workers for the success or failure of the business that provides him work. His pay is determined after his work is done and he feels with regard to the outcome just as a proprietor feels. There is, of course, no such organization. It cannot be found in the business world of to-day. It is an ideal, or rather a plan here set down, for the purpose of showing that the wages system fails to present the motives for work in an effective manner.

Columns 3 and 4 in the above diagram may be considered together. The one shows the extent of the workman's interest in quantity, quality, and care; the other passes judgment on the three organizations of motives placed in comparison.

The slave has no economic interest in his work. The legal condition under which he lives offers to him no hope for bettering his condition. It is fear that forces him to work and fear is a poor foundation on which to build an industrial society. The slave has no interest in quantity, quality, or care of material, either direct or indirect. History as well as reason shows that no industry of a high grade is possible while laborers are slaves. The abolition

of slavery means, for industry, the substitution of hope for fear as a motive to work.

The superiority of the wages system over the slavery system lies in the fact that the worker is a freeman; that the door of opportunity is opened to him; and that it is reasonable for him to entertain an ambition to rise within his class, or to get out of the labor class altogether. So far as the three tests of a sound organization are concerned, however, (the wages system is but one step removed from the slavery system.) The slave has no interest whatever in quantity, quality, and care, while the wage-worker does have a roundabout, indirect interest in the commercial result of his work. He knows that, unless his work is productive this year, he cannot demand higher wages next year, and so indirectly he has an interest in the product. But this is certainly a roundabout way for presenting to freemen the motive to do good work. It might almost be called an organization for the encouragement of banditry. Strikes and sometimes violence are the means used by workers to get their share of an increased product. While, therefore, high technical skill may be acquired under the wages system, this system does expose society to the constant danger of interruption and disorder. The motive to work is not presented to workers in such a way as to be a guarantee of continuous and contented work.

What is termed the co-operative system aims to organize production (in such a way as to bring the motive of personal interest directly to bear on the process of production.) By turning to the diagram it will be seen that all workers, employees as well as employers, have a "direct interest in quantity, quality, and the care of material."

This is by all odds the best form of organization, for it presents to every worker a motive for the attainment of efficiency. The pay of all is in proportion to the productive capacity of all, and on that account each worker comes to have personal responsibility for the manner in which others work.

(c) *Lesson Taught by the Comparison.*—Sufficient has been said to make clear the lesson taught by a comparative study of the wages system. From the point of view of motive, our present organization is far from satisfactory. By what path a more perfect adjustment of motives will be attained raises many far-reaching problems. Our present purpose is confined to an explanatory description of the business world as it now is. That description must recognize the prevalent discontent of the labor class with their position in our industrial organization. The foregoing comparison of the slavery system, the wages system, and the co-operative system, makes evident the cause of that discontent. Our present organization of industry does not present the motives for work to all workers in an effective manner.

This criticism of the present method of motivizing labor has been frequently made. Piece work, which makes the pay to depend on the amount of work done, aims to present to workers a motive for intense work. Technical co-operation, which is a proposal that all workers should own part of the capital that gives them employment, is another proposal which aims to interest all workers in their work. Profit sharing is yet another scheme designed to make the pay fluctuate with the success of the business rather than with the number of hours a day spent. Premium work should also be mentioned in this connection,

and on top of them all is the dream of a Federation of Industries. The mention of these plans and programs brings into yet stronger light the fact that discontent with the wages system is a very patent fact in our present industrial order. The point of our lesson is, that the explanation of that discontent is found in the inadequate and illogical way in which motive is presented to workers. The problem thus raised is a fundamental one. It is, at bottom, a problem of industrial organization.

CHAPTER VII

CONTROL IN INDUSTRY

"Competition, or the unimpeded pressure of individual on individual, has been from the beginning, a great force in societies."—
ARNOLD TOYNBEE.

THERE are two principles of control by which the social relations of men are guided. The one is the coercive principle exercised by government; the other is the competitive principle which works through the agency of self-interest. We shall now undertake an analysis of this latter principle.

§ 31. Statement of the Question.—The industrial world of to-day aims to maintain and encourage industrial freedom. If men own land, they can use it as they see fit; if they possess wealth, they are free to consume it in pleasure, or to invest it in business. Every man has the right to receive wages from whomsoever is willing to pay, and to pay wages to whomsoever is willing to work. In the selection of a trade, a profession, or a line of business, each individual is free to make his own choice. If men join with others for co-operative work, they do so voluntarily; they come to an understanding as to the terms of their joint work, and express these terms in the form of a contract. (The modern business world is a régime of contract;) it is held together by working agreements; it rests on mutual understanding; it is, in short, organized in such a way as to realize industrial freedom, so far as that can be done through established customs or through law.

But industrial efficiency is as important as industrial freedom. A high standard of living is universally regarded as desirable, and such a standard is limited by the amount that workers are able to produce. To attain efficiency in production, each worker must, in some way, be forced to adopt that line of work for which he is best fitted; each property owner must be required to use his property so as to be of the highest possible assistance to workers in the production of goods. For the successful management of co-operative work, whether in large industries or small, one class of workers is obliged to accept orders from other workers. Strict discipline and complete subordination on the part of all workers, whether managers or laborers, is required for a prosperous business. How can this be brought about in a society in which every worker, and every owner of property, can do as he pleases with himself and with his own? When we are able to answer this question, we shall have discovered the principle of control in the modern business world.

Another need for control in industry may be named. The business world as it moves on from day to day is not altogether an harmonious world. It is true that all work is co-operative, but it cannot be said that all the interests of all workers are the same. This, at least, is the way it appears to the men who do the work. If an employer pays more in wages, it seems to him that he is getting less in profits; if a rise in the price of wheat gives the farmer increased profits, the consumers of bread feel themselves aggrieved; if Kansas City jobbers increase their sales, Chicago jobbers say that such an increase of sales on the part of Kansas City is an encroachment on Chicago territory. Many other illustrations might be

given to show that what is to the advantage of one person, or class, or locality, may be to the disadvantage of another person, class, or locality.

Under such conditions, it is evident that some powerful force that makes for agreement is essential. What is this force that tends to harmonize conflicting interests and keep production going? How does it operate? What are the results it has produced? These are questions to be considered in the present chapter.

§ 32. Marks of a Successful Industrial Organization. The dominant control over industrial affairs is exercised through the free play of business interests. This must be the case in a business world that rests on personal choice and voluntary agreement. It is, however, easier to say this than to make clear what it means. As a first step in its explanation, we shall consider certain marks of a well-organized industrial society, and endeavor to see how such results tend to be brought about by allowing every man to manage his own affairs. Five classes of results, all of which are realized to some extent in the modern business world, will be passed in review.

(a) *The Placement of Men.*—All men stand as equals before the law, but this does not mean that all men are equally fitted for every kind of work. Some take naturally to one trade or profession, while others are peculiarly fitted for other kinds of occupations. This difference in the natural aptitude of workers may be seen early in life. Some boys, for example, are born with a mechanical bent; others understand animals and birds without knowing where they learned; still others show themselves as leaders who are able to make a football team out of eleven raw boys. We all know that boys are different.

They may be equals intellectually and physically, but they are different. These differences are carried into manhood and must be recognized by a successfully organized industry. Each worker must be placed where he can work contentedly and efficiently.

(But natural aptitude is not as important as trained ability.) Every system of industry, even slavery, recognizes the need of training of some sort. The English gilds of the fourteenth century required seven years of apprenticeship before a boy was admitted to the trade as a man worker. In the early days of steamboats on the Mississippi River, eleven years of training and experience were required before a man was ranked as a responsible river pilot. At present, in the world of industry, schools have largely taken the place of apprenticeships. This explains trade schools and business courses in high schools; as well as engineering schools, medical schools, teachers' schools, commercial schools, and the like, in our universities. It explains, also, the schools that railways and many manufacturers have provided for their employees; and, finally, it explains that employment itself is an educative process, and tends to make a specialist of every worker in the line of the work he is doing.

Our question at present, however, is a different question. The modern business world is a world of organized specialists, and its efficiency depends on a proper placement of its men. How are workers placed? Who selects them, or rather what is the process by which selection is made so that the industrial ability of every man, whether natural or acquired, shall be used in the most effective manner? To make this selection, and assign to each worker his proper place for work, is one of the chief serv-

ices rendered by the principle of control in our modern industrial society based on industrial freedom.

Two steps may be observed in the working out of this selection. In the first place, the leaders, or industrial managers, must be selected and forced to work in their proper places. (This is done by competition between men to become managers.) The process may be made clear by comparing two methods of selection.

In matters of government, society selects its managers by popular vote. The Governor of the state, the mayor of a city, or the supervisors of a county, are elected to perform the duties of their respective offices. They are selected by ballot and placed in office by the direct choice of the citizens.

Industrial matters, however, lie outside the sphere of government, and no such method of selection is possible. The management of industry is not at the disposal of popular vote. In this case, anybody is at liberty to try to become a manager in any line of industry he may choose. If he succeeds, he continues to be a manager, and will expand the business over which he assumes management until he has reached the limit of his ability, or the limit of the market for the goods he makes. If he fails, he ceases to be a manager and disappears from the class of managers. It is by this means that industrial society selects its business leaders. (The selection is by trial and only the best men stay.) In this way, it is claimed, the management of the world's industries are forced into the hands of those who are the best fitted for the task. They are the only ones who can survive the test of business competition.

The second step in the selection and placement of

workers pertains to those who work under the direction of the manager. This seems, on the surface, to be merely a question of personal authority. The manager selects his subordinates and they, in turn, employ the workers. But further analysis shows that here, too, the selection is by trial. Industries are operated for profit; the rate of profit earned is the test of management, and every manager will, consequently, select his co-workers for their ability and place them where they will be most efficient.

Although this selection rests on personal authority, it is not arbitrary. A boy who for the first time seeks a place on the payroll of an established business, will be subjected to some kind of test. His personal appearance, the kind of family he comes from, his habits as shown by the school record, will all have some weight. Perhaps recommendations of good character will be demanded, or the boy will be required to pass an examination to show fitness. These tests are all phases of business competition which have for their purpose the selection of only those boys for employment who are able to help make the business profitable.

But selection and placement does not stop with the writing of a name on the payroll. After that comes the process of shifting and promotion, and this is on the whole a process of competition. The employees are looking out for promotion, and the managers are looking out for men to promote. By promotion we mean the placement of an employee in a position of greater responsibility and higher pay. Such promotion is the result of trial, and is made because the employee has shown, in the position he previously occupied, that he can contribute more to the profit of the business in his new place than any

other available man. How this test is made is of no importance for the statement of the theory of selection. Many expedients may be used to test fitness for promotion. The point is, that if unfit promotions are made, the business will fail to show a profit, and the manager who is responsible for them will go to the wall. (Not only are managers selected by trial, that is to say, by competition, but employees also find their place in industry by a competitive selection working through the interest of the manager.) The principle that controls in industry, so far as the selection and placement of workers is concerned, is the principle of competition, and for this service its application is universal.

(b) *The Adjustment of Production.*—In an industrial society organized for profit, it is essential that only those goods should be produced that are needed by the community. This is true because the only way of getting a profit out of production is by sale of the goods produced, and unless the manager has guessed correctly what the consumer wants, he cannot expect his goods to be sold when placed on the market. Here, again, we have a trial. Different managers guess differently as to the kind of goods the market will take, and, as a result, large quantities of different sorts of goods are made. Those who have guessed the needs of the community correctly, sell their goods. They get back the money spent in production with a profit besides, and are in a position to begin again the process of production. A few years of this means an established business.

On the other hand, those managers who have produced goods that the community does not want, will find no sale for their products. Not only do they fail to make a

profit, but they lose the money spent in making the goods. This cannot go on very long. Sooner or later, such managers fail, or, if they do not fail and go out of business, they will change their line of production in order to make what the community is willing to buy.

(But it is not enough for managers to choose the right kinds of goods to be produced; they must judge also of the quantity that can be sold at profitable prices.) Business men have many helps in making this guess. Wholesale dealers employ "traveling men" whose task it is, not only to sell goods on hand, but to feel out the future demand for goods. The wholesale dealers act on the reports of their traveling salesmen in placing orders with manufacturers, and manufacturers in turn decide how much of certain things to produce, by the amount and character of such orders. We have already seen that trade papers and government reports are essential parts of the machinery of a market; we may now say that the successful manager is one who can make proper use of this material.

(The truth is, that too many mistakes in guessing the amount of useful goods that can be sold, is sure to result in a national catastrophe.) It is sure to result in an abnormal number of bankruptcies. This will cause many industries to shut down, and large numbers of workers will be thrown out of work in consequence. The usual income of these workers being thus cut off, they cannot buy as much as they were accustomed to buy, and other industries that depended on such workers to take their goods, will be forced to go out of business. This is one phase of what is called "commercial depression." We are not here concerned, however, with a business crisis or

commercial depression farther than to note, that it is a time of special trial for those who manage industries. The relative abilities of managers are tested by this partial collapse of the market, and only those managers who are the best fitted to meet the trial will stand the test. The relatively inefficient are forced to the wall, and when somehow business prosperity returns, the most successful guessers will be found in command of industrial enterprises.

The foregoing paragraph assumes a widespread commercial disaster. The same tendency may be observed during the years of ordinary business prosperity. Suppose the makers of a particular line of goods misjudge the market and produce more of this line than can be sold. Some of the industries engaged in this line must fail, and, provided other factors that make for business success are equal, it will be those who have lost the most money on account of the mistaken estimate of the market demand. Here, too, it is the best guessers who survive the trial.

A contrary assumption shows the same tendency. Suppose the makers of a particular line of goods misjudge the market and produce less of this line than could have been sold. Those who have judged most accurately will have the most to sell and reap the largest profit. They will thus be in a position to extend their investments more surely and more rapidly than their rivals, and the development of the business to supply the demand will come under the control of those who proved themselves to be the best guessers.

It thus becomes evident that the principle of control, upon which industry relies for discovering the needs of consumers and of limiting production to what is needed

in every line of goods produced, is the principle of competition. This result is attained by opening wide the door of opportunity and trusting to results. Those who have the keen business sense, or who master the details of what is called the market demand, survive the trial. All others disappear from the ranks of responsible managers. For the direction of industry, therefore, as well as for the attainment of efficiency in co-operative work, the modern business world, as we know it, depends on the autotomic principle of business competition acting through the universal desire of gaining profit.

(c) *The Application of Effort.*—A third mark of efficient industrial organization pertains to the application of effort. Where shall an industry be located? This means the selection of a place for the investment of capital and the employment of labor. What kind of an investment shall be made? This means the choice of a line of goods to be produced and of the kind of laborers to be employed. The selection of both place and kind of industry is made under the influence of a desire for profit, and, like everything else in a free industrial society, is under the control of the force of competition. What follows merely explains how competition guarantees a proper application of effort.

The location of an industry is a matter of competition. The different locations where particular interests might be located, may be said to compete with each other for the investment of free capital. If the business manager selects the best location, all things considered, his investment will succeed. This, of course, assumes that all other factors that make for success are the same for all locations. If, on the other hand, he chooses a wrong place

for his new industry, he will fail to keep the market, and others will make and sell the goods he hoped to make and to sell. One locality will grow; another locality will decline. The locality most fit for the industry concerned will survive the trial. Thus, the selection of the best locations for industries is forced on the business world in much the same way as is the most effective selection of men and of the kind of goods to be produced. All are under the control of the principle of competition.

(d) *Comparative Costs.*—It was said above, that competition forced managers to select those industries that produce the kind of goods which people want, because other sorts of products could not be sold. This is true, but this is not all there is to the question. It may be that consumers will buy any one of two or three kinds of goods. Which of the two or three kinds of goods will the manager choose to make? The answer seems simple. He will choose to make what he thinks will give him the highest profit for his investment. This is correctly reasoned, but how can he know which will give him the highest profit? He cannot try first one line of production and then the other. He must make his choice and stand by the result. After money is once invested in a particular industry, it cannot be withdrawn and put into another line of business without serious loss.

Again we say, this is true, but it is not all there is to the question. Although no individual investor can try out all lines of investment, and finally choose that which pays the highest rate of profit, the same result can be attained for business as a whole by an hundred investors, each of whom has a sum of money to invest. For it must be noted that these hundred investors do not select their lines of

production all at the same time. They come in groups; ten this year, ten the next year, and ten the year following. That is to say, investment is a continuous process. Each group of new investors will choose that line of work that pays the highest profit, and by this means, the industrial development of the country will be forced along the lines which for it are relatively the most advantageous. (It is in this way that the force which controls in the business world drives capital and labor into those lines of work which pay the largest profit. This may be called a competition of investment in which only the profitable investments survive.)

The phase of competition which we have just considered is what is called by economists "the doctrine of comparative costs." This doctrine is commonly used to determine what kind of goods ought to be made in a country and what kind ought to be imported from other countries. Manifestly, a country should export those things which are made at a low home cost, and import those things which are made at a high home cost. The country might, perhaps, make everything, and go on without any foreign trade. To do this, however, would be an unprofitable use of the labor and resources of the country. The total result of industry would be greater if competition were permitted to have full play, for then the capital and labor of the country would be forced into those lines which pay the highest relative profit.

This phase of competition is not confined to considerations of foreign trade. It has a thousand applications in everyday life. It is the force which guides men in choosing what they shall do themselves and what they shall pay to have done. A plumber who makes 60 cents an hour has

a woodpile that must be sawed. He can saw it himself or he can hire a laborer to saw it for him at 25 cents an hour. He has no choice in the matter, at least no business choice. He will pay the laborer to saw the wood, while he works at his trade, and will have 35 cents in his pocket at the end of each hour as the result of his bargain. (The plumber acts under the doctrine of comparative costs.) He compares the two costs of getting the same thing, and chooses the method that costs him the less. This phase of competition is of universal application. It is the guiding principle that controls the assignment of work among co-operative workers. Each worker follows what for him gives the highest profit. For society at large, this means that every man is working in his proper place, and the total product of this combined work is the greatest possible. Many illustrations might be given of the application of the doctrine of comparative cost and each one, on its part, would be an illustration of the automatic control in industry exercised by the force of competition.

(e) *Justice in Industry.*—The last mark of a sound industrial organization which we shall consider pertains to justice in business relations. If asked why business relations should be just, our first answer is that justice should be realized in all relations of life. There is in man a moral sense that finds expression in this demand for fair and just dealings.

When considered from the point of view of industrial society, however, another answer may be given. (The realization of business justice is essential for the highest business success.) Those contracts which express the conditions under which men work must be just contracts, for the reason that continued injustice in business arrange-

ments tends to weaken the motive for workers to apply themselves with efficiency and care. Justice and the absence of complaint and strife that comes with a sense that one is treated justly, are essential conditions of high grade production. From the economic point of view, therefore, as well as from the moral point of view, the realization of justice in business relations is a mark of a sound industrial organization.

Questions of equity and justice in industrial affairs pertain, for the most part, to what is called the "sharing of the product." "Competition," says Toynbee, "has been most successful in increasing the efficiency of production; distribution has perhaps lost more than it has gained." Here, without doubt, do we find the moral problem of our industrial future. Many criticisms may be urged against the wages system of industry and the wages method of measuring pay. At the same time we must give the principle of competition its due, for, at present, it is the agency upon which we chiefly rely for the attainment of justice in human relations. Competition is something of a guarantee that no flagrant disregard of equity and justice is likely to continue for any length of time. It may be true that some of the workers stand so near the starvation line that they are willing to accept any conditions an employer may see fit to offer. But this is not the situation in which the great mass of workers find themselves. For most workers, the condition of industrial freedom is a real asset. Within limits, they can refuse to agree to a working contract unless their interests are recognized. Laborers may go on a strike, consumers may organize a boycott, men with money may decline to invest under conditions offered, and so throughout the

list. The general result is that the actual contracts agreed upon will cover something of what all co-workers believe to be their peculiar interests. Thus, in a rough way, and for the mass of workers, justice is attained. The force that brings it about is the force that controls everywhere in the business world,—the force of competition.

§ 33. Evils of Competition.—It must not be assumed that the manner in which competition guides business affairs is beyond criticism. Such an assumption would not be correct. Many of those things which we regard as social and business evils may be traced to the normal trend of competitive forces. Indeed, there are those who believe the evils of competition to be so flagrant that they urge its elimination from the business world, even though this might mean the sacrifice of what English law defines as industrial freedom. We cannot enter upon a discussion of such a proposal, but we may inquire what some of these evils are, and by this means throw a somewhat different light upon the topic under discussion. Three alleged evils traceable to competition will claim attention.

(a) *The Wastes of Competition.*—Perhaps the most far-reaching complaint urged against the competitive principle, pertains to its wasteful method of working. Even admitting that under the guidance of its influence business is forced into the hands of the most efficient, and that workers are forced to produce goods that people want and to produce them in proper quantities, nevertheless, it is asserted, this is done at a terrible waste of men, of capital, and of opportunity. Three illustrations will make clear the nature of this waste.

A city has grown in a certain locality and the conven-

ience of the citizens demands the presence of a new grocer. Three grocers, each of whom selects what he regards as the best location, set up stores. Two of these must fail, for there is business enough for one only. The three enter upon trial and the buyers select the one who serves them the best. This they do by giving him their custom. The two who are not selected by this commercial election retire from the contest to count their losses. Their wasted time, wasted capital, and wasted opportunity is the price paid for the selection of the best man. These losses are an illustration of the wastes that attend the workings of the competitive principle.

Another illustration may be suggested. Twenty young men invest one hundred and sixty years in preparation for a profession. That is to say, each man spends eight years at school before he is equipped to compete for employment. The industrial demand, however, is limited to ten men, so that only ten out of the twenty can make use of this long training. This means that society finds a profitable use for eighty years of training, but the other eighty years stand for wasted time and wasted effort.

The above illustrations are stripped of all indirect benefits that flow from effort as such. They are designed to show the kind of waste bound up with competition rather than to measure such waste. They also, and this is the important lesson, make clear the fact that wastes of this sort are inseparable from industrial control by means of competition. That control is by trial. Those who pass the trial are crowned with success; those who fail drop out of sight. But the point is, there must always be more contestants than there are crowns of success. Under no other condition is it possible to make a trial

of fitness. What we have termed the wastes of competition, therefore, are in reality the cost of administering the principle of competitive control. It is what society pays in order that the best men may be selected for important industrial positions. If a better method of selecting industrial leaders can be devised, these so-called wastes of competition may be eliminated; but until that time arrives, our business world will continue to rest under the criticism that competition is a wasteful method of procedure.

Other illustrations of waste might be given, some of which are capable of remedy by proper legislation, but the two submitted are adequate for our present purpose.

(b) *The Unstable Character of Industry.*—If a man should find by experience that after four days of feeling well he was sure to have three days of fever, which in turn was followed by three days of chills, he would think something was the matter and send for a doctor. Four days of health out of ten days of life cannot be called satisfactory. Yet this is quite analogous to what has happened for over an hundred years in the world of industry.

(Business moves in cycles of about ten years each.) Suppose we begin with a period of prosperity, that is to say, a condition of business contentment. Laborers are employed, investors find fair investments, the farmer and the manufacturer find ready market for what they produce; indeed, it seems as though industry might go on forever, with production equal to consumption and consumption equal to production.

After three or four years, the producers and investors become impatient. They listen to grand schemes for

improvements or to enterprises which, while holding out the lure of high profits, carry with them unusual risks. A period of what is called speculative investment follows, covering perhaps three years. People with money are hot to invest. They wish to get rich quick, and will place their capital in business ventures which, in ordinary times they would not look at twice.

This period of speculation ends with a crash. Most of the bad ventures fail, and many good businesses are pulled down with them. This crash is called a "crisis" or a "panic," and it appears with a regularity that suggests the rising and setting of the sun. "Something like a ten-year period has long been observed. In the United States, for example, financial crises appeared in 1818, 1825, 1837, 1847, 1857. Then came a break in the apparently regular sequence, but beginning with 1873, the ten-year cycle seemed to appear again, there being well-marked crises in 1873, 1884, 1893, 1903." These years were years of an unusual number of business and banking failures, which is commercial disaster.

The crisis marks the beginning of what is called "commercial depression," and for three years the outlook on the business world is decidedly gray. Promoters cannot readily find investors even for good undertakings. Factories are shut down or running half time. Many workmen are out of work, and the army of bummers and criminals is easily recruited. For three or four years this continues until the business world again enters on a period of normal prosperity, to be followed again by speculation, crisis, and slump.

Manifestly, an industrial organization with such a history is exposed to the severest censure. The persistent

recurrence of crises and commercial depressions shows that something is wrong somewhere; and there are those who assert that the evil here complained of is the normal outcome of the present organization of the business world. There is enough truth in this assertion to warrant the statement that the instability of industrial conditions is a just criticism on the industrial control exercised by the principle of competition.

(c) *Useless Investments of Capital.*—A third illustration brings to light the fact that the motive of gain leads to many useless investments of capital. The wastes here brought to notice are of a different sort from those considered above. They are an absolute loss, being the result of an attempt on the part of one set of men to grab the value which other men by their industry have created. There is little or no social compensation for this kind of loss. A railroad, let us say, is operated between New York and Chicago, and operated at high profit; but this road can easily carry all the passengers and freight offered for transportation. A second road is built at a cost of 50 million dollars, and its managers threaten a war of competition with the old road, unless the managers of the old road will buy the new property. This, of course, is a commercial hold-up, but it illustrates a kind of business enterprise that is altogether too common where competition is allowed full sway. The new road is bought because it is cheaper to pay the hold-up price than to suffer the loss which a war of competition would entail. From the public point of view, the building of this new property is a loss of 50 million dollars. When one thinks that thousands of useless enterprises are started every year, and that some one somewhere

pays for this lost capital, the evil brought to light by the above illustration must be regarded seriously. Our free industrial society tempts men to try to make money without rendering any useful service.

Other classes of evils might be named, but the above illustrations are adequate to suggest the lesson to be learned. The purpose of a well-ordered industrial society should be to curb the evils while fostering the benefits that flow from the free play of self-interest.

CHAPTER VIII

THE MARKET

"... the existence of markets, where men might be confident of obtaining money for their wares, and of obtaining wares for their money."—ASHLEY.

IT has been shown in the foregoing chapters that goods are made to be sold rather than to be consumed by those who make them, and that practically all goods pass through the market on their way from the producer to the consumer. It has been shown further that a market is needed in order to enable workers to become efficient through specialization in their work, and that men who give their time and energy to commerce and transportation are producers, as well as farmers or manufacturers. It is thus evident that a market of some sort is a necessary part of any organization of workers worthy of the name of an industrial society. The present chapter will consider further the character and service of a market.

§ 34. General Description of a Market.—As originally used, the word market meant a public place or a public building where goods were exposed for sale. This was at least true during the early period of English history. Market towns, market places, market days, fairs and traveling merchants, were familiar objects to the common people of the thirteenth and fourteenth centuries. Nor has this form of the market entirely passed away. In some of our American cities, especially those where the

climate is mild, we still have markets and market days similar to those that existed in earlier times; that is to say, we have a large building or an open place fixed up with stalls or booths where, on certain days of the week, meats, fish, vegetables, fruits, and indeed almost any of the simple products one cares to bring, are offered for sale. All day long buyers come to make choice of what they desire to purchase. The earlier buyers are usually the well-to-do people who care more for the quality of what they buy than for the price which they pay. Those whose buying is limited by a leaner purse will come later in the day, when, by the "higgling of the market," as Adam Smith calls it, they get what they want at a reduced price. The ability of the purchaser to pay changes from hour to hour and the price follows, until, from ten to twelve on a Saturday night, goods are offered at almost any price that will clear the market.

In this simple illustration do we find the three essential elements of a market:

The sellers, who furnish the supply;

The buyers, who furnish the demand; and

The price, which moves up and down in such a way as to tend to equalize demand and supply.

§ 35. Characteristics of the Modern Market.—The market above described is not, however, typical of the method of buying and selling goods followed in the modern business world. The form of the market changes from time to time in order to adjust itself to the changes that have taken place in the methods of producing goods. Even where industry is adjusted to tools, as was the case in England before the industrial revolution, quite a number of different methods were devised for the ex-

change of goods; but since machinery has taken the place of tools, and the factory system of industry has become universal, the market has assumed a form and developed functions that would have been quite out of place under the old conditions of production. There is no better way of coming to understand what is meant by the modern market than to list these changes, and to say a few words respecting each of them.

These changes are six in number and as follows:

(a) *Retail Stores.*—In the first place, retail stores have for the most part taken the place of the old "market" with its central location and market days. General merchandise, hardwares, and notions of all sorts, are now sold by storekeepers who have established places of doing business. This change is doubtless explained by the great variety of goods which a merchant now must carry in order to meet the tastes of a great variety of customers. The convenience of the customer also requires these stores to be kept open on all business days. Groceries and provisions, as well as manufactured goods, are sold at stores scattered over the town, and by men who have nothing to do with the production of the goods sold. Thus the modern "butcher" knows nothing of that trade; he buys his meats of the great slaughter-houses and cuts them to supply the orders of customers. The green-grocer is merely a middleman between the gardener and the consumer. Indeed all merchants, of all sorts, are middlemen. This is claimed to be, and doubtless is, in the interest of economy. It is certainly one phase of the tendency toward specialization in industry, already described; but, whatever the cause, it is important to know that this great body of middlemen who retail goods bought at wholesale,

or, as in the case of garden-truck, bought directly from the producer, is an essential part of the modern market as it exists in the business world to-day.

(b) *Wholesale Dealers.*—The storekeepers described in the foregoing paragraph are retail merchants. There are also wholesale merchants. The second feature of the modern market pertains to the organization of the wholesale trade. Between the manufacturer and producer, on the one hand, and the retail dealer on the other, are found a great variety of commission merchants, sales agencies, and wholesale dealers, whose task it is to supply retail dealers with goods to be sold. They, like the retailers, are middlemen; but the buying and selling of each is limited to a few classes of goods. Their work is specialized along the same general lines that the process of manufacturing is specialized. Books have been written, and many more will be written, on the organization of this branch of commerce. All that we now need to know is that these wholesale middlemen, like the retail middlemen, came into existence at the call of specialization in industry. The manufacturer does not usually care to sell directly to the storekeeper through whom his products are supplied to consumers. This is a branch of the business of which he knows nothing, and to learn it would divert his attention from his own special task of running the factory. It is, therefore, in the interest of economy and efficiency, and consequently leads to a low cost of production, that wholesalers should take the output of the factories and sell to retailers. The situation with regard to merchants will be made clear, if it is seen that the wholesalers specialize along particular lines of production, while the retailers specialize in listing and

measuring the demand of consumers. The wholesalers and the retailers together, bridge over the chasm between the manufacturer and the consumer.

(c) *Demand Measured Through the Market.*—At this point another service rendered by middlemen, retailers as well as wholesalers, should be mentioned; and, as there was nothing quite like it in the primitive market, it may be called a third difference between the modern and the old. It is evident that if a manufacturer makes more goods than the people want, or that they can buy with what money they have, he cannot sell all of his output; and, if he keeps on making goods that cannot be sold, he will certainly become a bankrupt. It is of the utmost importance to the manufacturer, therefore, to know what the people are likely to want, and how much they will be able to pay, before he decides how much he shall make of his particular line of goods. It is also important for society as a whole that manufacturers as a class make things that are wanted, and only so much of them as will be bought; for the work and the power spent in making too much of even a good thing is wasted work and wasted power. The waste of labor or of capital is a dead loss to the community.

How is the manufacturer to find out what quantity of goods he shall make? The answer to this question has already been suggested. (Under modern business conditions it is a peculiar service of the middlemen to furnish the manufacturer with this information.) They are not hired to render this service. Perhaps they do not know that they are the means of giving the manufacturer the information which enables him to decide on the kind and the quantity of his output. (It all comes naturally from

the process of purchase and of sale. An illustration will make it clear.

Let us suppose that the wheat and corn crops of the Northwest, which for several years have yielded large returns, are a failure. The farmers have little or nothing as the result of this year's work with which to buy, and, being prudent farmers, they hesitate to draw on their money in the savings banks except for absolute necessities. The new barn that the farmer had promised himself is given up, and so the cement, the lumber, the nails and the paint, which he intended to buy, are not bought. The farmer's wife had the promise of a new coal range, but, without the crop, she must get along another year with the old one. The girls can have no new dresses; the boys must drive with the old harness, and so throughout the entire list of usual expenditures. The experience of this family is the experience of thousands. No family in the Northwest, which is dependent for an income on the yield of wheat and of corn, can buy as much as it is accustomed to buy. The first dealer to feel this curtailment, or retrenchment as it is called, is the local storekeeper. He finds that his sales are falling off, and, by talking to customers, he learns the reason why. The jobbers and wholesale dealers, in the next place, find that they cannot persuade the storekeepers to take their goods as freely as in previous years, and this in turn is reported to the manufacturer by the failure to order the usual amount of goods.

In the older markets there was little change from year to year in the kind or amount of goods demanded; but at present the character and the amount is changed every year, if not every month. There are many reasons

for this besides the one named in the illustration given above. It is the mark of a good market that the current supply should adjust itself to the current demand, and it is the peculiar service of the retail and wholesale middlemen to furnish the manufacturer with the information which will enable him to do this in an accurate manner. In this respect the modern market differs materially from primitive markets.

(d) *The National Market.*—The modern market differs also from the early markets in the extent of the territory which it serves. In England in the fourteenth century the rule was laid down that a new market should not be established within the radius of about seven miles of an already established market. The reason for selecting this distance was that seven miles was about the distance that could easily be traveled by producers when bringing their goods for sale. In that century England was covered with a large number of local markets. The danger, as well as the cost, of transportation was so great as to make any considerable amount of traffic between different parts of the country impossible.

In this respect the modern market is entirely different. The goods offered for sale by the smallest retail merchant come from all parts of the country. We can no longer speak of local markets. Every merchant, no matter how small his store or restricted his sales, is a part of the national market, if not, indeed, of the world's market. The business world in which we live is a single business world. The substitution of a national market or a world's market for a local market, is perhaps the most significant single fact recorded by the history of industry. Some of the results of this change will be noted in the latter part of this chapter.

(e) *Market for Staples.*—The above description does not account for all classes of merchants known to modern business. Besides wholesalers and retailers who deal in finished products, the modern market makes provision for dealers in staples, or partly finished products, whose customers are manufacturers or exporters rather than home consumers. Cotton is a staple product, and there is in this country a special institution known as the Cotton Exchange, as also in other countries that use cotton in large quantities as raw material for the making of cotton goods. In like manner there is a Wheat Exchange, a Petroleum Exchange, a Leather Exchange, and so on throughout the list of staple goods. In the case of wheat and cotton, and of some of the more important staples, special buildings or rooms are provided in the larger cities where each day those who wish to buy and those who wish to sell come together.

But this is not the important fact respecting these markets. In this regard these Exchanges do not differ from a vegetable market or a dry-goods store. (The important fact is that a purchase or a sale in any part of the country, is immediately made known in every other part of the country.) Thus the hundreds of places where staples are bought and sold are in fact but parts of a single market. Every price is quoted, and every quotation is telegraphed, to all who are interested. London and Hamburg know at once the price of wheat in Chicago or of cotton in New York and make their prices accordingly; or it may be that Chicago and New York make their prices on quotations from London and Hamburg. This gives a good idea of what is meant by a world's market as compared with a local market. In this spread of information do we find the real boundary of a market.

Another feature of this market for staples is the provision made for the storing of goods. The quantities of these products to be handled are enormous. The average cotton crop in this country is about 15 million bales; the average wheat crop, although it varies from year to year, is not far from 1,000 million bushels. These cannot be sold at once to those who are to use them. The manufacturers and the exporters cannot handle them if they arrive in too large quantities. They must be worked off gradually throughout the year; but at the same time the supply must be ready when demanded by the buyers. To meet this requirement there has grown up in this country an extensive system of elevators and warehouses in which goods are stored awaiting purchase. Provisions for assembling and storing goods, are as much a part of the machinery of the market as is the counter over which dry goods are sold to a customer.

The process of dealing in staples, of which wheat exchanges and cotton exchanges are examples, has much more in it than can be described in this book; but enough has been said to make clear the fact that the staple market is an essential part of the modern market. Dealers in staples are middlemen between the producers and the manufacturers, or between the manufacturers who confine themselves to different steps in the process of manufacturing a completed product.

(f) *The Stock Market.*—This description of the modern market would not be complete without mention of what is known as the stock market. A stock market differs from a produce market in that it deals in the stocks and bonds of industrial corporations and in certain kinds of national, state, and municipal debts. The stock market, while not con-

fined to modern times, has grown to such enormous proportions during the past century, that its development may be cited as a decided change from the old market conditions.

The importance of large industries has already been explained, and it goes without saying that, as a rule, no individual possesses a sufficient amount of money to organize a great industry. The money of a large number of men must be combined in order to get sufficient funds for this purpose. What is known as the stock of a corporation is nothing more than a piece of paper on which is written the fact that an individual, whose name appears on the paper, has contributed a certain amount of money for the purpose of organizing a particular industry. The stockholders taken together are the owners of the business. When one buys a stock certificate, he buys a share in the business. If any profits are made, this stock gives him the right to a certain portion of those profits. A bond, on the other hand, is nothing more than a promise by a corporation to return an amount of money which the corporation has borrowed, and to pay a certain interest each year until the bond itself is paid. It, like the stock certificate, is a means by which money is brought together for the purpose of organizing great industries.

If, now, great industries are advantageous (and on the whole this must be conceded), the stock market, which provides a means for selling shares in these great industries to individuals who have saved of their income for the purpose of making investments, renders an important service to the community. Dealers in stocks are middlemen just like the retail, the wholesale, and the staple merchants. The things which they buy and sell are certificates of ownership in corporations or certificates of indebtedness of

corporations. As middlemen they stand between men who wish to be investors and men who, having organized industries, wish to sell investments.

It was said that a peculiar service of retail and wholesale merchants was to give the manufacturer information as to the kind and amount of goods to be produced. (In a similar way it is a peculiar service of dealers in stocks and bonds to gather information as to the new industries that ought to be established,) and to give this information to investors on the one hand and to promoters on the other. Stockbrokers have a bad name, and many of them deserve it. Temptations to dishonesty in this business are especially strong, and the law has not yet placed stock brokerage under adequate control; but this should not blind us to the fact that the service which stockbrokers render, is an important service. Without adequate provision for the purchase and sale of securities, large manufacturing and transportation enterprises would be greatly embarrassed. In this phase of the subject, the modern market, as well as the modern world of business, differs from the market and the business world of early days.

§ 36. The Machinery of the Market.—From the foregoing discussion we have learned the kinds of services rendered by the modern market: it is equally important that we learn something of the machinery of which the market makes use. The four industrial agencies on which the organization and practice of the modern market depends are:

- a monetary system,
- a banking system,
- organization of intelligence, and
- steam transportation.

Each of these will receive a passing comment.

(a) *A Monetary System.*—The modern market relies upon a well-developed monetary system. To make clear the importance of money, it is only necessary to explain the inconvenience of exchanges through barter. This form of exchange is nothing more than a trade. One boy has two knives and no fishpole; another boy has two fishpoles and no knife; and, as a result, a trade is made, and each boy is satisfied. This is an illustration of what is meant by exchange through barter.

It would not be possible for specialization in production to go very far, if it were necessary that the surplus of each producer should be exchanged directly for the surplus of some other producer. A man may have a large quantity of things which he desires to get rid of, but unless he can find some one who desires his product, who at the same time has something which he himself desires, no trading is possible. Under such conditions (some one commodity that is desired by everybody) is a necessity for quick exchanges, and such a commodity is money. Everyone who has anything to sell will sell it for money, because he knows that with money in his possession he can buy whatever he desires to buy. So important is money as a part of the mechanism of exchange that it is recognized as the corner stone of the market. More will be said on this point in a subsequent chapter which deals with money.

(b) *A Banking System.*—The topic of banking like that of money is given a separate chapter. It is only necessary at this point to show that banks are a part of market machinery. One of the peculiar facts of the modern practice in buying and selling is, that business men seldom pay cash for what they buy. A retail grocer, for example, may buy goods from a wholesaler, and give in payment

his note due say in thirty days. It may be that the wholesaler needs the cash. This he can obtain by selling the note of the grocer to a bank for something less than its face value. The banker waits until the note is due, and collects the full amount. The point is this. In the case of a large share of commercial transactions, the money (or credit) for immediate payment to the seller is furnished by some bank. The market could not be carried on without the machinery for exchanges which banks supply.

(c) *Organization of Intelligence.*—A third feature of a well-developed market is the machinery for collecting and giving out information. Many means have been devised for making known current facts respecting supply and demand, sale and purchase, prices, and the like. The service rendered by the advertising pages of papers and magazines is a means of bringing buyers and sellers together. The column containing "want ads.," for example, is a phase of the organized market. Reference has already been made to quotations of prices in current newspapers, and to the immediate transmission by telegraph of any information which bears upon what is known as the movements of the market. These references do not, however, give an adequate idea of the machinery which exists for collecting necessary information. Besides general quotations in current papers, every important branch of business has its own trade paper, and the success or failure of such a paper depends upon the accuracy and completeness of the information which it publishes relative to the probable demand and probable supply of the particular line of goods with which it is concerned. There are over thirty-five hundred trade papers in the United States.

Other agencies for making information available for

the buyer and the seller are Boards of Trade and Chambers of Commerce which exist in one form or another in every town of any importance as a manufacturing or jobbing center. These, too, are a part of the machinery of the modern market. The statistics which they collect and publish have to do with traffic, with sales, with opportunities for building new factories, and indeed with anything that has to do with the commercial importance or growth of the town.

Of such great importance is accurate information regarded that, in the case of certain staple commodities, the government has found it necessary to collect and publish current information respecting growing crops. Thus, the Department of Agriculture in Washington has reports from agents all over the United States which show almost daily the condition of the cotton crop, the wheat crop, the corn crop, and the like. Manufacturers are not obliged, therefore, to depend exclusively upon the increase or decrease of orders placed by wholesale dealers for determining the amount of goods to be produced; nor are those middlemen who deal in staples obliged to rely upon information privately collected, to know what will likely be a fair price to be offered for staple commodities. Congress has also thought it wise to spend enormous sums of money in the collection and publication of industrial information, as for example the reports of the Census Office and the Statistical Abstracts published by the Treasury Department. These agencies of government, organized to investigate industrial conditions and to collect and publish freely information respecting the probable harvest of staple goods, are an essential part of the machinery of the modern market. The consumer is

especially interested in having this work done well, for then only can he rely upon the market price as being a fair price.

(d) *Machinery of Transportation.*—A perfect market requires, further, an adequate development of the machinery of transportation. It would be useless to know that there is a surplus of a certain kind of goods in one part of the country and a deficit in another, if these two territories were not connected with well-equipped highways of commerce. A flexible market requires some means for carrying goods quickly and cheaply from one locality to another. The means of transportation must be swift, or the merchant who has decided to ship goods may find the market supplied before his goods have arrived. The cost of transportation must be low, or he will find that he cannot afford to bring goods from a distant market. The machinery of modern transportation has already been described. It must now be evident that the railways of the country, the express companies, the telegraph companies, the postal department of the government, indeed all the agencies of modern transportation, find their proper interpretation in the rôle they play as a part of the machinery of the modern market.

The elements which make possible the modern market, then, are: a well-established monetary system, an effective organization for the collection of information, and a swift and cheap method of transportation.

§ 37. The Market and the Productive Process.—Thus far the market has been considered primarily as a means of distributing goods to consumers, but its service to the process of production is equally important. Comparatively few of the products offered for sale are made by a

single business firm or corporation. What one firm makes is sold to another firm, which changes its form by further work, and sells to a firm that stands third in the process of production, and so on until the last step is taken in the making of the finished product. It is this specialization that makes for efficiency in production, and such specialization would not be possible were it not for a broad and well-organized market.

Strictly speaking, the only raw material is the product of the extractive industries, that is to say: the wheat, the cotton, the wool, the ores, and the like. This, however, is not the common use made of that phrase. (Specialization in production has been carried so far, that what is the product of one factory is the raw material of another.) Thus, the iron ore and limestone are furnished by the mine and the quarry to the smelter for making pig iron; the pig iron by treatment in a blast furnace is turned into steel, which, carried through the mills comes out as wire, rods, plates, and the like. These forms of steel, combined with manufactured woods, prepared oils and paints, appear as a plow, a sled, a freight car, or any one of a thousand finished manufactured products. These are illustrations of specialized processes, and commonly each step in the process means a purchase and a sale.

So far has specialization in manufacturing gone, that a large number of business firms called factories are little more than places to set up parts made by other factories. Many automobile factories, for example, buy the wheels, the tires, the tops, the frames, the engines, the wind shields, the starters, the horns, and practically everything that goes into an automobile. All of these parts may be

made by separate firms, and all the so-called manufacturer of the automobile does is to assemble the parts, set them up, and give the machine a coat of paint and a name.

The bearing of organized specialization to the market is evident. Not only is the market a place where consumers buy the finished product, but it is the place where manufacturers, at every step in the making of the finished product, buy what they call raw material from other manufacturers. The same bit of wood, or iron, or cotton, or paint, may appear many times on the market, but each time in a different form, being one step added towards the completed product. It is the market that holds the center of the industrial field, and gives to business, however specialized, its unity of purpose. It is through the development of the market that the business world attains productive organization and co-operative work.

(The important inference from the foregoing is that specialization in production is limited by the extent of the market.) The manufacture of a commodity might be divided into twenty separate steps if the amount that can be sold is large enough to warrant such minute specialization: if, however, the commodity must be sold on a restricted local market, so extensive an application of the principle of division of labor would be unprofitable. The reason for this may be easily stated. Efficiency in production requires that the capital and skill needed for each step be utilized to their full capacity. To fail to do this means idle capital and the loss that follows the transfer of workers from one line of work to another. Moreover, the product of each step must be combined with the products of all the other steps in order to produce the finished article, and anything left over, anywhere

along the line, is a loss. A third fact to be held in mind is that these steps are not uniform in the amount of capital and work required. Some may call for one x capital: others may call for ten x capital. In order to warrant an organization which includes the shortest step, as a separate process, the amount of the completed product must be sufficiently great to keep the machinery used by this shortest step occupied without interruption. This explains why a broad market is essential for industrial progress. (It explains what is meant by the saying that the market limits industry.)

The most far reaching single fact, that which gives character to an industrial society, is the extent of its market and the manner in which that market is organized and controlled.

CHAPTER IX

THE LAWS OF PRICE

"The actual price at which any commodity is commonly sold is called its market price. It may either be above, or below or exactly the same with its natural price."—ADAM SMITH.

THE fact of price is the most universal fact in the modern business world. Its influence on production and consumption is forced on our attention by every market transaction that takes place. For this reason, some knowledge of the considerations that control the setting of prices is essential for one who desires to understand how modern industry is carried on. This chapter is devoted to an analysis of the laws of price.

§ 38. Statement of the Question.—Price may be defined as the measurement in money of the market value of things that are bought and sold. This, however, is a superficial definition, and fails to disclose the real question that we wish to have answered. From the foregoing chapter, we learn that all goods, except those few which are directly consumed by the producer, appear on the market in purchase and sale. Each transaction is at a given price. The wheat sold is so much per bushel; cloth, so much per yard; agricultural machinery, so much per unit; and so on through the list. There is a specific price for every purchase and sale.

The important thing in a study of prices, therefore, is the price at which any particular kind of goods can be sold as compared with the prices of other goods. The

market is a place in which goods are exchanged, and it is evident that the amount of satisfaction which one gains from his work is dependent quite as much upon the price which he must pay for what he desires to consume as upon the price he gets for what he has produced. The fact that prices are quoted in money has nothing to do with the case, for the influence which money exerts is common to all prices. What we wish to learn, in our search for the laws of price, is the rules or principles which determine the quantity of one kind of goods that will exchange for a given quantity of another kind of goods. The laws of price are in fact the laws of market exchanges.

An analysis of the laws of price is not altogether easy. The reasoning involved must be carried in mind from the beginning to the end. One must distinguish, at the outset, between normal prices and the various kinds of monopoly prices. The order of analysis here submitted takes up first the process of price making under conditions of free competition, which is assumed to be the normal condition for a people that aims to realize industrial freedom. The law of normal prices having been stated, the conditions that give rise to speculative prices and monopoly prices will then be considered. The law of normal prices, on its part, will be considered under the following questions:

What determines the price of goods already produced and offered for sale, free competition being assumed between consumers for purchase, and between merchants for sale?

What effect will the market price of goods sold have on the production of more goods of the same sort, free competition being assumed between producers?

What re-statement of the law of normal price is necessary to adjust it to the peculiar conditions under which agricultural goods, manufacturing goods, and transportation services are produced, free competition being assumed for all producers?

If these three questions can be answered, we shall know what makes prices and price movements; and, what perhaps is of equal importance, we shall be able to see yet more clearly the rôle played by the market and market prices in the control of industrial affairs through competition.

§ 39. The Market Price.—In the discussion of current market prices, it is necessary to exclude every consideration of production. A definite amount of goods of various sorts is offered for sale. The amount of wages that have been paid for the production of these goods, the amount paid for the material used, and the amount of machinery worn out in their making, have nothing to do with the determination of the prices at which goods already on the market will be bought and sold. "Labor once expended has no further influence on value." It is true that current prices do have an influence on future production, and this fact must be considered before we can define the law of normal price; but the first step in explaining this law is to find out what makes the current or market price. Let us try to keep these two things separate or our reasoning will surely get into a tangle.

(a) *The Purpose of Price.*—Some light will be thrown on the question of how market prices are adjusted, if we ask what the price set up for any particular class of goods is supposed to accomplish. The answer is simple. The correct price for any class of goods must ensure the

sale of those goods. If the price is too high, the goods cannot be sold, and the merchant who offers them for sale will be bankrupt. If, on the other hand, the price is too low, the merchant will find that he has not enough goods on hand to supply those who seek to buy. In either case, he will change the price. If he finds that sales are slow and he fears to be left with a stock of unsold goods on hand, he will lower the price so as to stimulate sales; if he finds sales are brisk, and that he is likely to sell all he has on hand before consumers stop buying, he will raise the price. By this constant shifting of the price to adjust sales to market conditions, the merchant finally hits on a price that will clear out his goods on hand and give to buyers all of his goods that they want at the price. This is the process by which the market price is set up.

(b) *Demand and Supply.*—It is usual in explaining the law of price to make use of the words "demand" and "supply." (The law is then stated as follows: The market price of any commodity will settle at that point which makes the demand for it equal to the supply of it.) The supply is fixed. It is a certain amount of a specific thing which at a particular time is offered for sale,—so many millions of bushels of wheat, or tons of beef, or yards of calico, or cases of shoes, or gallons of milk. The demand, however, is not fixed. It fluctuates with the price, becoming greater as the price falls and smaller as the price rises. Price is something like the movable weight on a pair of scales which, by being moved to the right or the left, finally establishes a balance.

But how, it may be asked, does the change in the price change the quantity of goods demanded? To explain

this, we must learn what is meant by demand. Market demand is not merely the desire of consumers for goods. There must, of course, be this desire, but that is not all there is to demand. The only demand which has any influence on the market is the demand of those consumers who have money with which to buy. This is called the effective demand. It is the demand which has an effect upon the price. The merchant cares nothing for the trade of people who have no money.

But it is not the simple fact that customers have money which measures the effective demand for any line of goods. It is rather the amount of money they can be induced to spend for the particular goods that are offered for sale. Every purchaser has an hundred ways in which he can spend his money, and the kind of goods he is willing to buy depends largely on their price as compared with the price of other goods offered for sale.

We may, perhaps, put it in this way. The buyer has a certain amount of money to spend, and he desires to spend it so as to secure the highest possible satisfaction. If shoes are high as compared with meat, he will have his old shoes mended and buy more meat. That is to say, he will subtract $7.00, the price of a new pair of shoes, from the demand circle for new shoes and add it to the demand circle for meat. Suppose thousands of men who desire new shoes act in the same way. The shoe merchant will feel the decrease in the "effective demand" for shoes, and the meat merchant will feel the increase in the "effective demand" for meats. The former will reduce the price for shoes so as to get back his customers, and the latter will raise the price of meats, since otherwise he will be sold out before the "effective demand" for meat has been

satisfied. This illustration shows how a change in price tends to result in a change in demand.

Supply is at any particular time a fixed amount, but through the change in the price asked, the demand may be increased or decreased until the demand is adjusted to the supply. That is to say, the price tends to settle at a point which will result in the sale of the goods. When we come to consider production in its relation to price, we shall see that supply is the changing factor in the equation: (but for goods already produced and thrown on the market for sale, the changing factor is the amount of goods that will be demanded at different prices.)

(c) *The Competition of Goods.*—The foregoing paragraph makes clear the nature of the competition between sellers. It shows that merchants must fix a price that will dispose of their goods, and that they desire to fix a price that will give them the highest possible profit. There is nothing new in this line of reasoning, but an added consideration may be submitted respecting it.

Besides the competition between sellers, there is competition on the part of buyers, but of an entirely different sort. With them, it is not so much a competition of buyer against buyer for the purchase of a particular kind of goods, as it is a question of what kind of goods they shall buy with the money in hand. (The peculiar service of this sort of competition is to steady the market and equalize prices as between different things offered for sale.) An illustration of what is meant by the phrase "competition of goods" will make this clear.

Suppose the amount of money to be spent for meats, for clothing, for schooling, for theatres, and the like, has somehow been settled, and that something has happened

to reduce the usual supply of mutton. This will not necessarily result in an extravagant rise in the price of mutton. There are other kinds of meats which consumers may buy, and part of the usual consumption of mutton will be transferred to beef, or to pork. Thus, the threatened rise in the price of mutton will be checked. Its price will go up some; so will that of beef and pork; but the market price of mutton alone will not show the full effect of a shortage in the mutton supply. It will be spread over all kinds of goods that belong to the meat class. This is what is called the competition of goods, and this illustration shows how such competition tends to steady prices on an established market.

The lesson of this illustration may be made general. The amount of money brought to the market for the purchase of goods is, at any particular time, a fixed amount. Those who have this money are influenced by a desire to satisfy many and varied wants. They cannot all be satisfied, and the consumer must choose which wants, in view of the prices that must be paid, are the more pressing. Probably no one ever makes a purchase without thinking how he might have spent his money differently. This state of mind makes a competition between the different kinds and sorts of goods, which tends to check what otherwise might be excessive rises in the price of particular goods, and to steady the movement in the market price of all goods. (It thus appears that the competition that works through the buyer is a different thing from that which works through the seller.) The former is a competition that rests on the desire to secure the largest amount of satisfaction for the expenditure of a given amount of money; the latter rests on a desire to make the highest

profit possible from the sale of a given amount of goods. Both are present in the process of making market prices.

(d) *The Effect of Different Standards of Living.*—Still another fact claims attention. The foregoing presentation of the law of prices seems to imply that all buyers have about the same amount of money to spend. This is not true. The market opens its doors to bank clerks at $50 a month, and bank presidents at $50,000 a year. It offers goods for sale to laborers whose wages are just above the starvation point, and workers who receive what the laborers call a fat salary. With the justice of this situation we have nothing to say. Our task is to describe things as they are, and it is a fact of common observation that the buyers on the market show a very unequal distribution of the money devoted to the purchase of goods. Does this fact lead us to modify our statement of the law of market price?

This question must be answered in the negative. The law of market price covers all grades of goods and all classes of buyers; but the difference in the amount of money which different classes of buyers bring to the market has considerable influence on the manner in which that law works.

It is necessary to hold in mind all that was said in Chapter VI of the broad range of economic wants. They extend from the bare necessaries of animal existence to the most expensive forms of extravagant living. The market undertakes to supply the goods called for at each step of the growth of economic desires, but at each step the number of men who have a sufficient amount of money to be buyers is reduced. At the bottom of the pyramid of wants, we have all men as buyers; at the top, the number is so few that they make a class by themselves.

It is not quite right, therefore, to think of buyers and sellers as such, as though all the buyers and all the sellers made a single market. On the contrary, so far as the law of price is concerned, there are as many markets as there are grades of buyers and sellers, and the price of the goods offered for each grade of consumers will be fixed by the estimates which this class of consumers places on the goods. For example, the fact that a very rich man may eat potatoes has no effect, so far as buyers' competition is concerned, on the price of potatoes. He would buy them whatever their price. The seller counts him as a sure customer, and his demand as a stable demand. (The limit placed on the rise in the price of potatoes is made by consumers who will cease to eat potatoes if the price goes too high.) This illustration is of general application. It shows that the consumers whose consumption is confined to the goods produced for different standards of living, are the buyers whose demand is subject to change by a variation in price, and consequently whose demand controls the price. Many errors have arisen in the discussion of prices by not remembering this fact.

§ 40. Normal Price.—We have learned the law of market price; we now turn to a study of the law of normal price. The former pertains to the price at which goods offered for sale will be sold: the latter to the price at which more goods will be produced for sale. The task of the market price is to clear the market of goods already produced: the task of the normal price is to secure for the market a constant replacement of the goods sold. A study of normal prices is in fact a study of the influence of current prices on future production.

It is not difficult to trace this influence, if we hold in

mind that all goods are made to be sold, and that they will continue to be made as long as they can be sold at a profit. The first point, therefore, in a definition of normal price is that it is a price that gives a profit to the producer and the merchant. This means that the price at which goods are sold, provided their production and sale is to continue from year to year, must cover their cost. (The normal price of any line of goods tends to conform to the cost of their production.)

This point may be readily illustrated, so far at least as to show how the commercial forces work that produce this result. Suppose one million pairs of skates to have been manufactured and offered for sale. These skates cost $.90 a pair to make. They must be sold at $1.50 a pair to give the manufacturer a profit on making, to cover the cost of sale, and to give the merchant a profit for handling. But suppose, for some reason, merchants cannot sell a million pairs of skates at $1.50 a pair. That is to say, the market is over supplied with skates at that price. One of two things will happen. Either the merchants will carry over their stock of unsold skates, hoping to find sale for them the next winter, or they will reduce the price say to $1.25 a pair, in order to attract more buyers. In either case, the manufacturer must readjust his program of production. If the merchants carry over a part of their stock, holding to the price of $1.50 a pair, the manufacturer cannot sell them as many pairs of skates next winter as he sold this winter, and he will be obliged to reduce the number made for the next year's market. If, on the other hand, the merchants clear their stock by reducing the price, the manufacturer must ask himself whether or not he is willing to make as many skates as

he made before if they must be sold by the retail dealer at $1.25 a pair. If he has already reduced the cost of manufacture to the lowest point possible, and if the profit he is making is not excessive profit, he will be obliged to maintain $1.50 as the market price for skates. To do this, he must reduce the output and so reduce the supply offered for sale.

The converse of this illustration need not be stated in full. It will be suggested by assuming that the million pairs of skates are sold at $1.50 a pair, but that the demand for skates at that price is not supplied. Retail dealers all over the country will telegraph the manufacturer for more skates. These orders the manufacturer cannot fill. It takes time to make skates and the season for their sale is short. But this market demand for skates in excess of what the manufacturer estimated the demand would be, leads manufacturers to change their program. They will produce a million and a quarter pairs of skates for next year's market.

From these illustrations (and they apply to all kinds of goods produced under conditions of open competition), it is clear that the market price, in the long run, will tend to conform to the cost of production and sale. (This is the cost price, and the cost price is the normal price.)

A second point must be added to show that the cost price is the normal price in the sense that it is the fair price. (Under a condition of industrial freedom, workers and investors can select any line of production they see fit.) Since the motive that guides production is the desire to secure profit through sale, it follows that new workers and new capitalists will be drawn to the production of those things that show a profit above the average. This

will increase the supply on the market and reduce the market price until the profit in these industries is reduced to the average rate of profit. On the other hand, industries that produce goods that sell on the market for a price that gives a profit below the average, will curtail their output, and as a result the market price will be raised until such industries give the average profit.

The tendency in a free market is for all industries to secure a price for their products which will give about the same rate of profit, and for all goods of all kinds and sorts to exchange on the basis of their cost price. This is said to be a fair basis of exchange, because every producer is a consumer, and every consumer a producer. It means that every man sells what he makes for what it costs him to make it, profit included, and that every man buys from others what they make at the cost to them of its production and sale. It means that goods of all kinds will be exchanged on the market on the cost basis. A free market, including under that phrase the process of production as well as of sale, is a guarantee that what we pay for goods will be a fair price. This is why monopoly, which may be defined as a condition of production and sale not under the control of competition, is such an abominable affair. It destroys this guarantee that the price paid for goods on the market will be a fair price.

It seems from the foregoing, that the law of market price and the law of normal price are two sides of a single process. The market price has to do with the relation of demand to supply of those goods which at any particular time are offered for sale. It changes in response to "effective demand." The normal price, on the other

hand, has to do with production for the future. It changes in response to the rate of profit that is gained from sales at the market price, and tends always to cover the cost of production, no more and no less.

It is not quite accurate, however, to reason about production and consumption as though they were separate processes. The true description is that they form a single continuous process. New goods are placed on sale daily, and daily the consumer buys. The process of production could not long continue unless it were balanced by the process of consumption. A steady and continuous market is one in which the average daily purchases equal the daily production. The opportunity is thus given for the market price and the cost price to work together in the establishment of a general scheme of prices which are recognized as normal prices by all producers and all consumers. (The law of normal price is that it tends to the cost of production for all goods produced under conditions of free competition.)

§ 41. Monopoly Price.—The normal price is the competitive price; the monopoly price, by contrast, is a price set up by producers and sellers when they are not held down by the restraints of competition. A man may have a patent on some device that costs but little to make, but which satisfies some pressing demand of buyers. It is the only device that does satisfy this demand and the man who owns the patent has the exclusive right of manufacture and sale. The buyer must buy of him or go without. Under such conditions the owner of the patent will not sell this device at the cost of its production including normal profit. He wants more. He wants the price to cover the cost and secure to him an abnormal

profit. He wants all he can squeeze out of the market. The price he decides to charge will be a monopoly price, called a monopoly price because the goods to which it can be attached are those that are produced under monopoly.

There are many kinds of monopolies besides those that rest on patents. About twenty-three square miles of anthracite coal lands of the first quality exist in the United States, and these are located in a small district of the state of Pennsylvania. Under such conditions competition has slight chance to control the price of coal. Some industries, as for example the railway industry, tend towards the consolidation of competing lines, and the bigger railway systems grow, the less control does competition have on their management. Thus we say the railway industry tends always to become a monopoly.

We have then three kinds of monopolies; or, better expressed, three conditions under which men, in their struggle for the highest possible profit, will organize their business as a monopoly and charge monopoly prices. These are:

Where the law grants exclusive rights of production and sale, as in the case of a patent.

Where an individual or a group of individuals own the source of all the material of a certain kind, or the most favorably situated source of power, or any other agency or commodity that nature may have bestowed.

Where an industry tends to grow and, by virtue of its size, enables its owners to set a price on what it makes in excess of the normal price.

In all three cases, competition is powerless to fix a normal price. The law for which we are seeking is the law of monopoly price.

In searching for the law of monopoly price, we must not think of a monopolist as different in any way from an ordinary business man. Both are actuated by the same motives. Both aim to sell what they produce for the highest price the market will stand. The only difference is that one can and the other cannot charge more than the normal price for goods sold. The market on which monopoly goods are offered for sale, also, is the same market as that on which other goods are offered for sale. Moreover, the buyers on this market act in the same way whether they contemplate buying goods produced under monopoly conditions or under competitive conditions. The two cases are wholly alike with a single exception, namely, the monopolist can control the supply of goods to be sold, the competitive producer cannot. If we can discover the way a monopolist reasons when he offers goods for sale, we shall then know the law of monopoly price.

The reasoning that controls a monopolist in fixing a price is somewhat as follows: If he charges too much for his goods, he will not be able to sell them. Consumers will not use their money to buy his goods. On the other hand, if he charges too little for his goods, while he will be able to sell them in large quantities, the rate of profit on each sale will be so low that the total of profit for a year's business will be disappointing. Somewhere between these two points,—the too high price and the too low price—there is a price that will give him the highest possible return on a year's business. This price is the monopoly price. It is the price which the monopolist finds to be the most profitable to charge.

But how, it may be asked, can one discover this price?

By experiment. There is no other way. The monopolist first puts on a very high price, but no one will buy his goods. He then reduces the price and so gains a few buyers, but the amount of sales is so low that, even though the profit per sale is high, the total of the year's profits is small. He further reduces the price, and by so doing increases the year's profits. This he will continue to do until he finds that the last reduction, while it increases the number of sales, does not increase the total of the year's profits. That is to say, the loss in the rate of profit on all sales amounts to more than the total of the profits on the increased sales. Here he stops. The experiment is ended. He has found the price that gives a maximum profit, and this is the monopoly price.

An illustration of the foregoing analysis will not be out of place, and an illustration will be chosen designed to make clear the point below which and the point above which monopoly prices cannot go.

Let us assume that a man holds a patent for the only known means of making artificial ice, and that he has set up his plant in a city on the bank of a lake that freezes in the winter. To make the case simple, our city is so situated that no ice can be brought in from an outside supply. Let us assume further that it costs 75 cents a ton to make artificial ice and $1.50 a ton to cut it on the pond and store it for summer use. How will the manufacturer of artificial ice fix the price? Two facts are certain. First, he cannot charge for his ice more than $1.50 a ton for if he does consumers will buy the natural ice. At that point, competition comes in and restrains the rise in price. Second, he will not offer ice at a price lower than 75 cents a ton, for at a lower price he will lose money on

its manufacture and sale. The cost of production sets the lowest price for monopoly goods as well as for goods produced under condition of competition.

The range of possible prices, in our assumed case, will be somewhere between 75 cents and $1.50 a ton. Let us suppose he starts to sell ice at $1.40 a ton. He will probably get most of the customers for natural ice, but the reduction is not enough to induce those who at the old price had not used ice to become regular purchasers. The rate of profit on ice, if produced at 75 cents and sold at $1.40, is high, but the amount sold at that price is so small that the business is at best a second rate business. The manufacturer reduces the price to $1.25 a ton. This is a considerable drop, but the sales increase to such a degree that the net profit at the close of the year is greater than it was when ice was sold at $1.40 a ton. Such a reduction in the price is good business. Encouraged by this experiment, he may contemplate a further reduction of the price, and he sends agents through the city to inquire how many families that go without ice would become customers if the price were further reduced. His investigation shows that the increased sales at a lower price would not balance the decreased profit on sales at a higher price. The result is he settles on $1.25 a ton as the most profitable price to charge for ice.

This, then, is the law. The monopoly price tends to settle at that point which will give the largest amount of net profit on assured sales.

§ 42. Speculative Price.—The above laws of price are true, or would be true, if there were a perfect market. Since, however, the conditions of a perfect market never exist, it frequently happens that the actual price at

which goods are sold is neither the cost price nor the monopoly price. There may be, and there usually is, a speculative element in all prices.

To appreciate this point, we must call again to mind the description of a market. The following is quoted from Professor Jevons:

"By a market I shall mean two or more persons dealing in two or more commodities, whose stocks of those commodities and intentions of exchanging are known to all. It is also essential that the ratio of exchange between any two persons should be known to all the others. It is only so far as this community of knowledge extends that the market extends. Any persons who are not acquainted at the moment with the prevailing ratio of exchange, and whose stocks are not available for want of communication, must not be considered part of the market. Secret or unknown stocks of a commodity must also be considered beyond reach of a market so long as they remain secret and unknown. Every individual must be considered as exchanging from a pure regard to his own requirements or private interests, and there must be perfectly free competition, so that anyone will exchange with anyone else upon the slightest advantage appearing. There must be no conspiracies for absorbing and bolding supplies to produce unnatural ratios of exchange. Were a conspiracy of farmers to withhold all corn from market, the consumers might be driven, by starvation, to pay prices bearing no proper relation to the existing supplies, and the ordinary conditions of the market would be thus overthrown."

As a matter of fact, no such market as Professor Jevons describes ever existed. There are, in the great majority

of transactions, so many elements of speculation and uncertainty, that men are able to exact a speculative rather than a normal price. This speculative price may be defined as the difference between the normal price and the actual price which market conditions at the time enable the seller to charge and compel the buyer to pay. This speculative price gives rise to a speculative profit, so that we have three kinds of profit rather than two, namely: (normal profit, monopoly profit, and speculative profit.)

This speculative price, or speculative profit, arises in three ways:

First. The laws of normal and monopoly price move slowly. (It may take two or three years before producers can catch up with some sudden increase in the demand.) During this period the market price will stand above the cost price and the makers of the goods in question will reap an abnormal profit. This abnormal profit is made up of a normal profit plus a speculative profit.

Second. Certain astute business men may have information that is withheld from the market, as, for example, an unknown source of supply, or sales already made not generally known, or the sudden rise of a foreign demand for goods usually consumed by the home buyer; or other similar conditions known at first only to a few. Those who possess this knowledge will compute the price differently from those who do not. (They buy and sell on information not generally available, and, as a result, reap a profit in excess of the normal profit.)

Third. Speculative prices and abnormal profits are also the result of ("conspiracies for absorbing and holding supplies to produce unnatural ratios of exchange.") That is to say, merchants undertake to corner the market and force

excessive prices from those who for any reason must have the goods. Producers, also, aim to monopolize the market by limiting production so as to reap abnormal profits.

No description of the modern business world as it actually works, would be complete without the recognition of speculative prices, and of the conditions out of which they spring. The profits to which speculative prices give rise, are called by some "predatory" profits, which is a polite phrase for stealings. It is no part of this book to discuss the correctness of that phrase. Industrial society as at present organized, and the market as it now works, force us to recognize three kinds of price: namely, the normal price, the monopoly price, and the speculative price. The problems which spring from this statement are serious problems, but this book is a description, and not a discussion, of the business world.

CHAPTER X

THE MONEY SYSTEM OF EXCHANGES

"There cannot, in short, be intrinsically a more insignificant thing, in the economy of society; except in the character of a contrivance for sparing time and labor."—MILL.

WE have learned that practically all goods which are produced appear on the market to be exchanged for other goods. We have learned that "price" is a market word, and that it stands for the exchange value of any particular thing as expressed in terms of money. We do not know, however, except in a general way, what money is, or the rôle it plays in the business world. To explain money as an instrument in industry is the purpose of the present chapter.

§ 43. The Functions of Money.—No formal definition of money will be attempted. Better results will follow a study of some of the important services which money renders in the business world, or, to make use of a technical phrase, better results will follow a description of the money functions. If we are able to learn what money does, we shall have gained a satisfactory knowledge of what money is, and be able to appreciate a good monetary system.

The important functions of money are three. Money serves

as a medium of exchange,
as a measure of value, and
as a standard of deferred payments.

Each of these functions will be considered separately.

(a) *Money as a Medium of Exchange.*—All goods that appear on the market are listed for sale at a given price. This is true of producers who sell to merchants as well as of merchants who sell to consumers. The producer sells what he has made for money and spends this money in buying what he desires of other kinds and sorts of things. The money itself satisfies no desire, and he would not be willing to accept it in exchange for the goods which he has produced, were he not sure of its acceptance by those who have other goods to sell. Money thus used is a medium for effecting an exchange of goods. Selling for money what one has made and buying with money what one needs, constitute an exchange.

The use of money for effecting an exchange is not absolutely necessary any more than the use of machinery is necessary for production. Goods may be exchanged by barter; that is to say, goods of one kind may be exchanged directly for goods of another kind. A butcher, for example, instead of selling meat for money might trade meat directly for what he needs. He might give a pound of sausage for a necktie, a pound of beef for a peck of potatoes, a quarter of lamb for a pair of shoes, or a rasher of bacon for a cake of soap.

While such a system of exchanges might be possible in a primitive market, it could not be used on the market known to the modern business world. One difficulty with making exchanges by barter arises from the fact that, while one man may have something to sell and another man may desire to possess this thing, the second man may not have anything to give in exchange which the first man desires. It takes two to make a bargain. To effect an exchange there must be a "double coincidence

of desire"; that is to say, each party to the exchange must desire what the other party has to offer.

b A lack of the coincidence in the quantities desired by the two parties to the exchange, may be equally embarrassing. A man who produces milk may want an automobile; but the automobile agent does not want as much milk, at least not at one time, as an automobile is worth.

c The impossibility of splitting a transaction, also, is a serious embarrassment to exchanges by barter. A berry grower, for example, markets his products in a few weeks' time; but he cannot accept in exchange a heap of all sorts and kinds of goods. He would not specialize in the production of berries for a market so badly organized. What he wants is to dispose of his berries now, and select the goods he desires in exchange at his convenience.

These difficulties incident to barter are overcome by selecting some commodity of universal desire to serve as a medium of exchange. It makes no difference why all men want this thing, and want it at all times and in unlimited quantities. The fact that it is universally desired makes everyone willing to sell what he has in exchange for this thing, because he knows he can use it again in the purchase of other things. Whatever commodity serves this purpose is, for the time being, money. It is the accepted and established medium of exchange.

(b) *Money as a Measure of Value.*—Money serves also as a measure of value. It is the thing to which the exchange ratios of all other things on the market are referred. The importance of this service becomes evident when it is remembered that a buyer who wishes to purchase judiciously, must compare the values of the things offered for sale. This he could not do if exchange were by barter.

The number of exchange ratios would be so many, and in such different kinds of things, that he would not be able to compare them and decide which exchange is likely to give him the greatest benefit. If, however, every article has a price, the money expression of these prices serves as a common basis for comparing the value of different things.

The seller is equally interested in the service of money as a measure of value to which all commodities are referred. "Without this commodity called money, he would be obliged to remember as many different ratios of exchanges as there are possible exchanges. For example, if he deals in ten commodities and trades by barter, he must remember forty-five prices or ratios of exchanges; if, however, one commodity is selected to serve as money, nine prices are all that he must remember." From the point of view of the merchant, a large market could not be managed without money as a common measure or, as it is sometimes called, a common denominator of value.

Money as a measure of value renders yet another service. All modern industry is directed by a desire to reap profits. A new business will be undertaken if it gives a promise of profit; an established business will be abandoned if it fails to give the required profit. All this was explained in our study of the principle of control in industry. Profit is the difference between the cost of production and the selling price of the goods. No close calculation would be possible and, consequently, the principle of control upon which the modern business world relies could not be brought into play, were it not that money serves as a common measure for all calculations.

(c) *Money as a Standard of Deferred Payments.*—The modern business world makes extensive use of credit transactions. When a housewife orders groceries and has them charged on the books of the grocer, the purchase is a credit purchase. When a merchant buys goods and gives as payment his note due in sixty or ninety days, he is said to buy goods on credit. When a farmer borrows money for improving his farm and gives his note for the money received together with a mortgage on the land, he is said to secure money through credit. When a railway sells its bonds and with the proceeds of the bonds constructs a right of way and buys locomotives, the sale of such bonds is a credit transaction. Probably not more than 5% of current transactions are cash transactions. The modern business world rests on credit, and one of the most significant functions of money is that it renders credit transactions possible by serving as a standard of deferred payments. A bond, a note, or a charge on the books of a grocer are alike in this: they all make use of monetary units as a standard of deferred payments.

It is this function of money, also, that permits industry to be organized through contracts. Every element of value in an agreement for co-operative work is expressed in terms of money. Laborers are hired at so many dollars or cents a day. Two men form a partnership, each agreeing to put a certain amount of money into the business. Every business agreement makes use of the language of money. Thus all industrial enterprises which are organized to do business for a long term of years, rest on money as a standard of deferred payments.

From whatever point of view we regard the business world, money is seen to render an essential service.

§ 44. Money Material.—The selection of a proper money material deserves special attention. In communities where trade was carried on by barter, certain things came to be looked upon as more generally acceptable than other things; and these things came to be used as money before the traders were conscious that they had taken the first step in building up a money system. This is why the history of the subject shows so long a list of things which have been used as money. Among the Greeks and early Romans, cattle were used as money. Our modern business word "capital" springs from the custom of counting wealth per capita; that is to say, by the head. In northern climates, skins and furs were used as money. In these cases, the store of value or the standard of value was of greater significance than the other money functions. Among savage or semi-civilized peoples, bright shells have been quite generally used as the medium of exchange. This is the wampum of the early American Indian.

The history of the subject also shows many cases in which staple commodities were used as money. In early Virginia, for example, tobacco served the money functions. As late as the first administration of Washington, jugs of whiskey were used as money by those living west of the Allegheny Mountains. The reason for this was, of course, that these people could not, at the time, get other kinds of money in sufficient amounts to secure their needs in trade. These things were given up as soon as better kinds of money could be obtained.

The commodities commonly selected as the best money material are gold and silver, for these commodities possess, in a higher degree than any others known, the several

properties which good money material must possess. These properties are:

Universal acceptability,
Portability,
Durability,
Homogeneity,
Divisibility,
Stability of value, and
Cognizability.

Universal Acceptability.—Money material must be universally acceptable; that is to say, it must be desired by everyone, for under no other conditions could it serve in a perfect manner as a medium of exchange. It is true that the selection of any commodity as money will give it a value which it otherwise might not have, but it is generally thought that a good money material should be desired for its own sake as well. It goes without saying that if money is not universally accepted, it cannot serve as a medium of exchange.

Portability.—Money material should also be portable; that is to say, large values should be bound up in small quantities. Money material ought to possess so high a value that a small fortune could be carried in a hand bag.

Durability.—Money material must be durable. It should be of a texture to withstand wear, so that its size and weight, when coined, should change as little as possible as the result of use. It should neither rust nor corrode, but remain of the same quality whether locked in a vault, buried in the ground, or passed daily from hand to hand as a medium of exchange.

Homogeneity.—"No substance can be considered suitable for the purpose of money if different parcels of it

are of different degrees of goodness." A substance of the same degree of goodness throughout is homogeneous. It is alike in all its parts. It is capable of a perfect mixture. This is necessary for a good money material in order that its value may be in proportion to its weight. An ounce of gold, for example, is worth twice as much as half an ounce, and half as much as two ounces. Were this not true, it could not serve as a medium of exchange.

Divisibility.—The material used as money must permit of division into parts without loss of value. An ox, for example, is not readily divisible; at least, if divided, the ox becomes beef, and the different parts have different values. The skin of a silver fox may be used as money, but to cut the skin would in large measure destroy its value.

Stability of Value.—Money material must possess stability of value, for otherwise it could not serve well the function of a standard of deferred payments. Long time contracts and agreements are quite common in the modern business world. A railway bond, for example, may run for fifty years. One who buys such a bond, pays to-day a certain amount of money which is to be returned to him at the expiration of the life of the bond, and it is highly important that the value of what he is to receive fifty years from to-day should be equal to the value of that which he pays when he buys the bond. Stability of value is an essential property of good money material.

Cognizability.—This, also, is an important quality. The money material must be readily recognized to be what it pretends to be. If money is to pass readily from hand to hand in current exchange, it should not be necessary for buyers and sellers to spend much time in testing

the genuineness of the medium received in payment. The chemist has called gold and silver "royal metals" because they, of all metals, are able to withstand the action of certain acids. The genuineness of either of these metals is easily tested, and for that reason they serve readily the several functions of money.

From the foregoing statement, it is easy to see why gold and silver have been selected by all commercial peoples as the commodities which combine, in the highest degree, the properties of a good money material. Not only are they universally acceptable because they are used as money, but their intrinsic qualities are such as to secure for them a universal demand for other uses.

§ 45. Coined Money.—A study of coinage covers all questions that arise in the manufacture of money material to serve as money. The process of exchanges would be slow and difficult if a buyer of goods were obliged to weigh out the price of his purchase, and if the seller were obliged to test the genuineness or the quality of the gold or silver offered in exchange. (It is the object of coinage to enable money to pass by tale rather than by weight.) Coinage may be defined as such a preparation of money material that each piece bears on its face evidence of its quantity and its quality.

We are accustomed to think of coins as round, flat disks of metal bearing the stamp of the government. While most coinage systems have adopted this shape as best adapted to money uses, the history of this subject shows many other kinds and sorts of coins. The early Mexicans, for example, placed a certain quantity of gold dust in a quill and sealed the ends. This quill passed readily from hand to hand in exchange for goods pur-

chased. Neither buyer nor seller thought it necessary to weigh the gold or to test the metal. In early Californian days, the gold miners were accustomed to tie their gold in little bags, each of which contained a definite quantity of gold. Many devices have been used to avoid the necessity of using scales and tests in buying and selling goods, but they all serve the same purpose as coinage.

At the present time, coinage is a government monopoly. In the United States, the exclusive right to coin money lies with Congress. This is necessary in order to maintain a uniform standard for all money transactions, and to prevent the circulation of counterfeit or debased coins. The coinage system of any country is expressed in the laws that have been passed respecting the manufacture and regulation of coins. It covers the following topics:

Kinds of coins,
Form of coins,
Rule of free coinage, and
Laws of legal tender.

(a) *Kinds of coins.*—Every coinage system embraces three classes of coins:

standard coins,
subsidiary coins, and
tokens.

The *standard coin* is defined by law as being a fixed quantity of a fixed quality of some specific commodity, and the standard unit thus defined is the basis of the monetary system. It is the unit to which all other units are referred. In the monetary system of the United States, the standard coin is the gold dollar, and the gold dollar contains 25.8 grains of metal, of which nine parts are fine gold and one part is either silver or copper. The pur-

pose of the alloy is to make the coin hard so that it can resist the wear due to constant use.

Subsidiary coins are coins of less denomination than the standard coin but, if weighed, they would be found to carry less metal than the denomination of the coin would seem to require. The fifty cent piece, the twenty-five cent piece, and the ten cent piece are subsidiary coins. The fifty cent piece, for example, would not be worth as much if melted up and sold as silver as it is if used in buying goods on the market. Ten fifty cent pieces will buy as much on the market as a five dollar gold piece, but the silver which they contain at the present price of silver is not worth more than four gold dollars. (Subsidiary coins have an exchange value in excess of their commodity value.)

The silver dollar is now classed as a subsidiary coin, although, from the beginning of our government until 1873, a silver dollar was regarded as a standard coin. To explain the reason why this was changed would lead us too far into the monetary history of the country. Provided we hold in mind the fact that the money system of this country is adjusted to the requirements of a single standard rather than to that of a double standard, and that the presence of the silver dollars now in circulation may be traced to the time when the double standard was used, this phase of the subject may be passed by with the statement that the silver dollar is in fact a subsidiary coin.

But why, it may be asked, is the commodity value of a subsidiary coin less than the coin value? The reason for this is the necessity of keeping a sufficient amount of coins in circulation to carry on the daily exchanges. Silver is used in the arts as well as for the purpose of coin-

age. If the silver in a coin were as valuable when melted up as it is in the form of a coin, a jeweler who needs silver for use in his trade would pick out the full weight, fifty cent pieces, quarters and dimes and use them as material for manufacturing jewelry. Not only would this impose on the government an unnecessary expense for coining new pieces, but it would tend to decrease the amount of coins in circulation. If, on the other hand, these subsidiary coins are worth more as money than they are as silver, the jeweler, in case he wants silver to work up, will purchase silver bullion rather than melt coins. The only purpose of debasing subsidiary coins as compared with the standard coin, is to keep them in circulation.

Tokens or minor coins are coins of smaller denomination than the subsidiary coins. They are made of inferior metal, such as nickel, bronze, or copper, and their metal value stands far below their coin value. They are made a part of the coinage system merely for convenience. An amount of either silver or gold of no more worth than a five cent piece, would be so small, if coined, that it could not be readily used in ordinary purchases from day to day.

(b) *Form of Coins.*—In the manufacture of coins, several requirements are held in mind. In the first place, coins must be made in such a way as to render counterfeiting difficult. The designs on a coin are not only somewhat complex and, on that account, difficult to imitate, but these designs can only be reproduced by the use of powerful machinery. This fact goes far to discourage counterfeiting. Moreover, the coin is so made that it gives a ringing sound when thrown on a hard surface. A coin made of lead or any inferior metal would not give that sound. The thickness and diameter of each coin must

be exact and its weight must be the weight prescribed by law. It is not possible to make a coin which meets the requirements of both size and weight out of any material but that of standard silver or gold.

The coins should, in the second place, be so manufactured as to prevent fraudulent removal of the metal. They are made thin in order to prevent boring holes into the edges and filling these holes with lead. They have serrated edges in order to prevent paring off the edge of the coin with a knife. The design, also, is such that the sweating of coins may be easily detected.

A third mark of a good coin is that it should be made in such a way as to reduce their wear as much as possible. This is why all coins have a ridge of plain metal about the design like a frame about a picture. This ridge is raised slightly above the design so that when they are carried in a purse or in the pocket, there will be little or no rubbing of surface against surface.

A good coin, also, must be convenient; that is to say, it must not be so small as to be readily lost, nor must it be so large that it is burdensome to carry. A gold dollar, for example, would not be more than half the size of a bronze cent. For this reason, the smallest gold coin in circulation is the $2.50 gold piece. At one time a three cent silver piece was used, but the inconvenience which attended its use led it to be recalled. The fifty cent piece is the largest silver coin that meets the requirements of convenience.

Much study has been given to the designs upon a coin. The general rule followed is that the design should be both artistic and educative. Countries which have kings or emperors are accustomed to place the image of the ruling

sovereign upon the coin. This is one reason why collections of coins are of such great interest. When the mint laws for the United States were first passed, Congress discussed at length the designs to be placed upon the coins. There was considerable fear at that time that this country might be turned into a monarchy, and anti-democratic proposals met with no favor. This is why a figure of "Liberty" is stamped on our coins and not the profile of Washington, or some other great Revolutionary leader. This illustrates what is meant by saying that the designs upon a coin should be educative. Considerable history may be read from the coins that have been used by various peoples at various times.

It is, then, apparent that quite a number of considerations must be held in mind in the manufacture of the money material into exchangeable and useful coins. Other facts might be mentioned, but sufficient has been said to suggest what is meant by the technique of coinage.

(c) *Rule of Free Coinage.*—The general rule among commercial peoples is that anyone who has money material out of which standard coins are made, can bring it to the government mint and have it made into coins without cost. This is called free coinage. A charge is made for the alloy to be mixed with the pure metal in order to give it the proper hardness, but the amount of pure gold given back in the form of coin is the same as the amount brought to the mint. It is important to grasp this fact, for it is frequently used in discussions of monetary questions.

The reason why the government charges nothing to cover the expenses of manufacturing coins, is that this expense is trifling as compared with the advantage that

arises from the fact that, under free coinage, the money value of a coin is at all times equal to the commodity value of the gold which the coin contains. By this device of free coinage, the amount of standard coins at any time in the country will tend to be the amount that is needed to carry on its commercial transactions in a safe and conservative manner. Under the free coinage of the standard unit, the amount of coins at any time in circulation will be automatically adjusted. Such is the argument for free coinage.

(d) *Laws of Legal Tender.*—In order to ensure the universal acceptability of money, the law states: first, that all money must have its stamp of approval; and, second, that any money which bears this stamp is legal tender and must be accepted in payment of a debt. Courts in their administration of contracts are permitted to assume that the debtor who has tendered legal money for the payment of a debt, has done all that he can do to meet his obligations. If the creditor refuses to accept this money, the responsibility for the loss which follows lies with the creditor.

Under the present monetary laws, the gold dollar, which is the standard coin, is legal tender to unlimited amounts. Subsidiary coins are a legal tender but to the amount of $10.00, while token coins are a legal tender but to the amount of 25 cents. By this device of making standard coins legal tender, and of making all other forms of money convertible into standard coins, the universal acceptance of all money at *standard values* is ensured. The limitations placed on the legal tender quality in the case of subsidiary coins obviates the possibility of any serious inconvenience in their use. They are also redeemable in standard money.

§ 46. Paper Money.—Gold and silver are expensive metals. Their value is high because of their scarcity as compared with the many uses to which they may be put, and because the cost of their mining is high. At the present range of prices, there is not enough gold and silver in the world to perform the world's exchanges.

One means of securing relief from so serious an embarrassment is to make use of paper notes as money. These notes may be the promise of a bank, or they may be the promise of a government. In this country, three kinds of paper money are put in circulation. These are:

Bank Notes,
Treasury Notes, and
Gold and Silver Certificates.

Each will be cursorily described.

(a) *Bank Notes used as Money.*—A note, in the language of business, is a written promise to pay. It states the amount to be paid, the time when payment is due, and the name of the payer and payee. A private or personal note usually bears interest, at a rate named, from the date of its making to the date of its payment. A note of this sort in the hands of the payee may be passed to a third party in settlement of an obligation, but this does not mean that private notes are money. When a private note is thus passed from hand to hand it must be endorsed with each transfer: that is to say, he who passes the note must sign his name across the back. He then becomes responsible for the payment of the note in case the original maker fails to pay. This necessity of endorsement on transfer would of itself prevent the use of private notes as a medium of exchange.

Bank notes are like private notes in that they are prom-

ises to pay. They stand for obligations of the bank, being signed by the president and cashier of the bank. They differ from private notes, however, in three particulars. In the first place, the name of the payee does not appear on the note. A bank note is "payable to bearer"; that is to say, whoever has it in his possession is the payee of the bank. In the second place, no date is named for the maturity of the note. The bank promises to pay the holder of the note the amount named at any time the note may be presented for payment. The third point in which a bank note differs from a private note is that no endorsement is required when it is passed from hand to hand as money.

Every country has its own peculiar system for the issue and use of bank notes, but in their main principles they are the same. The bank notes used in the United States (are either National bank notes or they are the notes of the Federal Reserve banks.) In both cases, the notes rest on federal and not on state authority. Many state banks, it is true, have the right to issue notes, but since Congress imposes a tax of ten per cent on such issues, state banks do not care to put their notes in circulation. This is the first significant fact respecting bank notes. They are federal currency.

One may ask why National bank notes are accepted everywhere without hesitation. The notes of a National bank that has failed are just as good, so far as purchase and sale is concerned, as the notes of banks that are still solvent. Indeed, no one ever looks to see what particular bank has issued a note offered to him as payment. If it is a National bank note, he knows it is good and accepts it without question. What is the basis of this universal

confidence that gains for National bank notes universal acceptance?

The basis of this confidence is, that the United States government is back of the notes. This fact becomes clear when we notice how such notes are issued. In case a National bank desires to issue notes, it is obliged to buy United States bonds and deposit them with the Comptroller of the Currency at Washington. The Comptroller then sends blank notes to the bank, and these notes, when signed by the president and cashier of the bank, are ready to be paid out to customers who ask for money. Suppose, now, the bank should fail. In case of an ordinary bank, this would mean that the holders of such notes would lose. The bank could not pay them, and for that reason no one would receive them in payment of a debt. They would be like counterfeit money in circulation. This, however, is not the case with notes of a National bank. It will be remembered that every bank has deposited government bonds with the Comptroller of the Currency before it obtained notes for issue. These bonds are security for the notes, and, should a bank fail, the Comptroller of the Currency is obliged to sell the bonds and use the proceeds for the payment of the notes. It is by this arrangement that the holders of National bank notes are secured against loss. The only way in which confidence in these notes could be shaken would be for the government to repudiate its public debt, or for the Comptroller of the Currency to refuse to do what the law says he shall do.

National bank notes are not legal tender. They are, however, convertible into legal tender when presented at the counter of any national bank, and by this means are

tied to the standard money of the country. Their value fluctuates with the value of the gold dollar.

One difficulty with National banks is that the currency which they provide does not quickly respond to the needs of business. A country needs to have more money in circulation at one time of the year than at another. When the wheat crop is to be moved, more money than usual is needed in the Northwest. When the cotton crop is to be moved, the South calls for more money.

In order to meet this need for an elastic currency, Congress, in 1914, created twelve gigantic institutions, owned by the banks of the country and supervised by the government, whose chief business it is to provide all the extra money the country needs at all times. This it does in the following manner: If a local bank needs more notes to loan to its customers, it can secure them by sending first class "commercial paper" to the reserve bank in its district, and receive in return Federal Reserve notes. The security for these notes is the commercial bills and notes deposited by the local bank. This brief mention of the Federal Reserve notes completes the description of the bank note system of the United States. Corresponding adjustments will be found in every country.

(b) *Treasury Notes.*—Not unfrequently, governments issue their own notes to be used as money. The money we commonly call "greenbacks" is an illustration of such notes. They usually come into circulation because the government is pressed for funds as, for example, in time of war. The government may be in need of war material, such as guns, uniforms, harnesses, or food. For some reason it may not be wise to borrow and it is

not possible to wait for new taxes to fill the Treasury. Under such conditions, what is needed may be bought at once and paid for by giving to the sellers treasury notes. In order to relieve the sellers from the hardship of parting with their goods for promises of future payment, the government gives its notes the legal tender quality. This means that those who furnished the government with supplies are able to use the notes in buying what they want. By this device, these notes are forced into circulation. They pass freely from hand to hand in business transactions. They perform the exchange function of money, and, if issued in sufficiently large amounts, may become the measure of value. There are other kinds of treasury notes, but the "greenback" sort is what one commonly means when he speaks of government paper money.

(c) *Certificates of Deposit.*—As a convenience in handling exchange, the government treasury receives gold on deposit, and issues a certificate of such deposit in the form of paper money. These certificates are not legal tender; they are rather representative of the gold or silver left with the government.

In the case of a deposit of gold, the certificates are called gold certificates. They are issued in denominations from ten to ten thousand dollars. They may at any time be exchanged for the gold which they represent, and because of this fact are freely used in all commercial transactions.

The silver dollars were never a popular coin. It was difficult to put them in circulation. One device for doing this was to issue silver certificates in the form of paper money, to represent the silver dollars in the vaults of the

treasury. These appear as notes in the denomination of from one to one hundred dollars, but ninety per cent of the total amount at any time outstanding must be in denomination of ten dollars and less. Silver certificates are, according to the contract, redeemable in silver dollars, but as a matter of fact, they are freely exchanged into gold. This is necessary in order to preserve the gold dollar as the standard unit.

§ 47. Money Principles.—Books and libraries have been written on industrial problems that arise in connection with money. Our study does not undertake a discussion of any of those business problems that present themselves to those who make our laws. When, however, the general principles which guide legislation are universally accepted, their statement comes to be a part of a description of industry, and, for that reason, are included within the scope of our study.

Attention will be called to three well-established monetary principles.

(a) *The Value of Money.*—The value of money, that is to say, its exchange power, as compared with all kinds and sorts of goods offered for sale, depends upon the amount of money at any time in circulation. "The value of money is inversely as general prices." If prices on the market go up, this means that the value of money goes down. On the other hand, if general prices on the market go down, this means that the value of money goes up. In any particular study of the movement of market prices, it is necessary to determine whether this movement is due to a change in the value of money, by which prices are measured, or a change which pertains to the manufacture of goods offered for sale. The ap-

plication of this principle is frequently blurred by the fact that a great variety of substitutes for actual money are extensively used in the modern business world, but the principle as stated is an approximate expression of an important commercial fact.

(b) *Gresham's Law.*—A second general fact respecting money is expressed by what is known as Gresham's Law. The usual statement of this law is that superior money and inferior money cannot circulate together; the inferior money will drive the superior money out of circulation. It is easy to understand why this should be true. Money is used for making purchases or for paying debts. Naturally, if there are two units of value, either of which could be used for the discharge of a debt, the debtor will select the cheaper unit.

In the war of 1861–65, the government found it necessary to issue a large amount of paper money to which they gave the legal power of paying debts. The amount of this paper money issued was sufficient to carry on all of the commercial transactions of the country. The result was that gold and silver disappeared from circulation, and the transactions of the country were readjusted to the basis of paper money. This is an illustration of the way in which Gresham's Law works.

For over a hundred years, the coinage laws of the United States recognized both the gold dollar and the silver dollar as a standard coin. This does not mean that both kinds of coins were used as standards at the same time, for if the amount of silver in a silver dollar was worth less in bullion than the amount of gold in a gold dollar, the debtor would select silver rather than gold with which to discharge a debt. Under such conditions, gold would

disappear from circulation. This, too, is an illustration of Gresham's Law.

In one particular, the above statement of Gresham's Law is imperfect. In order that inferior money may drive superior money out of circulation, this inferior money must exist in sufficient amounts to enable it alone to meet the requirements of commercial transactions. As long as both a superior and an inferior money are needed to make up the required money supply, they will both circulate side by side. A more correct statement of Gresham's Law is as follows: When domestic prices are graded to the superior money, there will be a concurrent circulation of superior and inferior money, as though all were equal in value; but when domestic prices are graded to the inferior money, the superior money will disappear from circulation.

A pertinent question may be submitted at this point. How can one tell whether prices are graded to the superior or to the inferior money? How, for example, can one prove that prices in this country are now graded to the gold dollar and not to the silver dollar? This question may be easily answered by an experiment. Suppose one with a ten dollar gold piece which contains 258 grains of standard gold desires to buy $10 worth of sugar quoted at 12½ cents a pound. It is a matter of indifference to him whether he pays a $10 gold piece or 258 grains of standard gold. If he has ten silver dollars, he can buy the same amount of sugar as he could buy if he paid in gold, but no one would sell him eighty pounds of sugar in exchange for the amount of silver bullion contained in the ten silver dollars. At the present price of silver, they would sell him not more than fifty pounds of sugar. This proves

that the market price of sugar is adjusted to the gold basis and not to the silver basis. The reason why silver dollars circulate and do the work of gold dollars, is that, under the law, they are limited in quantity and can be freely exchanged for gold. It is not possible for those who trade in silver bullion to have this bullion manufactured into coin in unlimited amounts. This explains why silver does not drive gold out of circulation although it is an inferior coin, and why prices do not adjust themselves to the silver basis.

A sound monetary system will first establish a standard unit of value and then, by granting unlimited coinage for this unit and by limiting the coinage of other units and making them convertible, will be able to keep domestic prices on the basis of the standard coin.

(c) *The Diffusion of Money.*—The stock of money in the world tends to distribute itself to the various countries or trading sections, according to the needs of these sections. Ordinarily a people need not worry over keeping their money at home or bringing money from foreign countries. As between trading countries, money will go where it is most needed.

This is accomplished through the agency of trade. If prices for staple goods are lower in a foreign country than at home, buyers will buy abroad rather than at home. This means that money must be sent abroad to pay for the goods. This, in its turn, means that prices will tend to fall on the home market until it is as cheap to buy at home as abroad. If we can see that money is drawn to a market where prices are low, we may conclude that money will flow automatically from place to place until prices are about equal in all trading markets. All commercial

countries have given up trying to regulate the amount of money which a particular country should have.

§ 48. The United States Money System.—It is evident from the foregoing discussion that a money system may be made up of many kinds of money, and that it rests on many kinds of laws. The situation as it exists in any particular country is only explained by the financial, political, and industrial history of that country. The history of money is always a local history. This impression, as also the impression of what is meant by a money system, will be gained from the following tabular statement of the money system of the United States. This statement gives the amounts outstanding of the different sorts of money, and a per capita assignment of these amounts. In the last column are found a few leading facts respecting each kind of money.

TABULAR STATEMENT OF THE UNITED STATES MONETARY SYSTEM

Kind of Money	Amount in Circulation Incl. Bank Notes, June 30, 1916	Amount per capita	Facts of Law and Financial Policy
1. Gold.	$ 646,213,000	$ 6.46	Standard coin is one dollar, containing 25.8 grs. of gold, 9/10 fine. Legal tender to all amounts.
2. Gold certificates.	1,413,823,289	14.13	Not legal tender, but redeemable in gold.
3. Silver dollars.	66,415,128	.66	Contains 412 grs. silver, 9/10 fine. Legal tender; while not legally redeemable in gold, they are readily exchangeable and therefore pass as gold in current exchanges.
4. Silver certificates.	489,910,937	4.89	Not legal tender; not legally redeemable in gold, but under government policy readily exchangeable for gold.
5. Subsidiary silver coins.	171,449,636	1.71	Legal tender up to $10. Redeemable in amounts of $20 and multiples. Fifty, twenty-five, and ten cent pieces.
6. Token coins.	67,047,795	.67	Legal tender up to twenty-five cents. Redeemable in amounts of $20 and multiples. Five cent piece and one cent piece.
7. United States Notes.	341,719,547	3.41	Legal tender, and since 1879 redeemable in gold. Denominations from $1 to $1000.
8. National Bank Notes.	719,400,794	7.19	Not legal tender, except in dealing with national banks and the government. They are redeemable in gold, silver, and U. S. notes. Issued in denominations of $1 up to $100.
9. Federal Reserve Notes.	182,062,780	1.82	Not legal tender except in payments to government. Redeemable in gold. Issued in denominations of $5 to $100.
Total Money	$4,098,042,906	$40 98	

Every country in the world could furnish some exhibit similar to the above.

CHAPTER XI

THE CREDIT SYSTEM OF EXCHANGES

"A bank in the modern sense is a manufactory of credit and a machine for facilitating exchanges."—HORACE WHITE.

THE process of exchanges has developed by three well-marked steps. The first step was exchange by barter; the second step made use of money as a medium of exchange; the third step consists in the partial substitution of bank credits for money. The reason why bank credits are used is found in their greater economy, safety, and convenience. The business of to-day, with its world-wide interchange of products and its methods of production that extend over long periods of time, would not be possible if exclusive reliance were placed on money for effecting exchanges. It is the purpose of the present chapter to explain how exchanges are carried on through the agency of banks.

§ 49. The Nature of the Banking Business.—In order to understand how banks furnish a medium of exchange, it will be necessary to describe what is known as the deposit function of banking. Merchants and business men generally do not care to keep about them large sums of money. Such a practice would require that each merchant build for himself a safe or a vault for the keeping of his funds. One way to reduce this expense would be for merchants to club together and build a safety vault that all could use. Another way would be for some one not directly engaged in the business of producing, transporting,

or selling goods, to build a safety vault, to accept the moneys of business men for safe keeping, and to make a charge for this service. Such a man would be the keeper of a warehouse for the storage of money; he would not however, be a banker. When does the warehouseman become a banker? This question provides the key for explaining the peculiar nature of the banking business.

A man who accepts money on deposit, agreeing to keep it safely and to return a like amount on demand, becomes a banker, when he loans out a part of the moneys placed in his hands for safe keeping and thus makes a profit for himself, by getting interest on the loan of other people's money. "When a man lends his own money, he is a money lender; but when he lends the money of other people, he becomes a banker." Modern bankers make no charge for the safe keeping of other people's funds. Indeed, many of them are willing to pay a slight interest on deposits. The amount of interest which accrues from the loan of money placed in the hands of a banker by depositors, is the source of bankers' profits.

That the above is a correct statement of the manner in which the banking business arose is shown by the early history of the Bank of England. In the 16th century, the merchants of London placed their funds in the hands of the government for safe keeping, these funds to be guarded in the Tower of London. On several occasions, however, it was found that the King had used this money, and did not find himself in a position to pay it back to the merchants on demand. The merchants then made use of the silversmiths as custodians of their funds. The silversmiths, from the nature of their trade, were obliged to provide vaults and guards for the safe keeping of their

property and, on consideration of a deposit fee, permitted the merchants to make use of their vaults. As the result of some considerable experience, the silversmiths discovered that they always had on hand large sums of money deposited by the merchants, and they quickly learned that they could, with perfect safety, loan a portion of these funds and thus make for themselves the interest which accrued on such loans. When this double source of profit to the silversmiths was discovered, the merchants did not withdraw their funds, but they declined to pay a storage or warehouse charge. Then the silversmiths were changed into bankers, and the business of banking came to be recognized as a specialized business in the London business world.

Two questions arise at this point. First, why are merchants willing to put their funds in the banks, knowing that the banks will make use of these funds for carrying on their own private business? And, second, how can bankers safely loan money received on deposit, when they have promised to return that money to the depositor on demand? A satisfactory answer to these two questions will make yet more clear the nature of the banking business.

Answer to Question One.—When merchants use banks for the safe keeping of their funds, they are excused from the expense of building safety vaults and providing the necessary watchmen. This the banker does for them in return for the privilege of using their money while in his hands. Another reason why merchants are willing to permit the banker to use their money while in his hands, is that the maintenance of such a deposit enables them to transact their business by drawing checks rather

than by payments of cash. This is not only more convenient and safer, but these checks serve as receipts for payments made, and are something of a record of current transactions. Buying and selling by merchants and the well-to-do classes generally is seldom done with actual money. How payments are made by checks is explained in a following paragraph.

Answer to Question Two.—When a banker receives the funds of business men on deposit, he does so under an agreement that he will pay back to the depositor an equal amount of money whenever the depositor may care to make demand for repayment. Should all depositors make a demand for repayment of all that they deposited on any particular day, the bank would fail, for the bank does not keep on hand all of the money thus deposited. The safety of the banker in lending out a portion of the money deposited with him for safe keeping, rests simply on business experience. The only use which business men have for their deposits is the payment of their debts. It is certain that a business man will not ordinarily demand the return of his money unless he wishes to use it in the payment of his own obligations. The banker knows that these obligations will not fall due all on one day, and on this account he feels safe in lending deposits, provided he keeps enough cash on hand to meet the probable demands of each business day.

This may be made clear by an illustration. Suppose, for example, all business transactions of each day are equal to those of every other day and that one-sixth of all outstanding transactions are settled each day. If, now, the banker has on hand an amount of cash equal to one-sixth of the transactions, he would be safe in lending

out five-sixths of the money placed in his hands for safe keeping. This illustration assumes, of course, that the daily deposits of cash equal one-sixth of the transactions. It also assumes that no other calls for deposits would be made except those that arise out of current transactions. Nor does the illustration take into consideration the current system of bank exchanges. It is simply an illustration designed to explain how banks can, with safety, promise to repay enormous sums of money deposited with them for safe keeping, while in their own vaults there will be at any time only a small portion of such funds.

§ 50. The Exchange Functions of Banks.—The above explanation of the source of bankers' profits and the nature of the banking business was necessary, before undertaking to explain the manner in which banks facilitate market exchanges. This is done in two quite distinct ways, namely, by providing credit media of exchange for the payment of debts both at home and abroad, and by converting the non-spendable wealth of the community into a spendable form by furnishing the owners of this wealth with media of exchange in the form of money and credit. A description of each of these two services will now be considered.

(a) *Exchanges by Means of Checks and Drafts.*—When a depositor obtains a deposit credit at a bank, his name is entered in the books, and he is given the right of drawing out a given amount of money. In the language of the street, Mr. A has opened a checking account with the bank. Suppose, now, that Mr. A owes money to Mr. B. He can go to the bank, receive the cash, and with the cash pay his debt; or he can write to the bank and

request the bank to pay Mr. B this amount of money directly. In either case, the sum paid by the bank on the order of Mr. A will be charged to Mr. A's account. It will reduce the amount of credit which he previously had on the books of the bank. This letter which he writes to the bank ordering the bank to pay a certain sum of money to Mr. B and charge this payment to his account, is a check, and by the use of the check he has paid his debt without the necessity of handling any money. The check in this case is used as a medium of exchange. A check transaction is substituted for a money transaction. Credit is used instead of money.

This illustration may be carried a step further. It may be that Mr. A and Mr. B are clients of the same bank, and that each has opened with the bank a checking account. In this case, it is likely that Mr. B, when he receives the check of Mr. A, having no immediate use for the cash, will carry the check to the bank and ask that it be deposited to his credit on the books of the bank. This is done by charging the amount to the checking account of Mr. A and crediting the same amount to the checking account of Mr. B. The transaction is completed, but no money has been used. The transfer which effects the change is a transfer of credit on the books of the bank. Bank bookkeeping has been substituted for money as a medium of exchange.

The case is a little different in form, although the same in principle, should Mr. A and Mr. B be depositors in different banks. In this case, Mr. A draws his check in favor of Mr. B against the bank in which he has a deposit, and Mr. B will accept this check in payment of the debt. Mr. B will not, however, go to the bank on which the

check is drawn and demand the money. This might be a matter of inconvenience to him. He will deposit the check to his credit in the bank with which he ordinarily does business. This bank will take the check, together with numerous other checks drawn on Mr. A's bank and on all the other banks of the city, to a common meeting place where all the banks, by exchanging checks, cancel the claims which each bank holds against the others. This cancellation obviates the necessity of handling large sums of money. Such a place is called a "clearing house."

The situation would be slightly changed if Mr. A lives in Detroit while Mr. B lives in Cleveland. Under established banking customs, Mr. B takes the check which Mr. A has written in his favor to his own bank where, when properly endorsed, it is accepted by his bank as though it were a deposit of cash, the settlement being made between the banks. Mr. B receives credit in the Cleveland bank for the check which Mr. A has drawn, but the Cleveland bank and the Detroit bank are both depositors in a bank in Chicago or New York City. The Cleveland bank sends Mr. A's check to the Chicago bank and receives credit for the check as though it were cash. The Chicago bank then charges the amount against the account of the Detroit bank (the check itself being sent on to the Detroit bank), and it is charged to the deposit account of Mr. A. If this illustration be extended to include all the banks in the United States, some idea can be gained of the extent to which bank bookkeeping is substituted for money in the settlement of exchange transactions.

The Federal Reserve banking system, recently organized, conforms to the principle of credit exchanges

made clear by the foregoing illustration. The machinery is a little different, but the character of the transaction is the same.

The principle of bank exchanges is quite the same when a draft instead of a check is used. The difference between a check and a draft is this: A check is drawn by an *individual* against a credit which he has created by a deposit with a particular bank; a draft is drawn by a *banker* in favor of an individual against a credit which the bank has created by a deposit in some other bank. Every bank in the United States keeps deposits in other banks. A draft is a banker's check and, when sold to an individual, enables him to pay a debt in some part of the country where he, as an individual, has no credit.

(Suppose, for example, a business man in a small town in Illinois desires to pay a bill which is due in a small town in New Jersey.) The usual procedure in this case is for the man in Illinois to buy from the home bank a draft on some bank in New York City with which the home bank has credit. This draft is drawn and made payable to the New Jersey man; that is to say, his name is written on the face of the draft as the man to whom the New York bank must pay the money. This draft on a New York City bank is mailed by the Illinois man who owes the money, to the New Jersey man to whom the money is owed. When the New Jersey man receives the draft, he can use it in either of two ways. He can go to New York and present the draft to the bank on which it is drawn and get his money, or he can present the draft to his home bank in New Jersey and either receive the money or have the amount credited to him as a deposit. The transaction is completed when the New Jersey bank

sends the draft to the New York City bank and accepts credit for the amount named.

If the New Jersey man does not want the cash and deposits the amount of the draft in his home bank, the debt is paid but not a dollar has exchanged hands. The transaction is a credit transaction. Bookkeeping entries in three banks have performed the service of a medium of exchange. The books of the Illinois home bank (suppose the draft to be for $100) show the checking account of the man who bought the draft to be reduced by $100 if he pays for the draft with a check, or the cash account of the bank to be increased by a like amount if he pays cash for his draft. The books of the New Jersey bank show the checking account of the man to whom the debt is paid is increased by $100, and that the bank, on its part, has an order for an equal amount on a New York bank. The draft is then sent to the New York bank, which gives credit to the New Jersey bank for the amount named. The result, as seen on the books of the New York bank, is that the $100 is taken from the checking account of the Illinois bank and added to the checking account of the New Jersey bank. Here, also, we must observe that the Federal Reserve system has provided a more direct way of making payments. Under this system, there is a tendency for the substitution of personal checks for bank drafts in making out-of-town payments.

The above illustration shows how a debtor in the West pays his creditor in the East by means of a transfer of credit from one account to another account in the New York City bank. The result of the transaction is that the Illinois bank has $100 more cash (or $100 less deposit liability), and $100 less credit in the New York bank.

Should transactions of this kind continue, it is evident that all of the credit which the Illinois bank had in New York would be converted into cash, and that cash to an equal amount held by the New Jersey banker would be converted into credit on the books of the New York bank. Under such conditions, the draft of an Illinois bank would be no longer honored in New York City and, consequently, the merchants of the Illinois town would not be able to pay their debts in the East by drafts as heretofore. It would be necessary for the Illinois bank to deposit more cash with the New York City bank and, under the conditions assumed, this could only be done by sending money by express or parcels post.

Our illustration, however, does not tell the entire story. It is confined to the shipment of goods from the East to the West and a consequent transfer of money from the West to the East. In the business world, as we know it, goods are shipped from the West to the East at the same time that goods are shipped from the East to the West. (So far as the East and the West as trading centers are concerned, the value of goods sent in one direction tends to balance the value of goods sent in the other direction.) If these exchanges represent values of equal amounts, neither locality will be required to pay money to the other. Exchanges between localities as, for example, between the East and the West in our own country, are in fact barter; goods shipped in one direction pay for the goods shipped in the other direction. The peculiar service rendered by banks is to keep such a record of this barter as will permit every buyer and every seller, whether in the East or in the West, to be credited with the goods which he sells. This is easily accomplished, provided every business man de-

posits the drafts which he receives in his home bank and buys the drafts which he sends from his home bank. In this way, the payments and receipts of each man will be placed on the books of the banks in the locality where he does business, and the debts as between the East and the West will be settled by what amounts to a cancellation of indebtedness coming in and indebtedness going out, as represented by drafts accepted and drafts issued by local banks.

(b) *Exchanges through Bank Discounts.*—In order to understand how the discounting of mercantile paper, and the direct lending of their funds by bankers, is connected with bank exchanges, we must first learn what is covered by the loan and discount function of banks.

In Chapter VII, which treats of "The Market," it was learned that the same material appears on the market many times and under many forms in its journey from the original producer to the final consumer. Thus, cotton appears as raw material, cleaned cotton, and cotton cloth. This cloth is owned successively by the manufacturer, by the wholesaler, by the retailer, and finally comes into the hands of the consumer. Each step in this journey involves a purchase and a sale. Thus, the cotton producer sells to the cotton broker, the cotton broker to the manufacturer, the manufacturer to the wholesale dealer, the wholesale dealer to the retail dealer, and the retail dealer to the consumer.

It may be that two years have elapsed between the beginning and the ending of this journey from the cotton field to the home of the consumer. It is not until the goods are sold to the consumer that money is collected for the payment of the merchants, manufacturers, and growers

of the cotton goods sold over the counter of the retail dealer. (It is thus evident, that if each transaction were considered by itself, the cotton grower would be obliged to wait a year and a half or two years for his payment.)

As a matter of fact, the modern business world could not be carried on were payments thus delayed, and early settlements are made possible by banks through direct loans and through the discount of mercantile bills. This method of prompt settlement may be made clear by an illustration.

It may be assumed that a cotton broker in Georgia sells cotton to a cotton manufacturer in Massachusetts. For purpose of concise statement we will say that the proceeds of the sale are $10,000. In this case, the broker in Georgia is the creditor and the manufacturer in Massachusetts is the debtor. Transactions of this sort are seldom paid for in cash. Let us assume that the sale was made on ninety days' time; that is to say, the Massachusetts manufacturer agrees to buy cotton if the Georgia broker will not ask for the cash until ninety days after the date of the sale. The result of this first step in the transaction is that cotton is placed in the warehouse of the Massachusetts manufacturer, and the Georgia broker is authorized to draw a bill against the manufacturer for $10,000, to be paid in ninety days.

In all probability, the Georgia broker bought the cotton with borrowed money, and he cannot wait until the ninety days have elapsed before he gets his money. Under the present banking system, it is easy for him to secure the funds with which to pay his own debts. (This he does by writing to the Massachusetts manufacturer, ordering him to pay some party, let us say a banker in Georgia, $10,000

at the expiration of the ninety days agreed upon.) This letter is what is called a merchant's draft and, like a check or a banker's draft, has a definite form. The merchant's draft is "accepted" by the manufacturer in Massachusetts; that is to say, he writes the word "accepted" and his name on the face of the draft. This acceptance makes the draft mercantile paper. It is an acknowledgment on the part of the Massachusetts manufacturer that he owes the Georgia broker the amount named. This draft, properly accepted, is then taken by the Georgia broker to his local bank. The banker gives to him the amount of money named, or carries this amount to the checking account of the broker, less the interest which accrues on the $10,000 for ninety days. If we assume the discount to be at 5%, the Georgia broker will receive from his banker $9,875. The banker, on his part, will carry this debt for three months, when the Massachusetts manufacturer will pay the face of the debt; that is to say, $10,000.

(Or it may be that a Massachusetts bank will furnish the funds for payment.) In this case, the manufacturer will take the accepted bill to his home bank and receive in exchange for it a draft for the payment of his debt to the cotton broker. In either case, it is a bank that carries the indebtedness for ninety days.

If now, we can picture to ourselves that every step in the journey of goods from the original producer of the raw material to the final consumer of the completed product involves a transaction like the one described above, we can understand what is meant by saying that the banking system of the country stands at the center of the market, and that practically every mercantile purchase and sale involves a loan or discount exchange. In

the case of a banker's draft, the person who wishes to make use of the credit of the banker for the payment of a debt is obliged to pay for the use of this credit; that is to say, he pays when he gets the draft something more than the face of the draft. In the case of the mercantile draft, on the other hand, the profit to the banker arises out of the loan of banking funds to the man who buys the goods. Were it not that banks were ready at all times to lend their funds directly, or to discount mercantile bills, the buying and selling of goods on the market would be seriously hampered. The bank not only supplies facilities for making payments of debts through the sale of the credit which they maintain in different parts of the country, but they make use of their credit for the prompt payment to the seller of the goods, even though the goods were sold on thirty, sixty, or ninety days' time. Through the discounting of mercantile paper, the banks of the country carry the value of all goods while on their journey from the producer to the consumer. Very little actual money is used in this transfer and, for this reason, discount banking may be properly regarded as an important factor in facilitating the exchange of goods.

CHAPTER XII

SHARING THE PRODUCT

"If the identical goods were directly and immediately divided among those who take part in their production, the matter would be comparatively simple."—SEAGER.

No description of the business world would be complete without a consideration of the manner in which the common product of co-operative work is shared among the workers. To explain how this is done, under the industrial, political, and social conditions of our time, is the purpose of the present chapter.

§ 51. Statement of the Question.—A rapid survey of some of the facts thus far disclosed, will aid in a statement of this question. We have learned from the foregoing chapters what is meant by saying that all goods are the product of co-operative work. We have come to appreciate that we are dealing with an industrial society composed of an organized body of workers, and not with individual workers. We have come to understand that the total output of a week, a month, or a year, is increased because workers use machinery and submit to the discipline of an efficient organization. We know that, for this reason, the per capita product is much greater, perhaps four or five times greater, than it would have been had each worker worked with tools and by himself. It is these facts that make the problem of sharing the product such a difficult problem, for no one has yet devised a means of measuring the productivity of any particular

worker or class of workers, in an industry adjusted to the requirements of the principle of division of labor.

Other lessons there are which have a direct bearing on the problem in hand.

We have learned that all goods pass through the market many times before they finally lodge in the hands of him for whom they were made, and that the law of demand and supply controls their sale and distribution. We have learned that, according to the system of law under which we live, men are permitted to own land and capital, and to loan them out for use in the process of production. We have learned that all workers stand as freemen before the law, and that they will not work except in response to an adequate motive. And finally, we have learned that our industrial organization, except so far as it is under the direct control of government, is held together by contracts and agreements, and that these contracts and agreements are entered into voluntarily by all parties concerned. All these facts must be accepted as conditions in a study of the process by which the industrial product is shared.

To the above lessons there must be added a new fact. Our study of the production and sale of goods does not complete the analysis of what may be termed, the circle of industry. Up to the present point in our study, we have assumed that circle to be:

wants lead to work,
work produces goods, and
goods when sold and consumed give the satisfaction of the wants that caused the work.

This seems like a closed circle, but it leaves out one important fact; namely, the fact that consumption means

men, women, and children eating, wearing and using the various kinds of goods that are produced, and that such consumption cannot take place until consumers are given a property in the things to be consumed. It may be said that workers secure goods as their property when they buy them on the market. This is true but it does not answer the question raised. How do they obtain the money with which to buy; and who or what decides on the amount of money each is to have? The problem of sharing the product thus comes to be a study of personal incomes. What fixes wages? What determines profits? How does the rent of a particular piece of property come to settle at a certain figure? What makes the rate of interest? These are the kinds of questions covered by a correct statement of the problem of sharing the industrial product.

(We have expressed our problem in terms of money, but the amount of money one gets is of slight importance until one knows what he can buy with his money.) This leads to a distinction between real wages and nominal wages, real profits and nominal profits, and the same is true of all incomes. The money wages in a country may be high, but if prices are also high, the real wages may be low. However, this phase of the topic may be dropped. The first step is to inquire how the total product of co-operative work is shared by the co-workers, their respective shares being expressed in money incomes. We shall confine our attention to this first step. The second step, namely, the effect of current changes in the market price of goods on the standard of living of the various classes that receive these various incomes, would carry us beyond the purpose of this book. Our statement of

the question, therefore, is limited to the determination of money incomes.

§ 52. **The Production Contract.**—One who knows the business world, is familiar with the fact that most men judge of their incomes by comparison with incomes that others receive. The bricklayer compares his wages with the wages of the plumber; the plumber compares what he earns with the profit made by the keeper of a corner grocery; the merchant grocer compares his income with the salary of a preacher, or a teacher; these in their turn compare their salaries with the fees charged by lawyers and physicians, and so throughout the list. This is not, perhaps, a bad way to set up a relative test of the incomes which come to the various groups of workers; but it is no explanation of wages, interest, salaries, fees, or profits. Universal comparison explains nothing unless one can find an income somewhere in the industrial world that rests on its own bottom, and which can be used as a standard with which to measure all other incomes. It is the purpose of this paragraph, devoted to an analysis of what is termed the production contract, to find such a standard.

The production contract, as that phrase is here used, covers the conditions under which industrial or business units are organized for the purpose of the production and sale of goods. The direct parties to the production contract are,—the enterpriser or responsible business manager; the employee whose pay comes in the form of wages, fees, salary, or commission; and the capitalist who supplies the money necessary for starting and running the business. These three parties stand for different services, all of which are required to carry on a business, and each of which

represents an interest that must give its consent before a wheel can be turned or an order accepted.

The responsible member of every business created by a production contract is the enterpriser. He it is who promotes the enterprise. He seeks out the line of production to be undertaken. He decides on all formal matters, such as the kind of goods to be handled, the amount to be produced, and the market for their sale. He calculates the amount of money needed to start the business and to carry it on. He bargains with the capitalist for the price to be paid for the use of capital, and with the various classes of employees for the price to be paid for their services. Under the modern method of doing business, the pay for both capital and labor is determined before production is begun. It is agreed upon and expressed in the production contract. The enterpriser, on the other hand, does not know, until the work is done and the goods are sold, what his pay will be. He agrees, under this contract, to stand the loss if loss there be, and the other parties to the contract agree to give him the gain or profit if the enterprise proves to be commercially successful.

From the foregoing it is clear that the responsible manager stands for the interest that has the last word in forming a production contract. Neither the employee nor the capitalist is obliged to think about the probable success of the business. Each demands, in wages or in interest, all he has the face to ask, leaving it for the responsible manager to beat down these demands to a reasonable figure, and for him the word reasonable has a commercial basis. It is his peculiar task to analyze costs and to keep the cost of production below the price at which the product can be sold. And this he will do for the reason that

it is this margin between cost and price which measures the profit that he receives as his personal income. It is, of course, true that every citizen in the business world desires to have as large an income as possible, but the enterpriser is in a peculiar situation. He is the only industrial agent whose income depends on keeping the costs of production as low as possible. He alone feels the force of competition in production, and it is he alone whose decisions are controlled by the fact, that an agreement to pay too high wages or too high interest will lead to the failure of the business placed in his charge. By virtue of his position, he is forced to be the keeper of the door of industrial opportunity, and to bestow the rewards for industrial service.

The production contract is, in fact, the assembling of two classes of contracts, the one pertaining to wages and the other to interest, and the enterpriser is a party to the contracts of both classes. He is on this account in a position to compare the various factors of cost, and to select such a combination for the organization of the business placed in his charge as will reduce the production cost to a minimum. It is this selection on the part of the responsible manager that places a limit upwards to both wages and interest. (The manager is forced to compare the relative efficiency of the labor element and of the capital element in production.) It is by this comparison that he makes for himself a standard with which to measure what he is willing to pay. He will not pay more to labor than it would cost if he borrowed capital with which to buy machinery to do the same amount of work; nor will he pay more in interest than it would cost if he hired laborers to do the same amount of work by hand.

In this comparison, which is made daily and by thousands of different managers in all kinds and sorts of business, do we find the measure of the maximum basal wages that laborers can reasonably expect, and the measure of the maximum rate of interest that capitalists feel free to demand. The basal wage and the average interest will tend to settle at points where it is a matter of indifference to the manager whether he hires laborers or borrows capital. The kind of competition that controls the distribution of the product,- is the competition between labor and capital for acceptance by the responsible manager in his organization of a business. He considers the offer of each as a potential cost, and accepts the one which he estimates to be relatively more effective in producing profit. It is this estimate that fixes the standard on which the wage scale rests. We find here the bedrock of our problem. With the basal wage, the average interest, and the normal profits as bench marks, we may run levels throughout the entire business world, and by means of comparison explain every phase and form of income.

From the foregoing explanation, one might conclude that the responsible manager is able to fix his own income at any figure he sees fit; but such a conclusion would be incorrect. The amount which an enterpriser can pay to himself in the form of profit is limited in two ways. In the first place, it is limited by the fact that no single establishment produces all the goods of a particular sort, and competition between different producers, or between different classes of goods, will keep the price down to the cost of their production, including a normal profit. In the second place, the fact that every citizen of the business

world is at liberty to try his hand at any and every occupation, results in the establishment of a rate of pay that is accepted as normal for every class. If the laborer or the capitalist does not like the wages or the interest offered by the responsible manager, they have the right, either jointly or separately, to organize a business of their own, and to become themselves responsible managers. Under such conditions, any attempt on the part of a manager to squeeze wages or interest below their commercial rating, will result in his giving way to some one else, possibly some one who comes up from the ranks of labor, who is able to compute cost and estimate price with greater accuracy. The responsible manager seems to be the dictator of his own income; in fact, a limit is set to his income by commercial conditions. This, at least, is the tendency in a free and open market.

We find, then, in the terms of the production contract, the basis or standard from which all other incomes are measured.

§ 53. The Secondary Distribution Groups.—The aggregate product of joint work is shared among four groups or classes of incomes. The first of these, which we call the primary commercial incomes, embraces all incomes covered by the production contracts. The wages and salaries of employees engaged in direct production, the interest on capital used in production, and the normal profit to the responsible manager, are all commercial incomes. They differ from other incomes in that they constitute production expenses and together make up the cost by which normal prices on the open market are determined. The other groups of income are incomes derived from direct services, incomes derived from rents, and

speculative and monopoly incomes. These three groups of incomes are distinguished by the fact that they do not enter into cost; they are, however, closely related to commercial incomes to which they must be referred for the purpose of explanation.

(a) *Incomes Derived from Direct Services.*—The salaries and wages paid to government employees are incomes of this class. The government is not a commercial corporation, nor are the services which it renders such as can be bought and sold on a competitive market. It gives protection to persons and property: it is responsible for the enforcement of contracts; and it undertakes to provide for public health, public recreation, public education, and other like services. On its formal side, however, government is the men who govern. These men have wants that must be satisfied the same as other workers who work for the production of goods to be sold on the market. This means that a certain amount of the joint product of current industry must be set aside for the support of the servants of the state.

In modern society, the income of the government which it distributes as salaries and wages to public employees, and as payments for needed materials and supplies, arises from taxation. The significant fact is that the public income must just equal public expenditure. There is neither profit nor loss. Its amount is determined by political and not by industrial methods. The fixing of the income of the state is not an industrial act. The making of contracts and the control exercised by industrial competition has nothing directly to do with the fixing of the tax fund out of which the wages and salaries of public employees are paid. On the contrary, the size

of the fund is fixed by the wages and the salaries paid.)

If the wages and salaries of public officials are not the result of a commercial bargain, what is the consideration by which they are determined? The answer is simple. They are determined by means of constant comparison with commercial incomes. The employees of the state cannot get more, nor will they accept less, than the standard pay for similar work performed by men of similar skill in the business world outside the government service. Considerations of the honor that comes with a public office, the kind of work, and the like, may influence the final result; but that which controls is the comparison that public employees are constantly making.

Many others there are, besides our public servants, whose pay is fixed by comparison with commercial incomes. The preacher, the teacher, the lawyer (if in general practice), the physician, and all workers engaged in domestic service, find the explanation of what they receive in the fees, salaries, and wages paid commercial workers. A description of the ways in which this comes about will make clear the connection.

In the first place, comparison implies the possibility of shifting employment. The teacher compares his salary with what his neighbor, an insurance agent, gets, because he can readily become an insurance agent if the school board will not raise his salary. A lawyer compares his fees with the income of a business manager, because he feels he has the qualifications to run a business successfully. Domestic cooks compare their wages with what the "hands" can get in a down town factory, because they know they can find employment in the factory.

The significance of comparison in the adjustment of salaries and wages for those who live by direct service, rests on the universal right of contract guaranteed to every citizen by our fundamental law.

In the second place, these incomes derived from direct service are paid out of other incomes, and the amount so paid is limited by the market demand for the service in question. What one pays for coal he cannot spend with a dentist. What one pays to his dentist he cannot spend in buying coal: what one spends on theaters and concerts he cannot use in buying clothes. This means that direct services are properly regarded as marketable goods, and as such come into competition with other goods offered for sale. It is this competition of all sorts and kinds of goods, for the favor of the buyer, that settles the amount that will be spent for direct services; it is the competition of the various kinds of employment which work through the comparison above referred to that settles the number of persons who are willing to render direct service: the result of the joint action of these two kinds of competition is to fix the personal income of all who render a direct service.

(b) *Incomes Derived from Rents.*—The modern business world allows the private ownership of land. This fact creates a land owning interest which must be consulted, and whose consent must be obtained, before industries can find standing ground, or secure material and power, for purposes of manufacture. The necessity of that consent is the basis of the claim of the landowner for a share in the product of current industry. The rent principle extends to other things than land, but what follows is confined to land rentals.

From the point of view of income, the landowner stands in a class by himself. Although he controls a factor of production that is limited in amount, he is not a monopolist. The price of agricultural goods is determined by the cost of production where they cost the most, and those lands that permit production at a less cost bear a rent. To receive this rent as a personal income is the condition on which the owner of the land permits it to be used. The income of the landlord, then, is built out of the difference between what it costs to produce agricultural goods on his land, and what it costs on land where there is no rent; that is to say, on land where the cost makes the price. He cannot get more, nor can he receive less. The different amounts of rent which different landlords receive vary with the different commercial grades of land.

It is said that rent does not enter into cost. This is true. The price of corn would not fall if all owners of land should give up their rent. This is a most important fact in our explanation of the sharing of the product of current industry. The question of how much is to be taken as rent is never considered in the production contract. The owner of the land is not a party to that contract. Those who are concerned in producing crops on the poorest land, that is to say, the land where there is no rent, are obliged to bargain. They are obliged to agree as to the wages and the interest, and the estimated profit; but the rent, where there is any rent, comes to the owner of the land out of the market price over and above the cost of production on the superior land.

While, therefore, the consent of the landowner to the use of his land must be gained before it can be used for production, the amount paid for this consent is not a

matter of commercial bargain.)Those who cultivate his land will pay him all profit over and above normal profit. Nothing that the landowner can say or do has the least influence on the bargains that give to the business world its standards for normal wages, normal interest and normal profits. Indeed, the landlord is not a commercial agent. He is merely an owner: The competition of enterprisers forces a certain amount of income upon him. He cannot increase it; he cannot reduce it; the only thing he can do is to accept it. This would be equally true if the government should own the land. The rental income accrues to the owner by virtue of ownership. Its amount is the result of competition for the opportunity of using different grades of land productively.

(c) *Speculative and Monopoly Incomes.*—Speculative and monopoly incomes are the distribution to individuals of speculative and monopoly profits. These come into existence because, for some reason, the force of competition is not able to reduce the price for which goods are sold to the cost of their production. These profits are profits over and above the normal profit as determined by the production contract. It is the constant effort of competition to kill speculative and monopoly profits; but so long as speculative and monopoly profits exist, they claim and they receive a share of the current product.

The relation of incomes of this group to the industrial process may be indicated by two remarks respecting them.

In the first place, these incomes, like rent, form no part of the cost of production, and, for this reason, have no bearing on those commercial forces by which the standards of pay for laborers, capitalists and enterprisers are determined. They who receive speculative and

monopoly incomes do not, like those who render direct services, test their incomes by comparison with commercial incomes, nor will they leave an occupation because their speculative or monopoly income is not as high as they desire. This group of incomes are "all velvet." They stand for excess profits over normal profits.

In the second place, the industrial principles which fix speculative and monopoly profits have to do with the marketing and not the making of goods. These incomes are called into existence by the fact that the avenues of supply are in some way controlled, and that a smaller quantity of goods are permitted to come on the market than would be bought if the price were reduced to the cost of production. Whether or not it is wise to permit these classes of income to continue, either in whole or in part, is not for us to consider at this time; nor is it for us to ask how they could be squeezed out, were such a result desirable. They exist because competition does not work its normal results. They are a market fact and not a fact of production. We have learned our lesson respecting them when we see how they come about, and that they represent profits over and above the normal profits which make a part of the cost of production. They are justified, if at all, because they are necessary to induce enterprisers to take unusual risks.

§ 54. Summary of the Analysis.—It is sometimes said that the demand for labor as compared with its supply fixes wages, and that the demand for capital as compared with its supply fixes the rate of interest. These statements are at best superficial truths. They shed no light on the process by which current products are shared. They assume, what is not true, that wages are fixed inde-

pendently of interest, and that interest is fixed independently of wages, and that both wages and interest are fixed independently of what the market is willing to allow as a reasonable rate of profit. No decrease in the supply of labor could permanently raise wages above the point at which the introduction of better machinery would result in a higher profit; while an increase in the supply of labor, except it be labor of inferior quality, is itself an invitation for the building of new capital with which to employ it in the most efficient manner. It is quite possible that a shortage in the supply of a particular group of workers would permit the members of that group to obtain, for a time, wages higher than the commercial wage. This would mean the temporary depression of profit in the industry concerned. It could not continue. A powerful trades union, also, provided its numbers are comparatively small, might force wages above the commercial wage. This would mean a rise in the price of the goods produced by them and a corresponding depression in the real income of other workers who consume these goods. That is to say, a trades union when it acts in this way is a monopolist, and secures, under the guise of wages, what is, in fact, a monopoly income. But when one has recited all the possible exceptions, he is obliged to return to this truth, that the analysis of cost determines the standard by which all kinds and sorts of income are measured.

We are now in a position to describe concisely the process by which the product of current industry is shared among industrial workers. The basal wage, the average interest, and the normal profit are first evolved, out of the necessity imposed on these three interests to come to-

gether and to agree on a business program. They are obliged to co-operate or the industrial process cannot go on. The limit of what any or all of these three interests can get as an income is set by what the market is willing to allow for the kind of goods produced. This is tested out by the experience of thousands of production contracts. As a result, certain well-recognized standards emerge from the trial, so that the business world comes to know what is the basal wage, the average interest, or the normal profit.

These standards having been established, the second step in the explanation of the process, is to recognize that services which are non-commercial in character are adjusted by comparison with services that are commercial. The salaries of government employees are fixed by comparison with what such employees could get if they should go into business. In the same way the salaries of preachers, and teachers, and the fees of physicians and lawyers are checked against what men of this training and talent could get in the services of corporations engaged in business.

The third step is to recognize that speculative and monopoly incomes are built out of sales at prices in excess of the cost of production. In a sense, they are predatory incomes, for what speculators and monopolists get is a loss to those who buy their goods. In a strictly upright business world all goods will be sold at their cost.

The rent income, as already explained, rests on the fact that land is limited, and that such land as is used industrially is of different grades. We have here a permanent share in the current product, and as long as private property in land continues, rent will be a permanent personal income.

CHAPTER XIII

BUSINESS INTEGRATION

"Self-governing groups of men should be enabled to work together in perfect harmony and on a great scale."—JOHN FISKE.

THE system of law and business custom under which industry is carried on makes extensive use of voluntary association. This phrase stands for all contracts, agreements, understandings, associations, and organizations by which men are bound together and act in business matters more or less as a unit. Partnerships, corporations, employers' associations, trade unions, sales agreements, and the like, are illustrations of voluntary business association. To describe all the agencies of business integration, and to show the peculiar character of each, goes far beyond the purpose of the present chapter. Our task, much more simple, is to gain a clear impression of the fact that business men are coming to act as groups rather than as individuals.

A complete description of the agencies employed for this purpose would require a detailed analysis of:

The business units,
Marketing agreements, and
Organizations for bargaining.

The analysis that follows is confined to the first and third of the classes of agencies named. This does not mean that marketing agreements are of no importance. On the contrary, they furnish perhaps the most serious of all criticisms on the manner in which industrial freedom

works. One sees everywhere an effort on the part of business men to elude the control of competition. Hundreds of schemes for attaining this end have been tried with varying degrees of success. To describe them would require a book. This phase of integration in the business world is set aside, with the assurance, however, that the lesson which it is the design of the present chapter to teach will be amply presented, by a study of the organization of business units and of organizations for bargaining.

§ 55. Business Units. The simplest of all business units is an individual doing business by himself. He furnishes the capital; he is the sole manager; he assumes all the risk and receives all the profits. As a matter of fact, however, only a small part of modern business is carried on in this simple manner. Since machinery came into existence, and since railways and steam transportation have created a world's market, the size of industries has greatly increased. But great industries call for more capital than an individual is commonly able to supply. This fact makes it necessary for capitalists to unite their funds for a common investment, thereby forming different kinds of business units, each of which has a character of its own.

The business units thus formed are of three sorts; partnerships, corporations, and trust or holding companies.

(a) *Partnership.*—A partnership is an agreement entered into by two, three, or more persons to carry on business as a firm rather than as individuals. The firm must have a name, and the name of the firm must be used in all firm transactions. Suppose two men, we will call them Mr. Smith and Mr. Jones, enter into partnership for selling groceries. The bank account will be in the name of

Smith and Jones. All bills will be rendered to Smith and Jones. This will be the firm name. Should others be admitted to the partnership, the firm name will probably be changed to Smith, Jones and Company.

There are as many kinds of partnerships as there are kinds of contracts by which these small business units are created. Commonly, the profits are shared in proportion to the amount of capital put in by each partner. It may be, however, that one partner furnishes the skill and business experience, while the other furnishes the money. In such a case, this skill and experience will be regarded as capital in the division of the profits. It may be that a young man with some capital desires to learn a business and, although he is taken as a partner, he will not, during his years of apprenticeship, share in the profits. Partners may or they may not pay themselves salaries out of the proceeds of the business before a profit is declared. These, and many other modifications are possible; but, whatever the terms of the contract, the firm stands on the street as a business unit.

The partnership has certain characteristics that should be noted. In the first place, the liability of the partnership is not limited to the amount of capital which each partner put into the business. Should a firm incur a debt and the business be unable to pay, the partners of the firm will be obliged to pay. What is called "unlimited liability" applies in the case of a simple partnership. The fact that when a man forms a partnership with other men he risks more of his property than he puts into the business, goes far to explain why partnerships are not favored by investors.

Another fact of some importance is that, from the point

of view of responsibility and control, the partnership is a loose and ineffective sort of business unit. Each partner has a right to have his say in every detailed question that arises. Under such conditions, it is difficult to maintain a consistent policy. This is an element of weakness as compared with other forms of business organization.

The lack of continuity of business life, also, should be mentioned. This is of special importance in the case of great industries. Men with money would not care to invest in a railway, for example, if the continuance of the business were in any way dependent on the life of any particular man or set of men. This, in practical effect at least, is true of partnerships, and it is perhaps the chief reason why great industries seek some other form of business organization.

Partnerships may be organized with limited liability, which means that for some of the partners, liability for the debts of the firm is limited to the amount of capital which they invest. Joint-stock companies are another phase of organization due to the desire to overcome the weak points in simple partnership. But a full understanding of all the various kinds of business units that stand between the individual on the one hand and the corporation on the other, would require a course in the study of law. They are all illustrations of voluntary association. They all stand for the integration of business activity. They all fit into our idea of co-operative work. All that has been said respecting competition, the influence of a desire for profit, and the like, applies to business units of this class as well as to individuals.

(b) *Corporations.*—Corporations are a form of business organization especially adapted to the creation and

management of great industries. They are business units and at present are the most important form of business integration. They are created by law and stand before the law as persons. They are sometimes called legal persons. They can hold property, borrow money, sue and be sued, and exercise most of the business rights which the law confers on individuals.

A partnership can come into existence by means of a contract between partners. A corporation, on the other hand, must be created by the state. Originally, when business men desired to form a corporation, it was necessary for them to go to the Legislature for a special act giving them the right to incorporate. Experience showed this to be an unnecessary burden on business enterprise. It was thought, also, that the right to incorporate should be made general and that the step leading to incorporation should be as simple and inexpensive as possible. These considerations led to the enactment of general laws of incorporation, by which any set of men who so desire, and who are able to meet the conditions laid down by the law, may organize a business enterprise as a corporation.

The responsible partners in a corporation are the stockholders; at least, such is the theory. These furnish the money to start the business. According to common practice, the corporation issues a certain amount of stock, say ten thousand shares of $100 each, which would make a stock capitalization of $1,000,000. This money is spent by the corporation in the purchase or the construction of a business. Every stockholder owns what is called "an undivided interest" in the business up to the amount of stock he holds. For example, in the above case, a

man who holds one thousand shares owns an undivided interest in one-tenth of the property of the corporation. He does not, however, own any particular piece of the property. A stockholder in a railway corporation, for example, could not say that any particular rail or bridge belonged to him. These things and all other assets belong to the corporation.

The stockholders have two rights by virtue of being stockholders. They can vote for the Board of Directors, whose duty it is to manage the business or to appoint officers for that management, and they can claim as a personal asset the earnings of the business. These earnings may be paid to the stockholders in the form of dividends, or they may be carried by the corporation as a surplus. But the stockholders own the surplus.

Not all of the capital needed by a large business is collected by the sale of stocks; the issue and sale of bonds is also freely practiced. A bond is a promise on the part of the corporation to pay, say $100 in fifty years from the date of issue, and the added promise to pay annually interest at say five per cent until the principal of the bond is paid. Technically speaking, a stock certificate is evidence of proprietorship; a bond, on the other hand, is evidence of an obligation. As long as the interest is paid, the bondholder has no voice in the management of the property. If, however, the corporation is at any time unable to pay the interest, the courts will say that the corporation has failed, and give the property over to the bondholders. The legal process is to us a matter of no importance. The point is that corporations collect the funds with which to build and carry on a business by the issue and sale of stocks and bonds.

The weakness of partnerships as business units for large undertakings is in a large degree overcome by the fact that an investor in a corporation is liable only for the amount of capital which he invests. The theory is that the corporation owes the debts which it incurs, and that these debts are a lien on the assets of the corporation. If these assets are used up in paying corporate debts, the stockholders' stock becomes worthless; but the personal property of the stockholder is not put in jeopardy by the failure of a corporation in which he has invested. Under such conditions, men with money are willing to buy stocks. There is practically no limit to the amount of capital a well-managed corporation can get together.

Again, corporate organization provides for centralized management. The stockholders vote for the Board of Directors, but that is as far as their personal influence extends. There is, perhaps, no more highly centralized authority than is found in the administration of a great business organized as a corporation. This is necessary for efficient management.

And finally, the corporation as a business unit enjoys a continued existence. It is not dependent on the life of any particular set of men. In this respect, it is like the state. This fact also secures for the corporation a high degree of confidence from those who have money to invest.

The growth of corporations as purely business units is the growth of the last seventy or eighty years. In 1830, there were very few corporations in the United States; at the present time, there are in this country over three hundred and fifty thousand corporations. This is not strange when we hold in mind our industrial history.

Corporations have developed with the extension of the market and the growth of large industries. Without them, the marvelous expansion of the past seventy-five years would not have been possible.

(c) *Trusts and Holding Companies.*—The trend of business integration has gone beyond the development of the corporation. It has been carried to the extent of what may be roughly described as partnerships of corporations. They at first assumed the form of trusts; that is to say, the stockholders in the several corporations which it was desired to organize into a partnership, placed their stock in the hands of a trustee by whom the business of all the corporations was to be managed. By this means, a business unit composed of many previously independent corporations was created. This combination was called a trust, because the stock of the once independent corporations was placed "in trust" in the hands of the men who formed the central association.

It was claimed that trusts of this sort stifled competition. For that and other reasons, they are held to be illegal organizations, and trusts as such came to an end; but the holding company has taken the place of the trust. This in effect, though not in form, is a partnership of corporations. It at least secures unity of action on the part of what otherwise would be independent competing corporations. A holding company is brought about by the selection of one corporation out of a group of corporations that desire to realize community of action, to own and hold the securities of the other corporations. Or it may be that a new corporation is organized for the sole purpose of buying up the stocks and bonds of a group of corporations. This would bring about the same degree

of control over the actions of these corporations as the trust was supposed to exercise. Thus far, the courts have not ventured to say that holding companies are illegal because of the form of their organization. We may, therefore, recognize these business units as a phase of business organization, of which there are many illustrations in the business world of to-day.

The holding company is used in two ways. It may be used to bring under a centralized control the affairs of corporations which produce the same kind of goods, and offer these goods for sale on the same market; or, to bring together a series of industries which are closely related in the production of a given product. The United States Steel Corporation illustrates both of the above named conditions, but it is here referred to as a concrete illustration of the organization of correlated industries. In this case, the mines of iron ore in Minnesota, the railways that transport the ore to Lake Superior, the fleet that carries the ore to the ports on Lake Erie, the railways that connect the lake ports with the mills in Pennsylvania, the coke oven that produces the coke, the coal mines that furnish the coal from which the coke is made, the limestone quarries that furnish the stone, the furnaces that reduce the ore and make the steel, the rolling mills that take one step in the manufacture of the steel, shipyards, and other industries that are consumers of steel,—all these lines of industry are organized as a single business unit. They are controlled through a centralized holding of stocks and bonds. The United States Steel Corporation is an extreme illustration of business integration.

Two lessons may be learned from the foregoing description of business units. It shows, in the first place,

how far the business world has departed from the simple organization of the latter part of the eighteenth century. An organization adapted to the use of tools, small industries, and local markets is one thing: an organization adapted to the use of machinery, large industries, and a world's market is quite another.

In the second place, the development of corporations and holding companies as business units should make clear the fact that principles of control and governmental policies, which might have worked well when industries were simple and simply organized, may perhaps be ineffective for the realization of justice now that corporations and holding companies give character to industrial life. It is assumed by the theory on which Anglo-Saxon business law rests, that there will continue to be a large number of independent business units, rather than a small number of gigantic corporations, doing business. Does the existence of a relatively few big industries prove that the theory on which industrial society rests is a false theory? A mere description of the modern business world raises profound questions.

§ 56. Organization for Bargaining.—It is a universal fact of history that men who are conscious of the same class interests will organize for class benefits. The individual believes himself to be too weak, acting independently, to secure what he regards as his just dues; he therefore joins with others in the same plight, knowing that in union there is strength. This attitude of mind results in many sorts of class organizations. For the most part, these organizations in the industrial world have to do with sharing the product. We shall consider them under two heads, namely: labor organizations and

manufacturers' associations. It is not our purpose to discuss the propriety of such organizations, or to consider how far they may be efficient in attaining the ends sought. Our only purpose is to describe them as phases of business integration.

(a) *Labor Organizations.*—Since the introduction of machinery and the substitution of the factory system for domestic industry, what is known as the labor class and the labor interest has played an important rôle in the adjustment of industrial conditions. A laborer, it will be remembered, is an industrial worker who lives by the hire of his time and skill. He has no property in the capital with which he works nor in the goods he helps to make. His wages are his income, and he is interested in having the highest possible rate of wages set up in the production contract. His standing in the industrial world is fixed by the rate of pay for labor therein expressed. Where there is no very marked social barrier between the laborer and his employer, so that the two meet each other on a common footing, and where a little capital and a few assured customers are all that are needed to start a new business, the wage bargain between master and man is likely to be fair to both parties. This is true because each can compare what he gets with what the other receives, and because the ease of passing from the condition of man to that of master, and from that of master to that of man, keeps wages and profits about on the same level. Under such conditions, personal bargains result in a reasonable production contract from both points of view.

Since the introduction of great industries, however, the conditions for wage bargaining described above are im-

possible of realization. The difficulty of passing from the labor class to the employer class has greatly increased. Indeed, the possibility of such a transfer is no longer a controlling consideration in the modern business world. Nor is the wage bargain a personal bargain of industrial equals. On the one side, are a thousand men who seek employment; on the other, is a single man who controls the avenue to employment. The strength of the employer in this case is that he has full knowledge of the situation. He can hold off and dicker without fear of loss. He is what, in the language of the street, is called a "strong holder" for the purpose of making a bargain. The thousand men unorganized, on the other hand, are weak holders. They are ignorant of the number of places to be filled, as also of the prospects of the business that seeks their labor. They have no standard by which to judge what they may reasonably ask, and each man fears that too long delay in accepting the terms offered will mean that his neighbor is employed and that he is left without a job.

By organization, such is the argument, laborers become strong holders for the purpose of making a bargain. Having chosen a leader, the labor interest can be handled as a unit, thus bringing it up to the same level, for purpose of bargaining, as the employer who controls the opportunity of employment. The duty of this leader, also, is to study the industrial situation for the purpose of finding out what it is reasonable for laborers to demand. And finally, organization diffuses information to all members of a labor union of what other members of the union are willing to stand for, and thus eliminate the danger of a panic and a scramble for places. Whether this argument

be sound or not, it has convinced large numbers of workingmen, and has led to extensive organization among them.

These organizations take upon themselves many forms. Their constitution and by-laws show a wide range of aims. Their practices are at times open to censure. The rights which they claim under the law are not as yet fully recognized. To take up these topics would be to enter upon a study of those vexed questions that pertain to the labor problem. Our immediate task is accomplished if we recognize labor organizations of all sorts as voluntary associations which have sprung up in response to what is believed to be a class interest, and through whose agency the wage element in the production contract is largely determined. Trade unions are a phase of business organization: they are an illustration of the trend towards the integration of common interests in the modern business world.

(b) *Employers' Associations.*—Employers as well as laborers have thought it well to organize, and one purpose of their organization is to establish themselves as strong holders when called upon to frame production contracts. From one point of view, organization on the part of employers is an offset to organization on the part of laborers. Looked at historically, this is the third step in organization, for the purpose of making wage bargains, since the advent of great industries. The factory system itself brought that concentration of capital which, in the first instance, broke the conditions that made the laborer and his employer fairly equal for the purpose of striking a bargain. To even up, the laborers organized trade unions in which membership is confined to workers in particular trades. These equalized the bargaining strength of the

two parties so far as large industries are concerned. Who took the next step is not clear, but for the purpose of definite presentation it will be assumed that it was taken by the laborers, when they organized the independent trade unions into a kind of clearing house of labor interests. In this country, this centralized organization is known as the Federation of Labor. By this step, the employers felt themselves to be weakened for the purpose of striking a wage bargain, and, as a fourth and final step in the order of change, agreed to act together to regain their lost influence. This is the explanation of employers' associations, and in this explanation we find a graphic portrayal of the conditions under which production is now carried on.

Manufacturers Associations are associations which have for one of their aims the control of labor conditions for their members. The production of coal is carried on by standard scales of wages which are agreed upon by trade union leaders on the part of the miners, and Commissioners who represent the mine owners. A controversy over the wages of railway employees, provided the employees are organized, is handled for the Companies by a committee appointed by the American Railway Association, which is a national organization composed of railroad Presidents and General Managers. These are but illustrations of the high degree of centralized control, so far as wage bargains are concerned, which has been attained by the modern business world.

A conclusion of some importance may be drawn from the foregoing description. The fact that a considerable portion of laborers and employers are, either directly or indirectly, parties to all sorts and kinds of production

contracts, is something of a guarantee that the rate of wages agreed upon will prove to be a fairly stable standard wage. This means that all of these organizations are useful factors in the framing of production contracts by which the basal wage, the average interest, and the normal profit are determined. As long as the wage system, and all that it implies, lasts, this highly centralized organization of class interests must continue, for without its restraining influence, competition is likely to prove unduly tyrannical.

The lesson of this chapter seems to be clear as far as it goes. The general theory on which industrial society rests is that of the free play of personal interests. Among the personal rights recognized is the right of contract and of voluntary association. A study of the existing situation shows that this right has been used in such a way as to bring about the partial substitution of group action and group responsibility for individual action and personal responsibility. This has undoubtedly led to efficiency in production and stability of business procedure. At the same time, it must be conceded that, when men use the right of voluntary association for class benefits, they do so at the expense of personal freedom. This phase of business integration may mean the disintegration of established relations. Undirected and uncontrolled by the social will, this tendency threatens to overturn the business world as at present organized. This is a serious situation. A definite choice is forced upon us. It may be that the time has come when the state must assume the task, consciously, openly, and without apology, of keeping open the door of opportunity for individual enterprise. At least, the situation thus disclosed makes clear the existence of a very definite and very pressing industrial problem.

CHAPTER XIV

GOVERNMENT AND INDUSTRY

"The State, therefore, claims and exercises a controlling and regulating authority over every sphere of social life, including the economic, in order to bring individual action into harmony with the good of the whole."—INGHRAM.

THERE are two theories respecting the place government should occupy in the business world. According to the one, government should assume complete control over all co-operative activities; according to the other, government and industry should be kept entirely apart. The former relies on the political principle of control; the latter on the free play of commercial forces. The former is called industrial socialism: the latter may be called industrial individualism.

As a matter of fact, neither of these two theories has ever been adopted to the exclusion of the other. Every society of which we know has made use of both principles of control, and this will be true to the end of time. The philosophy that lies back of the relation of government to industry we leave for others to discuss; our task is confined to a description of the kinds of laws touching industry which modern governments think it wise to enact in order to secure the highest welfare of citizens. These laws are of four fairly well-defined classes as follows:

Factory legislation,
Enforcement of competition,
Exclusion of competition, and
Supervision of competition.

One who understands these phrases, and appreciates the legislative policies for which each phrase stands, has a fairly satisfactory grasp of the kind of problems that present themselves to those who frame and administer our industrial laws.

§ 57. Factory Legislation.—A factory law may be defined as any law which aims to lay down the conditions under which industry may be carried on; but which, in its administration, does not interfere with the industrial control exercised by competition. The law passed by Congress which limits continuous service on the part of train crews to sixteen hours a day, is a factory law. It prescribes a condition for the employment of one class of railway employees. The laws that control work in the coal mines of Illinois, are factory laws. Sunday-closing laws for barbers, laws that prescribe the conditions under which women may be employed, child labor laws, laws which aim to secure safety and health in factories,—these are all factory laws because they prescribe the conditions under which work can be carried on.

It seems then that the phrase "factory legislation" covers a large range of enactments. The name arose because the first laws of this class were passed to cure certain evils that arose in the cotton and woolen factories in England. Children were employed to run machines and were forced to work twelve or more hours a day. They ate in the factories, herded in dormitories for sleep, and no provision was made for their recreation or their education. The fathers and mothers were more interested in the wages earned by their children, than in the welfare of the children. As a result of this kind of treatment, it was soon observed that the children were growing into

an ignorant, stunted, and vicious manhood and womanhood. Of course, the state, which from its nature holds in mind the welfare of the community as a whole, stepped in and laid down by law the conditions on which children could be employed in factories; and, in so doing, opened up a line of legislative enactment which has gone into almost every branch of industry. It has come to be a recognized function of government to prescribe the conditions under which the free play of commercial forces will be allowed.

It seems, at first blush, that factory legislation is not in harmony with the principle of competition on which, as explained in Chapter III, our industrial order rests; and it is true that the first factory laws were strongly opposed on that ground. At present this opposition has passed away, but it will assist us to understand the kind of business world in which we now live, if the arguments urged in defense of this class of legislation are passed in review.

In the first place, it was made clear that the principle of free competition is not to be regarded as a natural law, or as a scientific principle which is superior to the control of reason. It is merely an expression of common experience that, for the most part, men work best when they are left to work in their own way, and that a condition of freedom tends to develop industrial efficiency as well as personal character. If, however, it is observed that the competition which actually takes place between employers, in their struggle for cheapness, is such as to bring about well-defined and widespread evils, the state must step in and regulate competition. (The presumption is in favor of freedom, but presumption must give way if the facts are against it.) This is one line of argument in

support of factory legislation. Every proposed law is considered on its merits.

The second argument in support of factory legislation recognizes that competition in itself is a blind force. While it makes for efficiency in production, it has no regard for moral standards. Unrestricted by law, its tendency may be to depress industrial conditions. In the case of child labor, for example, it might be that only one of ten competing manufacturers would care to increase his profits by the employment of children. If one manufacturer chose to do this, however, the other nine must follow. At this point, the law steps in and says that the manufacturer who disregards the rights of childhood should be required to carry on his business in a manner which approves itself to the other nine. To use a technical phrase, a child labor law of this sort determines the plane of competition for all competitors. The productive principle of industrial freedom is in no sense impaired by such a law, but society is guarded against the evil results of the unregulated competition.

Such is the formal or logical defense of factory legislation. All competition must conform to some general standard. The important question is, whether the best men or the worst men in the community shall set that standard. Under unregulated competition, the worst methods, from the social point of view, will prevail provided they lead to cheap production; under wise legislative enactments, the higher moral standards of the community may be realized in business. It is the task of government to determine the plane of competition.

It seems then, that factory legislation can be defended on both practical and theoretical grounds. Of more

importance to us, however, is the fact that through factory legislation the government finds a definite and a permanent place in industry. It builds the framework of the business world, and should build it in such a way as to get the best, rather than the worst, out of the force of competition. It is a proper function of government to protect citizens from the evils of unregulated competition.

§ 58. Enforcement of Competition.—The lesson has already been learned that just prices, just contracts and in general just results in business affairs, are the normal outcome of an open market. Especially will this be true if government enacts wise laws for the control of markets. Freedom in the production, the sale, and the purchase of goods, under such conditions as an effective government may see fit to impose, tends to establish and maintain a reasonable and an equitable scale of prices.

It is not, however, at all times easy to maintain an open market. In some kinds of business, and under some conditions, it is possible for individuals to block the flow of goods, and by so doing to force competition to work for their personal benefit. (Those who are competitors may agree not to compete, and by this means create a monopoly in the business concerned.) There are many ways in which the right of free contract can be used to destroy a condition of free industry. The result is that prices which ought to conform to the cost of production and thus yield a normal profit, come to be monopoly prices and to yield a speculative or a monopoly profit.

Such a situation is contrary to the idea of industrial freedom which the modern business world aims to realize. The only way that buyers have to circumvent the monop-

olist is to refuse to buy the goods which the monopolist offers for sale. That is to say, the public can, by boycotting the goods produced under conditions of monopoly, force the monopoly out of business. At present, however, this means of controlling prices in the interest of consumers is not very extensively employed. Rightly or wrongly, that we need not discuss, it is the inclination of Western peoples to assume that the government will protect its citizens from the evils of monopolies of all sorts.

To a slight extent the government has recognized this responsibility. Our courts, for example, are usually ready to annul a contract that is "in restraint of trade." Our legislators, also, have passed "anti-trust laws", the object of which is to destroy any business organization that has for its purpose the control of competition to the detriment of the public. Such a purpose on the part of government is sound. These monopolies ought to be destroyed. Competition ought to be restored as the regulator of business.

We cannot press further our consideration of this, the most difficult public question of modern times. Our description of the modern business world demands the frank recognition of the wide prevalence of industrial monopolies. How the problem will be solved, we cannot say. Nothing very definite or effective has yet been done, either by voluntary movements on the part of buyers, or by government. The situation still awaits a wise statesman. Our lesson, however, is learned when we come to see that the growth of monopolies under freedom of contracts, opens up to government a line of conduct which otherwise government might wisely avoid. Here, as everywhere among English speaking peoples,

fact and not theory controls the relation of government to industry.

§ 59. Exclusion of Competition.—The above paragraph refers to private monopolies. Public monopolies are not open to the same criticism, for the reason that public industries are not administered under the influence of the desire to reap the highest possible profit. If the government own and operate an industry, the profit, if profit accrues, goes to the public treasury, and all questions of organization and management are decided from the point of view of the public service. Such reasoning has led many to urge that the government should own and operate all industries, and that all citizens should be in the employ of the state in one capacity or another. They who urge this program profess to believe that competition always works badly; that it cannot be controlled; and that the only thing to do is to exclude it from the business world altogether.

While one cannot say that the program of the government ownership of all industries has many adherents, it is true that, in certain lines, the tendency towards government ownership is quite strong. The industries to which this tendency pertains are known as public service industries. The common experience of cities with privately owned water works, illustrates quite well the change in public opinion with regard to public service industries. At one time it was supposed that water rates and water service could be controlled by competition, provided a city could bargain with two or three companies for price and for service. It is now universally conceded that such a policy fails to work; that, sooner or later, the competing water companies will combine and by this

means throttle competition. Then the price for water goes up and the grade of the service goes down.

The same is true of telephone companies, gas companies, and companies organized for the production and the sale of electric light and power. Street railways and public wharves fall within the same class; and perhaps steam railways should also be added.

Here, then, is a class of industries that stands by itself. Experience shows that the principle of competition cannot force from these industries their best service at reasonable rates, and, as a consequence, appeal is made to the political principle. One way of applying this principle is through government ownership and management. This is what the caption which stands at the beginning of this paragraph means. (A government owned and operated industry is a case of the "exclusion of competition.") Competition is dethroned as a principle of control, and reliance is placed for fair and efficient management on rules of political science. Government owned and government operated industries are an integral part of the state, just as the army, the courts, or the post-office are parts of the state.

Two lessons may be learned from the foregoing.

First. The business world is not confined to business units organized for the production of a profit. An electric lighting plant owned and operated by a city is as truly a business unit as a cotton factory organized as a private corporation, owned by the stockholders, and operated by a Board of Directors. Industrial society, as it stands today, recognized both public and private industries.

Second. At present, public industries are confined to industries which, from their nature, or because of the

conditions under which they exist, are superior to the normal control of the free play of commercial forces. The decision on the part of municipalities to take on industries, such, for example, as the supply of water, light, or transportation, was a decision that sprang out of the necessities of the case. Certain persistent evils were observed to result from private management, and on that account citizens voted for public management. It is worth while to recognize this fact, for it goes far to make clear the kind of world in which we live, and the way it came to be what it is. Its condition at any particular time, or its development from time to time, is the result of a multitude of practical decisions on practical questions. So far as these decisions prove to be wise, they persist and the organizations to which they lead become a permanent part of the industrial structure; if, on the other hand, they prove to be futile, they are set aside and some other plan is worked out. One who grasps firmly the process by which the business world has come to be what it is, will never be influenced by some frenzied orator who, because he can point out things that are not quite right, wants to destroy everything that is, and reconstruct the world on some plan of his own making.

§ 60. Supervision of Competition.—There is another plan by which the evils of competition can be overcome, a plan which finds many illustrations in our modern business world. The ownership and the management of industries not subject to the normal control of competition, may continue in private hands, but the government will undertake to exercise administrative supervision over that management. In the case of factory legislation, the law-making body lays down the conditions under which pri-

vate business can be carried on. This is all right when those conditions are relatively simple and can be expressed in exact language. It is not always possible, however, for the law makers to do this in a successful way for all lines of industry. The details of a business may be so intricate that no general law can be framed that will not do more harm than good. In such cases, the law-making body must content itself with laying down certain general principles, and then hand over to a Commission, or a Board, the task of applying the principles to particular situations as they arise.

The Railroad Commissions of the states or of the Federal government are illustrations of administrative jurisdiction. They were created to exercise supervisory control over railway industries, but the plan may be applied to other lines of industry as well. The laws creating Commissions first recite certain specific acts that are unlawful. For example, discrimination between the patrons of railways, or between the places which railways serve, is declared to be unlawful. A railway that charges Mr. A $10 for a service and requires Mr. B to pay $15 for the same service, commits an act contrary to the law and may be punished accordingly. The evil of discrimination lies in the fact that the shippers who pay the top price for freight do not have a fair chance, when brought into competition with other shippers. This law of Congress which forbids discrimination on the part of railways is justified, because it keeps open the door of opportunity for the rank and file of industries.

This law also says that all rates must be reasonable, and that unreasonable rates are unlawful. It is the task of the Commission to say what rates are and what are not

reasonable. Here is a case in which the government fixes a price and does so in order to protect consumers against monopoly and speculative prices. The purpose of this law is to restrain or control competition.

The administration of these laws is placed in the hands of Commissioners appointed for that special purpose, but the method of administration is of no importance to us at this time. Our interest in this matter is confined to the light which it throws on the place occupied by government in the modern business world. Whether, in case of public service industries, the government chooses to own and operate them, or to exercise administrative supervision over them, the general point of view is the same. Competition cannot control these industries in a satisfactory way, and for that reason appeal is made for public control. Those who put their faith in a society built up in this haphazard way, do so because they believe that better results will follow a policy that corrects specific evils when they appear, than a policy which aims to organize everything with scientific precision at the outset.

§ 61. Other Avenues of Influence.—There are many other ways in which government comes into touch with industry, besides those named above. The certainty of protection in the enjoyment of such rights as the law allows is essential for the stimulation of industrial enterprise. Life, property, and the enforcement of contracts, must be assured or there will be no industry. A state of anarchy or of uncertainty is deadly for the business man. No high-grade business enterprise ever developed except under the protection of a strong and just government. History affords many illustrations of the truth of this statement.

In addition to the function of protection, and those activities of the state described in the foregoing paragraphs which have for their purpose the elimination of evils traceable to competition, the machinery of government is called into use for the attainment of three general ends.

(a) *Services that must be Universal.*—In case the service to be rendered must be universal in order to be effective, government is obliged to step in and assume full responsibility. The Postoffice Department affords a good illustration. In the matter of carrying the mails, it is not possible to confine this service to those localities in which the service makes a profit. It may be as important that a citizen of Ohio should send a letter to a correspondent in Montana as in the next county. But this would not be possible if those letters only were carried that give a profit, as would be the case if the mail business were handed over to a private corporation. The Postoffice principle is, that every citizen in the country should have the use of mails on equal terms, and that the profit made in those parts of the country where traffic is dense should be used to make good the loss where traffic is sparse. This principle is of fairly wide application, and explains many things which governments do as well as the manner in which they are done. Services of this sort are complementary to services rendered by private enterprise. Both are a part of the business world as it is now organized.

(b) *Services that must be Standardized.*—Another line of services which the government may properly undertake are those in which the ruling principle is found in the need of maintaining standardized conditions. Public education is a case in hand. Education might be made a purely commercial matter; and this would doubtless be

the case if the chief end of education is to benefit the one educated. This is not, however, the view commonly entertained. The benefit to the individual is incidental; the ultimate object of education is to create and maintain an intelligent and efficient nation. Neither the industrial program accepted by modern peoples, nor the political constitution under which men live, can be worked by an ignorant population.

Another illustration is found in the public health service. The object of this service is not to cure the sick—that is left to the doctors who are paid by the persons whom they benefit. The object is rather to maintain a condition of health for the community as a whole. The water and the air must be pure; the streets must be clean; the garbage and filth must be cared for; the spread of contagious diseases must be prevented. These are the responsibilities assumed by government with regard to public health. This service could not be rendered by private enterprise. Not only is there no product that can be offered for sale, but the people who are the least able to pay for the service are those who in many cases are the occasion of the expense. From its nature, the public health service must be assumed by the government and carried on in much the same way that the police department is carried on. Private enterprise could not do this. The health department is typical of quite a class of similar services rendered by government.

(c) *Industrial Significance of Taxes.*—This enumeration cannot be concluded without mention of the exercise by government of the power to tax. Taxation is not, of course, an industry. The government produces nothing, nor does it render a service, when it levies and collects a

tax. On the contrary, the object of taxation is to secure funds for the support of those services which government renders gratuitously, or for a fee not at all commensurate with the cost of the service. Taxation as such has no industrial results. It has in itself no bearing on the relation of government to industry. All that might be said along this line has already been said in pointing out the non-commercial services which government renders to its citizens.

Nevertheless taxation does at any particular time exert an important influence on the character of the business world and the success of business undertakings. Technically defined, taxes are contributions for the support of the state. They are levied by law and collected by authority. Taxes may be levied in many ways, but all without exception, either directly or indirectly, come out of the private income of citizens, or are paid by the business before those who own the business get a profit. For our purpose, therefore, we may say that the state is supported by contributions paid out of private incomes.

The industrial significance of taxation does not depend as much upon the amount of money which the government demands, as upon the methods followed in the levy and collection of that amount. Provided the government confines its services to those things that government can do the best, and provided taxes levied for the support of such services are properly levied, the business world may be prosperous and successful notwithstanding the fact that taxes are high. It is bad taxation, and not taxation as such, of which complaint may be justly made.

This explains why those who frame tax laws endeavor to distribute the amount to be paid in proportion to the

ability of citizens to pay. Not only is this equitable in itself, but it distributes the burden of taxation in such a way that it is most easily borne. The situation is something like that of the soldier and his knapsack. Much attention has been given to the proper loading of the kit, and the proper adjustment of the straps, in order that the load may be borne with the greatest ease. In much the same way a distribution of taxes in proportion to the ability of citizens to pay is an effective adjustment of the tax burden. By this means the load is made to appear lighter. The moral effect also is good. Everyone feels that he is doing his fair share of a common duty, and that an incompetent government is not imposing on him more than his fair share.

This, then, is the lesson. Taxes, in and of themselves, exert little or no influence on the business world, but a bad system of taxation or a good system badly administered, spreads its baneful influence throughout the entire industrial field. The evils which result from bad taxation can only be set aside by reform in the taxing system.

There is one exception to the above statement. The machinery of taxation has been used, and there are many who advocate its use, to attain other results than that of collecting the amount of money needed to meet public expenditures. To this extent taxation has a direct influence in modifying the conditions that exist in the business world. An illustration will make this clear.

Rent, as an income that goes to those who own land, is not affected by changes in the cost of producing goods. It is the difference between the highest cost and the lowest cost of producing goods, all of which will be bought when brought to the market for sale. An increase in rental income accrues to those who own land without their doing

anything to deserve the increase. This is thought by some to be unfair, and they propose to take away this rental income by a special tax on rent. Such a use of the taxing machinery would have a decided influence on the character and organization of the business world.

Another illustration may be given. Suppose it is not possible to do away with monopoly gains by general laws or supervisory commissions. These monopoly incomes, it is urged, are unfair. They are not in keeping with the theory that free competition can attain equity in the sharing of the current product. This being the case, it is urged that a special tax should be imposed on monopoly incomes. Such a plan, if carried into effect, would have considerable influence on the way things go in the modern business world.

The progressive income tax, that is to say, a tax on incomes at a rate that increases as the amount of income to be taxed increases, is another illustration of the point in hand. But enough has been said to make clear what is meant by making use of the taxing machinery for other than revenue purposes. Nothing which government can do is more powerful in its influence on the character and conduct of the business world, than this proposal to cure the evils of competition by the use of the taxing machinery. From two points of view the problem of taxation is a problem by itself: From that of the proper levy of taxes in order to make an equitable distribution of the tax burden, and that of the removal of criticisms on industrial society as at present organized, by special taxation. But enough has been said to show the place of taxation in the modern business world.

§ 62. Conclusion.—The points submitted in this chap-

ter may be made clear by a cursory restatement. The impression which one receives from Chapter III of this treatise, which deals with the legal background of industrial society, and from the chapters which explain the principle of social control and the workings of the market, is to the effect that justice and efficiency are likely to flow from the free play of commercial forces. The impression derived from our discussion of the laws of price and the sharing of the product, is that in some particulars the principle of free competition fails to produce all the results that citizens may reasonably ask from a well-ordered industrial world. The impression of the present chapter is, that government, as it actually exists among English speaking people, sets before itself, consciously, the task of curtailing the evils that flow from unregulated competition, while guarding the benefits that flow from the acceptance of the free play of commercial forces as a principle of industrial and social control. It is this purpose that has led modern governments to enter on the five lines of activity described.

First. Factory legislation that has for its purpose to standardize conditions of work and thus determine the plane of competition.

Second. Those legislative enactments and decisions of our courts which have for their purpose the prevention of combinations designed to throttle competition.

Third. The assumption by government of direct ownership and operation of such industries as, from their nature, are public in character, and which do not readily submit to supervisory control.

Fourth. The development of supervisory administration over industries not satisfactorily controlled by

competition. As a plan of reform, this is an alternate to that of public ownership and control. No clear line has yet been drawn between these two plans. Both, at present, are a part of the modern business world.

Fifth. In case the foregoing devices do not succeed in the attainment of the end sought, which is to establish a truly democratic industry, there is a tendency to use the taxing machinery for the restoration of conditions that seem to be fair in their results.

No opinion is expressed on the relative merits of these plans. This chapter is written to make clear the fact that government is an essential part of the business world. It is a corporation organized for service without profit to itself, but a corporation in most of its essential features, quite as much as a railway company or a blast furnace company. The relation between government and industry is one that cannot be disregarded by one who undertakes to describe the modern business world.

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